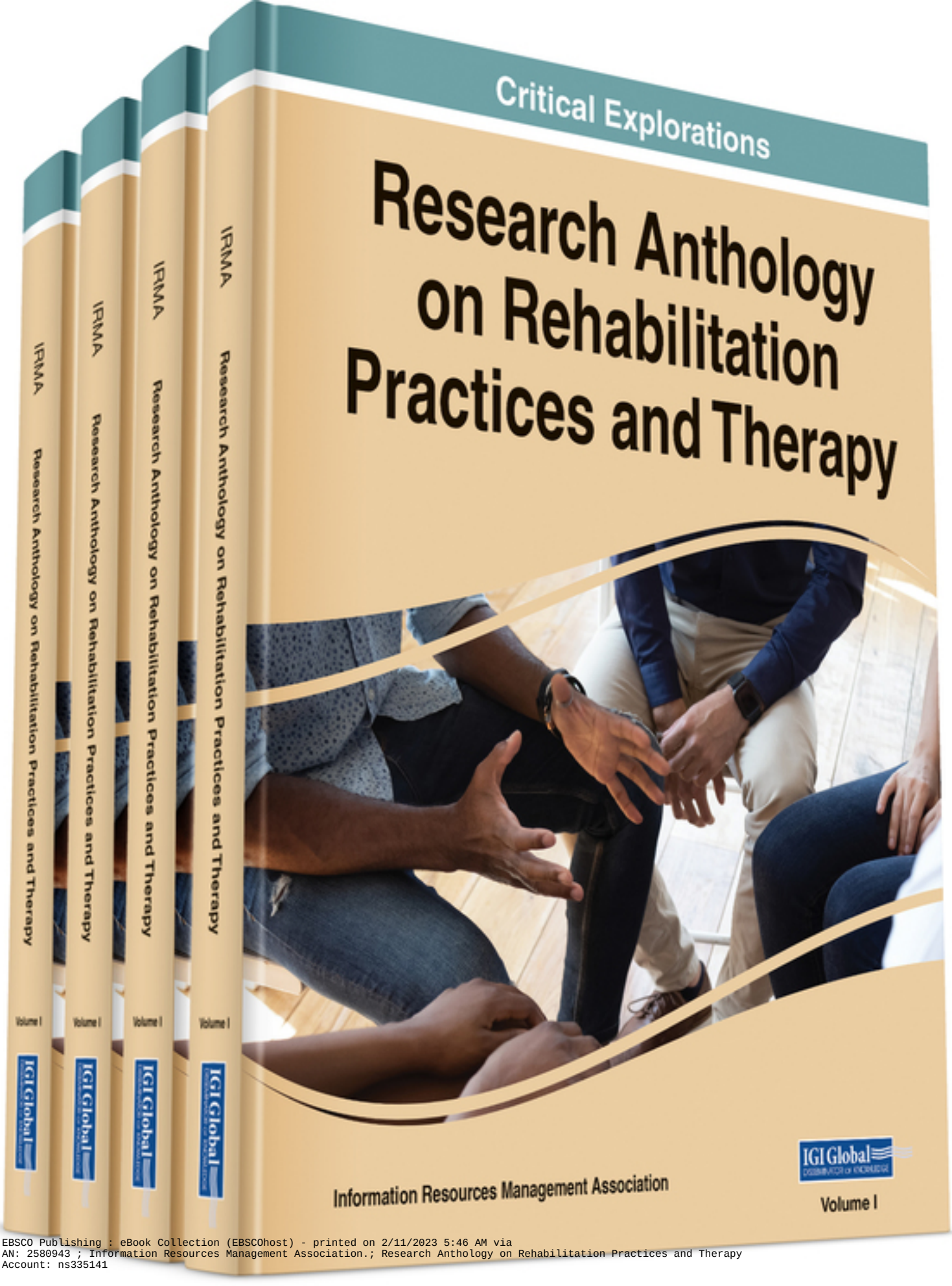

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Preface

The availability of practical applications, techniques, and case studies by international therapists is limited despite expansions to the fields of clinical psychology, rehabilitation, and counseling. Mental health is an essential part of overall well-being, but only recently is our understanding of how to treat it in the long term becoming more thorough and thus more effective. Additionally, advancements in physical therapy continue to grow with the emergence of new assistive technologies, including virtual and augmented reality, as well as a new emphasis on alternative and complementary medicine techniques, such as yoga. As dialogues surrounding mental health and physical therapy grow, it is important to maintain therapeutic modalities that ensure the highest level of patient-centered rehabilitation and care are met across global networks.

Staying informed of the most up-to-date research trends and findings is of the utmost importance. That is why IGI Global is pleased to offer this four-volume reference collection of reprinted IGI Global book chapters and journal articles that have been handpicked by the editor and editorial team of this research anthology. These volumes will shed light on critical issues, trends, and techniques in counseling and therapy by providing both broad and detailed perspectives on cutting-edge theories and developments. This reference is designed to act as a single reference source on conceptual, methodological, technical, and managerial issues and provide insight into emerging trends and future opportunities within the field.

Rehabilitation Practices and Therapy: Concepts, Methodologies, Tools, and Applications is organized into seven distinct sections that provide comprehensive coverage of important topics. The sections are:

1. Fundamental Concepts and Theories;
2. Development and Design Methodologies;
3. Tools and Technologies;
4. Utilization and Applications;
5. Organizational and Social Implications;
6. Critical Issues and Challenges; and
7. Emerging Trends.

The following paragraphs provide a summary of what to expect from this invaluable reference tool.

Section 1, "Fundamental Concepts and Theories," serves as a foundation for this extensive reference tool by addressing crucial theories essential to the understanding of rehabilitation practices and therapy. Introducing the book is "Roles and Importance of Ethics in the Counseling Profession," by Prof. Sussan Olufunmilola Adeusi (Covenant University, Nigeria), which lays the groundwork for the basic ethical framework within which rehabilitation and therapy must operate. Section 1 concludes and leads into

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the following portion of the book with the chapter, "A Primer for Beginners in Pharmaceutical Care: A Call-to-Action to Pharmacists," by Prof. Marcus Vinícius Dias-Souza (Dias-Souza Faculty of Health Sciences, University Vale do Rio Doce, Governador Valadares, Brazil).

Section 2, "Development and Design Methodologies," presents in-depth coverage of the conceptual design and architecture of rehabilitation practices and therapy. Opening the section is "The Assessment for Career Counseling Skill for Teacher at High School: A Case Study in Vietnam," by Prof. Duyen Nguyen Thi (Hung Yen University of Technology and Education, Vietnam). Through the use of a case study, this section describes specific procedures and frameworks within rehabilitation practices and therapy. The section concludes with an excellent work by Profs. Muhammad Hassan Khan (Research Group of Pattern Recognition, University of Siegen, Siegen, Germany) and Marcin Grzegorzek (Faculty of Informatics and Communication, University of Economics in Katowice, Katowice, Poland), "Vojta-Therapy: A Vision-Based Framework to Recognize the Movement Patterns."

Section 3, "Tools and Technologies," presents extensive coverage of the various tools and technologies used in these fields. The first chapter, "Towards Cost-Oriented User-Friendly Robotic Systems for Post-Stroke Rehabilitation," by Profs. Iuliu Adrian Nadas (Technical University of Cluj-Napoca, Romania), Doina Pisla (Technical University of Cluj-Napoca, Romania), Calin Vaida (Technical University of Cluj-Napoca, Romania), Bogdan George Gherman (Technical University of Cluj-Napoca, Romania), and Giuseppe Carbone (University of Cassino and South Latium, Italy), explores solutions in implementing robotics for stroke victims. The section concludes with "An IoT-Based Platform for Rehabilitation Monitoring and Biosignal Identification," by Prof. Volkhard Klinger (Department of Embedded Systems, FHDW Hannover, Hannover, Germany), which focuses on the integration of the Internet of Things into medical technology. Where Section 3 described specific tools and technologies at the disposal of practitioners, Section 4 describes the use and applications of the tools and frameworks discussed in previous sections.

Section 4, "Utilization and Applications," offers insight on and important lessons for the applications and impacts of rehabilitation practices and therapy. The first chapter in the section is "Is It Real or Not? Experiences of Synchronous Learning and Training for Counseling Graduate Students," written by Prof. Katie Koo (Texas A&M University – Commerce, USA), and it discusses synchronous learning methods and tools to train practitioners. This section includes the widest range of topics because it describes case studies, research, methodologies, frameworks, architectures, theory, analysis, and guides for implementation. The breadth of topics covered in this section is also reflected in the diversity of its authors, from countries all over the globe. The section concludes with "The Diversity Management for Employment of the Persons With Disabilities: Evidence of Vocational Rehabilitation in the United States and Japan," by Profs. Kai Seino (Toyo University, National Institute of Vocational Rehabilitation, Japan), Aoi Nomoto (Chiba University, Japan), Tomohiro Takezawa (National Institute of Vocational Rehabilitation, Japan), and Heike Boeltzig-Brown (University of Massachusetts-Boston, USA), which explores vocational rehabilitation for people with disabilities and serves as a great transition chapter into the next section.

Section 5, "Organizational and Social Implications," includes chapters discussing the organizational and social impact of rehabilitation practices and therapy. The section opens with "Play-Based Bereavement Centers for Children and Families," by Prof. Renee Turner (University of Mary Hardin-Baylor, USA), which focuses on counselor training of working with bereaved children and families. This section focuses exclusively on how these technologies affect human lives, either through the way they interact with each other or through how they affect behavioral/workplace situations. The section

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concludes with "Cross-Cultural Decision-Making in Healthcare: Theory and Practical Application in Real Clinical Conditions," by Profs. Tomasz Komendziński (Nicolaus Copernicus University, Poland), Emilia Mikołajewska (Nicolaus Copernicus University, Poland), and Dariusz Mikołajewski (Kazimierz Wielki University, Poland & Nicolaus Copernicus University, Poland), which examines intercultural communication in healthcare.

Section 6, "Critical Issues and Challenges," covers the limitations present within the field and explores solutions that propel rehabilitation practices and therapy forward. The section begins with "Introducing Psychological Concepts and Methods to Cybersecurity Students," by Profs. Jacqui Taylor (Bournemouth University, UK), Helen Thackray (Bournemouth University, UK), Sarah E. Hodge (Bournemouth University, UK), and John McAlaney (Bournemouth University, UK), which analyzes the application of psychology practice offers to cybersecurity education. Chapters in this section examine theoretical approaches and offer answers to crucial setbacks on the subject of rehabilitation practices and therapy. The section concludes with "An Examination of Selfish and Selfless Motives: A Review of the Social Psychological and Behavioral Economics Literature," by Prof. Gabriela Carrasco (University of North Alabama, USA) and Eric Kinnamon (Alabama A&M University, USA), which explores the flaws in ascertaining selfish and selfless behavior.

Section 7, "Emerging Trends," contains chapters that look at what might happen in the coming years that can extend the already staggering amount of applications for Rehabilitation Practices and Therapy, opening with "A Happier Balance: Positive Interventions for Intentional Well-Being in Psychotherapy," by Prof. Daniel J. Tomasulo (Teachers College, Columbia University, USA & University of Pennsylvania, USA). This chapter describes the developmental history of well-being interventions and their next steps forward. The final chapter of the book addresses ethical violations and power imbalances in counselor education in the excellent contribution "Sexual Boundary Violations in Counselor Training and Supervision," by Profs. Daniel R. Cruikshanks (Aquinas College, USA) and Stephanie T. Burns (Western Michigan University, USA).

Although the primary organization of the contents in this multi-volume work is based on its seven sections, offering a progression of coverage of the important concepts, methodologies, technologies, applications, social issues, and emerging trends, the reader can also identify specific contents by utilizing the extensive indexing system listed at the end of each volume. As a comprehensive collection of research on the latest findings related to using technology to providing various services, *Rehabilitation Practices and Therapy: Concepts, Methodologies, Tools, and Applications* provides psychologists, therapists, psychiatrists, counselors, physical therapists, medical professionals, researchers, students, and all audiences with a complete understanding of the development of applications and concepts in this utterly essential field and its need for constant refinement. Given the vast number of issues concerning usage, failure, success, policies, and strategies in the operation of this field in countries around the world, *Rehabilitation Practices and Therapy: Concepts, Methodologies, Tools, and Applications* addresses the demand for a resource that encompasses the most pertinent research in technologies being employed to globally bolster the knowledge, procedures, and tools used in rehabilitation and patient care.

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Section 1

Fundamental Concepts and Theories

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Chapter 1
Roles and Importance of Ethics in the Counseling Profession

Sussan Olufunmilola Adeusi
Covenant University, Nigeria

ABSTRACT

Absence of rules, guidelines, or instruction in any setting will lead to chaos. Ethics is a written law, and in this chapter, the focus is on the role and importance of ethics in counselling. Ethics is the branch of philosophy that deals with the morality of human actions. Every professional body is governed by ethics and counselling profession is not exclusive. Counselling Association of Nigeria (CASSON) does not have already established ethical codes due to several challenges but the ethical codes of American Counselling Association (ACA) and British Association for Counselling and Psychotherapy (BACP) have been very helpful. These major associations (ACA and BACP) are guided by similar ethical principles and code of ethics. Without ethics, counselling will achieve nothing or very little of her goals. Hence, the roles and importance of ethics in counselling is crucial; it sets order and guarantees a total and healthy human development.

INTRODUCTION

In every society, there are either written or unwritten laws governing the affairs of the citizens or habitants. Absence of rules, guidelines or instruction in any given setting will surely lead to chaos or disorderliness because everyone will conduct him or herself in ways that he or she desires which may infringe on the right of others. No wonder the popular saying, "where there is no law, there is no sin", which simply implies that anything goes either good or bad and basically, when it is bad no one will get punished for such misconduct.

Wherever you find human beings gather or live together there are some unwritten laws that is been transferred from generation to generation. These unwritten laws are often seen or referred to as moral way of life that guides the action(s) of people to cohabit in a friendly and acceptable manner. Unwritten law is most commonly found in primitive societies where illiteracy is prevalent and it consists of those customs, traditions, practices, norms, and other maxims of human conduct while written laws are

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documented rules or guidelines designed for a group of people or profession to ensure compliance of members for the smooth running of the society or profession and when anyone errs, such any individual is punished as stated in the law.

Ethics is a form of a written law and as it relates to this chapter, the objective is on the role and importance of ethics in counseling profession.

BACKGROUND

Concept of Ethics

Ethics originate from the Ancient Greek word "ethos" which means habit or custom. According to Omoregbe (1993), there is no univocal or general consensus on the definition of ethics. Ethics is defined as the branch of philosophy which deals with the morality of human actions or as a branch of philosophy which studies the norms of human behavior. It is also defined as the branch of study that deals with what is the correct course of action for man, that is, the moral principles that govern a person's behavior or an activity. Ethics can also be seen as the study of right and wrong or ways of categorizing values that govern people's affairs or endeavors. Internet Encyclopedia of Philosophy defines ethics is the branch of philosophy that involves systematizing, defending, and recommending concepts of right and wrong conduct. Kidder (2003, p. 63) states that 'ethics is the science of the ideal human character' or 'the science of moral duty' while Paul and Elder (2006, p. 2) define ethics as "a set of concepts and principles that guide us in determining what behavior helps or harms sentient creatures".

Ekanola (1999) corroborates the definitions above by stating that ethics is concerned with philosophical inquiry about morality, moral problems and moral judgments. It was revealed that in the field of ethics, 3 aspects can be identified which are: normative-ethics, descriptive-ethics and meta-ethics.

- Normative ethics: the main focus is to make moral judgments about particular actions or kinds of actions and offer reasons to support the moral judgment made in order to show that the judgments are reasonable (example – prostitution is bad; it can lead to incurable diseases).
- Descriptive ethics answers factual questions about the moral view of individuals or groups. Basically, statements of fact are made about the moral views held by individuals, groups or society at large (example – "Sussan believes prostitution is bad", or "Christians hate corrupt practices").
- Meta-ethics: is concerned with questions about the meaning of ethical terms. It attempts to analyze ethical concepts in order to arrive at their actual meanings and logical relations.

In all, ethics is often used interchangeably with morality, though morality is the basis for ethics because it is not to describe the way people behave in practice but to state the way people ought to behave or conform which helps to bring orderliness or saneness to the society.

Concept of Counseling

The word counseling is used in many different ways by different groups. For instance, in churches, there are so called counseling for new converts, intending couples or couple experiencing challenges in their homes, and other church members but unfortunately those referred to as counselors overseeing the

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counseling sessions are not trained. Some terms like advice, guidance, assistance to mention but few are sometimes used to describe or define counseling which are not absolutely correct. Makinde (1984) defined counseling as an enlightened process whereby people help people by facilitating growth, development and positive change through an exercise of self-understanding. Counseling according to Olayinka (1999) is the process in which one person assists another person in a person to person or face to face encounter. This assistance may take many forms. It may be educational, vocational, social, recreational emotional and or moral. Counseling is a helping relationship; the relationship of trust and confidence between counselor (a trained personnel) and client; it is assistance given to the client in decisions that he must take; it is concerned more with the process of decision-making than with the quality of decision made; it is listening more than talking; it is seeing the client's whole, in all of his home relations, school relations and peer relations as these affect both the present and future. Counseling is a mutual relationship characterized by mutual respect, effective communication, genuineness and complete acceptance of the client by the counselor, and concentration on the needs, problems and feelings of the client.

In 2011, the Canadian Counselling and Psychotherapy Association Board of Directors passed a motion to adopt for use by CCPA the nationally validated definition and scope of practice for the counseling and based on their decision counseling was defined as a relational process based upon the ethical use of specific professional competencies to facilitate human change. Counseling addresses wellness, relationships, personal growth, career development, mental health, and psychological illness or distress. The counseling process is characterized by the application of recognized cognitive, affective, expressive, somatic, spiritual, developmental, behavioral, learning, and systemic principles. On this note, it is counseling is not advice given, it goes beyond mere guidance or assistance. Counseling can only be given by a professional (a trained person) while advice can be given by anyone. The aim of counseling is to enable clients to discover their own wisdom rather than have wisdom imparted to them by the counselor (because counselors are not supreme beings). The counseling process is intended to increase the client's ability to take control rather than depend on another.

Counseling Profession

A profession is a paid occupation, especially one that involves prolonged training and a formal qualification. Profession can be defined as occupation, practice or vocation requiring mastery of a complex set of knowledge and skills through formal education and or practical experience. According to Larson (1978), every profession have a professional association, cognitive base, institutionalized training, licensing, work autonomy, colleague control and code of ethics. In the light of this, counseling is a profession because it requires formal training, practical experience and other mention characteristics. The basic level required before anyone is qualified to be referred to as counselor is master's degree. A professional counselor is a highly trained individual who is able to use a different range of counseling approaches with clients. The counselor is considered to be an expert in helping people with troubles because he is skilled in applying an appropriate pattern to produce solution which may reduce the stress experienced by the client. Professional counselors maintain their skills though continued professional development and commit to behaving ethically. It is interesting to know that every profession is guided by a body (association) for the smooth running of the profession and this is where the issue of ethics comes to play.

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Features of an Effective Counselor

Counselors are not super beings who have a monopoly on emotional strength and wisdom. Nor are they omnipotent, or all seeing, or all-knowing but certain attributes are very essential to be able to be an effective counselor.

Different individuals (Corey, Corey & Callan, 1984; Idowu, 1998; Olayinka, 1999) use various words or terms to describe the required and appropriate attribute of a good counselor. Such words or terms include: goodwill, integrity, ability to listen, ability to look at oneself, ability to be present for others, knowledge of the theory, humility, empathy, growth orientation, kindness, good memory of details, patience, control of ones emotions, non-judgmental, being courageous, authenticity, tolerance of intimacy, insightfulness, flexibility, self-awareness and intellectual competence.

MAIN FOCUS OF THE CHAPTER

Ethics and Counseling

According to Akinade (2005), ethics are normative in nature and focus on principles and standards that governs relationships between individuals, such as counselors and clients. Ihuah (2002) affirms that ethics or morality refers to a code of conduct by which men live. Thus, counseling ethics or ethics in counseling represents the principles which prescribe, and or regulate the behavior (affairs) of counselors and clients. In counseling profession, basically in Nigeria, there is no "proper" or already certified code of ethics by the governing body – Counselling Association of Nigeria (CASSON) due to several challenges such as the relative newness of the profession in Nigeria (though history have it that counseling in Nigeria started in the year 1959), problem of registration of the association with the government to mention but few that is been encountered by the association. Omotosho (2008) affirms that Counselling Association of Nigeria is yet to come up with categorical, well-articulated and widely publicized statements that detail a broad range of practical standards for ethical professional practices that reflect core values of this profession. Nevertheless, the counseling body in Nigeria still believes and operates effectively bearing in mind the already established code of ethics by western bodies such as American Counseling Association (ACA) and British Association for Counselling and Psychotherapy (BACP).

The American Counseling Association (ACA) is a professional organization of counselors in the United States and they set out to "enhance the quality of life in society by promoting the development of professional counselors, advancing the counselling profession, and using the profession and practice of counseling to promote respect for human dignity and diversity" while the British Association for Counselling & Psychotherapy is a membership organization and a registered charity that sets standards for therapeutic practice and provides information for therapists, clients of therapy, and the general public. These major associations (ACA and BACP) are guided by similar ethical principles and code of ethics which are:

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BRITISH ASSOCIATION FOR COUNSELLING AND PSYCHOTHERAPY 2013 ETHICAL PRINCIPLES

Being Trustworthy: Honoring the Trust Placed in the Practitioner (Also Referred to as Fidelity)

Being trustworthy is regarded as fundamental to understanding and resolving ethical issues. Practitioners who adopt this principle: act in accordance with the trust placed in them; strive to ensure that clients' expectations are ones that have reasonable prospects of being met; honor their agreements and promises; regard confidentiality as an obligation arising from the client's trust; restrict any disclosure of confidential information about clients to furthering the purposes for which it was originally disclosed.

Autonomy: Respect for the Client's Right to Be Self-Governing

This principle emphasizes the importance of developing a client's ability to be self-directing within therapy and all aspects of life. Practitioners who respect their clients' autonomy: ensure accuracy in any advertising or information given in advance of services offered; seek freely given and adequately informed consent; emphasize the value of voluntary participation in the services being offered; engage in explicit contracting in advance of any commitment by the client; protect privacy; protect confidentiality; normally make any disclosures of confidential information conditional on the consent of the person concerned; and inform the client in advance of foreseeable conflicts of interest or as soon as possible after such conflicts become apparent. The principle of autonomy opposes the manipulation of clients against their will, even for beneficial social ends.

Beneficence: A Commitment to Promoting the Client's Well-Being

The principle of beneficence means acting in the best interests of the client based on professional assessment. It directs attention to working strictly within one's limits of competence and providing services on the basis of adequate training or experience. Ensuring that the client's best interests are achieved requires systematic monitoring of practice and outcomes by the best available means. It is considered important that research and systematic reflection inform practice. There is an obligation to use regular and ongoing supervision to enhance the quality of the services provided and to commit to updating practice by continuing professional development. An obligation to act in the best interests of a client may become paramount when working with clients whose capacity for autonomy is diminished because of immaturity, lack of understanding, extreme distress, serious disturbance or other significant personal constraints.

Non-Maleficence: A Commitment to Avoiding Harm to the Client

Non-maleficence involves: avoiding sexual, financial, emotional or any other form of client exploitation; avoiding incompetence or malpractice; not providing services when unfit to do so due to illness, personal circumstances or intoxication. The practitioner has an ethical responsibility to strive to mitigate any harm caused to a client even when the harm is unavoidable or unintended. Holding appropriate insurance may assist in restitution. Practitioners have personal and professional responsibility to challenge, where appropriate, the incompetence or malpractice of others; and to contribute to any investigation

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and/ or adjudication concerning professional practice which falls below that of a reasonably competent practitioner and/or risks bringing discredit upon the profession.

Justice: The Fair and Impartial Treatment of All Clients and the Provision of Adequate Services

The principle of justice requires being just and fair to all clients and respecting their human rights and dignity. It directs attention to considering conscientiously any legal requirements and obligations, and remaining alert to potential conflicts between legal and ethical obligations. Justice in the distribution of services requires the ability to determine impartially the provision of services for clients and the allocation of services between clients. A commitment to fairness requires the ability to appreciate differences between people and to be committed to equality of opportunity, and avoiding discrimination against people or groups contrary to their legitimate personal or social characteristics. Practitioners have a duty to strive to ensure a fair provision of counseling and psychotherapy services, accessible and appropriate to the needs of potential clients.

Self-Respect: Fostering the Practitioner's Self-Knowledge and Care for Self

The principle of self-respect means that the practitioner appropriately applies all the above principles as entitlement for self. This includes seeking counselling or therapy and other opportunities for personal development as required. There is an ethical responsibility to use supervision for appropriate personal and professional support and development, and to seek training and other opportunities for continuing professional development. Guarding against financial liabilities arising from work undertaken usually requires obtaining appropriate insurance. The principle of self-respect encourages active engagement in life-enhancing activities and relationships that are independent of relationships in counseling or psychotherapy.

AMERICAN COUNSELING ASSOCIATION 2014 CODE OF ETHICS

The 2014 ACA Code of Ethics replaces the 2005 edition. The new edition is the first code that speaks to the ethics of using social media with clients. It also presents new or expanded guidelines for preventing the imposition of counselor personal values, distance counseling, confidentiality, dual relationships, multiculturalism and diversity, the use of technology, recordkeeping, diagnosis, end-of life care and the selection of interventions. The ACA Code of Ethics contains nine main sections that address the following areas:

Section A: The Counseling Relationship

The section addresses client's welfare, counselors facilitates client's growth and development in ways that foster the interest and welfare of clients and promote formation of healthy relationships.

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Section B: Confidentiality and Privacy

Among other things, confidentiality is core in counseling. Counselors seek to earn the trust of clients, establish and uphold appropriate boundaries and communicate the parameters of confidentiality in a culturally competent manner.

Section C: Professional Responsibility

Counselors are expected to carry out certain functions such as to open honest and accurate communication in dealing with the public and other professionals, to facilitate access to counseling services, practice in a nondiscriminatory manner within the boundaries of professional and personal competence and have a responsibility to abide by the ACA Code of Ethics. Counselors are encouraged to actively participate in local, state, and national associations that foster the development and improvement of counselling.

Section D: Relationships With Other Professionals

Counseling is not an island, counselors recognize that the quality of their interactions with colleagues can influence the quality of services provided to clients. Thus, they work to become knowledgeable about colleagues within and outside the field of counselling, develop positive working relationships and systems of communication with colleagues to enhance services to clients.

Section E: Evaluation, Assessment, and Interpretation

Counselors use assessment as one component of the counseling process, taking into account the clients' personal and cultural context. Counselors promote the well-being of individual clients or groups of clients by developing and using appropriate educational, mental health, psychological, and career assessments.

Section F: Supervision, Training, and Teaching

Counselor supervisors, trainers, and educators aspire to foster meaningful and respectful professional relationships and to maintain appropriate boundaries with supervisees and students in both face-to-face and electronic formats. They have theoretical and pedagogical foundations for their work; have knowledge of supervision models; and aim to be fair, accurate, and honest in their assessments of counsellors, students, and supervisees.

Section G: Research and Publication

Counselors who conduct research are encouraged to contribute to the knowledge base of the profession and promote a clearer understanding of the conditions that lead to a healthy and more just society. Counselors support the efforts of researchers by participating fully and willingly whenever possible. Counselors minimize bias and respect diversity in designing and implementing research.

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Section H: Distance Counseling, Technology, and Social Media

Counselors understand that the profession of counseling may no longer be limited to in-person, face-to-face interactions. Counselors actively attempt to understand the evolving nature of the profession with regard to distance counseling, technology, and social media and how such resources may be used to better serve their clients. Counselors strive to become knowledgeable about these resources. Counselors understand the additional concerns related to the use of distance counselling, technology, and social media and make every attempt to protect confidentiality and meet any legal and ethical requirements for the use of such resources.

Section I: Resolving Ethical Issues

Professional counselors behave in an ethical and legal manner. They are aware that client welfare and trust in the profession depend on a high level of professional conduct. They hold other counselors to the same standards and are willing to take appropriate action to ensure that standards are upheld. Counselors strive to resolve ethical dilemmas with direct and open communication among all parties involved and seek consultation with colleagues and supervisors when necessary. Counselors incorporate ethical practice into their daily professional work and engage in ongoing professional development regarding current topics in ethical and legal issues in counseling. Counselors become familiar with the ACA Policy and Procedures for Processing Complaints of Ethical Violations and use it as a reference for assisting in the enforcement of the ACA Code of Ethics.

ROLES AND IMPORTANCE OF ETHICS IN COUNSELING PROFESSION

The followings are the roles and importance of ethics in counseling profession:

1. It establishes the ethical duties or responsibility of members;
2. It interprets the ethical codes thereby sensitizing all members and intending members about the best practices expected;
3. It reveals the role of members, prospective members and the population that is been served;
4. It helps to enhance the quality of life (or human development) in the society;
5. It promotes the development of members through research, publications and so on;
6. It provides adequate support for members against any form of uproar or challenges either with clients or other professionals;
7. It serves as the basis for processing inquiries and ethics complaints concerning member;
8. It empowers individuals to accomplish mental health, wellness, education, and career goals;
9. It encourages the practice of competence by members;
10. It safeguards the integrity of persons involved in the counseling relationship;
11. It promotes nondiscriminatory treatment of all clients;
12. It guides human conduct and appraises same.
13. It seeks to resolve the question of human morality and disciplinary procedures are set in place for those that erred.

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SOLUTIONS AND RECOMMENDATIONS

In Nigeria, it is an established fact that there is no certified code of ethics governing the Counselling Association and practice, therefore, it is recommended that:

1. The leadership of the association should not rest until a proper registration of the association is made with the government;
2. A certified code of ethics should be formulated;
3. There should be a periodic review of the code of ethics;
4. Appointment of monitoring team to monitor the implementation of the code of ethics;
5. Development and implementation of sanctions for non-compliance to the ethical codes.

FUTURE RESEARCH DIRECTIONS

To build a healthy nation, the role and importance of counseling profession cannot be overemphasized. Counseling profession in Nigeria should go beyond the four walls of educational institutions. Since the term counselor is used in various settings (especially in churches) and individuals giving the counsel are not professionals, Counselling Association of Nigeria should see to the possibility of establishing counseling centers in churches where professional counselors will render counseling services to clients. Alternatively, pastors should be encouraged to have a minimum of master's degree in counseling so as to provide counseling services in their churches.

Indigenous counseling is not new in African setting as a result, provision of counseling services is in existence in virtually all the countries in Africa. The part of culture in the formulation of ethical code cannot be sidelined and since there are similarities in culture in Africa, attempt should be made in the nearest future to harmonize counseling code of ethics in different countries in African.

CONCLUSION

In all human endeavors, the importance of counseling and counseling services cannot be over emphasized. Without ethics in counseling profession, activities will be haphazard and purposeless. There will be no goal to achieve; effort will not be appreciated, relationships will be abused and human development will be in jeopardy. Herlihy and Corey (2006) corroborate the African proverb which says "it takes a village to raise a child" and "it takes a village to create a code of ethics." It was revealed that it took more than 2 years to write, review, revise, discuss, re-revise, and finally approve and implement the ACA Code of Ethics. Therefore, it will not be out of context to say "no ethics, no counseling profession." Great effort that needs to be applauded was invested by the American and British Association for Counselling in the formulation of the ethical codes for the profession and virtually all the nations where counseling is in practice make reference to this two international bodies and follow the already established ethics for the profession.

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KEY TERMS AND DEFINITIONS

Codes: Words that are presented in a systematic way to represent a message or specific information.

Counseling: Assistance rendered by a trained counselor to an individual with educational, vocational, and personal problems.

Ethics: Moral principles that are expected to guide a group of people or a profession.

Guidelines: Instructions that are given or laid down for effective execution of tasks.

Laws: Guiding rules that must be obeyed.

Moral: Instructions on what is right or wrong in a given society.

Norms: Expected behavior or approved standards in a given setting.

Principles: Rules that guide one's action or way of life.

Profession: A job that requires training (or education) and specific skills.

Role: Expected responsibility.

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Chapter 2
A Current Review of Human Factors and Ergonomic Intervention With Exoskeletons

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ABSTRACT

Research and development of exoskeletons began as early as the 1960s. Recent advancement in technology has spurred a further research into the field specifically at rehabilitation and human performance augmentation. Human performance augmenting exoskeletons find use in the military, emergency services, industrial and space applications, and training. Rehabilitation exoskeletons assist in posture support and replacing lost function. Exoskeleton research is broadly broken up in this chapter by anthropometry: lower body, upper body, and extremities. The development for various anthropometry has their own unique set of challenges. This chapter provides a brief history, discusses current trends in research, looks at some of the technology involved in development, the potential benefits of using exoskeletons, and looks at the possible future improvements in research.

INTRODUCTION

This chapter provides a brief history of exoskeleton development from a human factors and ergonomic intervention standpoint. It discusses the current research with respect to the innate human-machine interface and the incorporation of exoskeletons for ergonomic intervention. Some novel exoskeletons based on their anatomical categories of lower body, upper body, extremities (hands/feet), and full body exoskeletons will be discussed. The chapter will conclude by covering the benefits of exoskeletons in

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rehabilitation, industrial applications, and military applications, as well as discuss some of the issues faced when designing exoskeletons.

It is imperative when performing research with exoskeletons to clearly define the difference between an exoskeleton and an orthotic because the two terms often overlap in the media as well as in the scientific literature. The term orthotic, or orthosis (plural orthoses) is generally a mechanical device applied externally to the body.

Similarly, an exoskeleton is also a mechanical device applied externally to the body but whose external mechanical structure has joints that anatomically match the human body. Typically, this mechanical structure will share physical contact with the user, will enable a direct or indirect transfer of mechanical power, and has either active or passive actuation (Pons, J.L., Moreno, J.C., Brunetti, F.J., and Rocon, E., 2007). A prosthetic is a device that substitutes a missing body part (Sansoni, S., Wodehouse, A., and Buis, A., 2014).

Hugh Herr defines exoskeletons and orthoses as follows: "The term 'exoskeleton' is used to describe a device that augments the performance of an able-bodied wearer, whereas the term 'orthosis' is typically used to describe a device that is used to assist a person with a limb pathology" (Herr, H., 2009).

OVERVIEW OF EXOSKELETONS

The field of exoskeleton research, design, and manufacturing is broad and expansive. The earliest work began in the early 1960's with the Defense Department's interest in a man-amplifier. This man-amplifier was a "powered suit of armor" that can augment a soldier's lifting and carrying ability (Kazerooni, H., Steger, R., and Huang, L., 2006).

General Electric's Hardiman, developed by Ralph Mosher from the early1960s to 1971, is widely considered the first exoskeleton device. This hydraulic and electrical body suit made carrying 250-pound seem as light as lifting 10-pounds. Ultimately, the concept of the Hardiman was well received but determined too heavy and bulky for standard military use. Not only was the exoskeleton heavy (weighing in at 1500 pounds), but it was also extremely slow (2.5ft/sec) and had uncontrolled, violent movements (Ali, H., 2014).

The United States Air Force commissioned the study of a man-amplifier from the Cornell Aeronautical Laboratory in 1962. The results of their study on this master-slave robotic system showed that exoskeletons, even those with fewer degrees of freedom (DoF) than the human body, was capable of completing most desired tasks (Mizen, 1965). However, the master-slave systems currently being used were deemed impractical. The devices were overly complex and had difficulty sensing human intent making many tasks difficult to complete (Kazerooni, H., Steger, R., and Huang, L., 2006).

Throughout the 1960's and 1970's, the University of Belgrade developed several types of exoskeletons that had limited predefined motion to aid paraplegics. They were met with limited success but the balancing algorithms that were developed are still in use in many current day bipedal robots (Vukobratovic, M., Ciric, V., and Hristic, D., 1972).

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USES AND MARKETS

In today's market, exoskeletons are broadly placed into two primary functions: (1) rehabilitation and (2) human performance augmentation. The recent surge into exoskeleton design, research, and manufacturing has led to their use into other fields like firefighting, sports, and law enforcement. The number of journal and conference papers covering exoskeletons each year has grown exponentially from just over 100 in 1964 to well over 7,000 in 2016. The number of publications on the term 'exoskeleton' is most likely skewed for years prior to the 1990's where the term was more often associated with the traditional sense of the word – that is, a rigid external covering for some invertebrate animals like arthropods.

Rocon (Rocon, E. et al. 2007) and Harwin (Harwin, W., Leiber, L., Austwick, G., and Dislis, C., 1998) classify rehabilitation robotics (and by extension rehabilitation exoskeletons) into three categories:

1. Posture support mechanisms
2. Rehabilitation mechanisms
3. Robots [and exoskeletons] to assist or replace body functions

Human performance augmentation exoskeletons are classified as exoskeletons designed to enhance, or augment, the capabilities of *healthy* people. Applications vary from fatigue reduction and lifting assistance to military focused use of increasing soldiers' endurance and load carrying capacity. Other examples of human performance augmentation classified exoskeletons include emergency services, construction, material handling (Brown, M., Tsagarakis, N., and Caldwell, D.G., 2003), and weapons training (Schnieders, T.M., Stone, R.T., Oviatt, T., and Danford-Klein, E., 2017) as well as any application that requires heavy lifting or heavy gear in rough terrain that is otherwise impassable by vehicles.

LOWER BODY EXOSKELETONS

Exoskeletons that are utilized in the lower body are primarily comprised of hip joint, knee joint, and ankle joints. Among the many different challenges involved in developing an exoskeleton for lower body are the interface between human and the exoskeleton, portable energy sources, controls, and actuators. The lower body exoskeletons can be divided into two types based on application: rehabilitation and enhancement capabilities of healthy human beings.

Most lower body exoskeleton robots were first designed to assist soldiers in supporting equipment. These wearable lower body exoskeletons can significantly reduce the oxygen consumption of soldiers and support energy for walking, running and help movement and operational capability of the soldiers (Yuan, P., Wang, T., Ma, F., and Goug, M., 2014). It is important to understand the biomechanics of humans to develop designs of exoskeletons and active orthoses for the lower limbs (Dollar, M.A. and Herr, H., 2008).

The Berkeley Lower Extremity Exoskeleton, or BLEEX, is the first energetically autonomous robotic exoskeleton that was successfully demonstrated to provide the operator with the ability to carry significant loads with minimal effort over any type of terrain. BLEEX has four critical features: (1) A novel control scheme, (2) high-powered compact power supplies – hydraulic and electric actuations that have been designed to power BLEEX, (3) special communication protocol and electronics, and (4) design

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architecture to decrease the complexity and power consumption (Chu, A., Kazerooni, H., and Zoss, A., 2005) (Zoss, A.B., Kazerooni, h., and Chua, A., 2006).

The BLEEX leg kinematics are similar to the human leg kinematics (anthropomorphic architecture). In general, BLEEX has ankle, knee, and hip joints like a person. The ankle has three DoF, just like a human ankle joint. However, only the dorsi/plantar flexion joint is aligned with the human joint. The knee has only one DoF (rotary) while the human knee has three DoF (rotary and sliding). This allows BLEEX to perform only basic flexion and extension. The hip has, like the human, three DoF. However, only the BLEEX hip flexion and extension joint is aligned with the human hip. BLEEX's final DoF is compliancy built into the front of the foot to yield similar flexibility to human toe joints (Zoss, A. and Kazerooni, H., 2006).

The BLEEX enables its wearer to carry a heavy load. It was first presented by U.C. Berkeley's Human Engineering and Robotics Laboratory supported by the Defense Advance Research Project Agency (DARPA) (Dollar, M.A. and Herr, H., 2008). The BLEEX seeks to supplement the intelligence and sensory systems of a human with significant strength and endurance with a pair of wearable robotic legs that offers a payload capacity (Chu, A., Kazerooni, H., and Zoss, A., 2005).

The HAL-5 system was developed from HAL-3. It is composed of three main parts: (1) exoskeleton and actuator, (2) controller, and (3) sensor (Uemura, M., Kamaoka, K., and Kawamura, K., 2006). Upgraded from HAL-3, the HAL-5 system utilizes a number of sensing modalities to control the EMG electrodes placed below the hip and above the knee on both the front and back sides of the user's body by connecting measurements, sensors, and the accelerometer (Herr, H., 2009) (Guizzo, E. and Goldstein, H., 2005).

In other words, the HAL-5 was updated from previous versions to include upper-body limbs, lighter and more compact power units, longer battery life, and a better body shape to fit humans more easily. This suit also includes two control systems— voluntary control and autonomous control (Guizzo, E. and Goldstein, H., 2005). Therefore, this version of the HAL exoskeleton is designed not only to help disabled patients in hospitals and the elderly, but also to support workers with demanding physical jobs, such as disaster rescue or construction (Guizzo, E. and Goldstein H., 2005).

Sarcos, an engineering and robotics firm, first developed the XOS2, a second-generation robotics suit, in 2006 after receiving a grant from DARPA. Sarcos was purchased by Raytheon in 2007.

The wearable suit enables the user to enhance human strength and agility, supports the soldier's capabilities for movement with power, and lift heavy objects (Raytheon, 2014). The XOS2, updated from a first-generation robotic suit—the XOS1 model, has the capability for a weight overload on one foot by using powered limbs. This exoskeleton can punch a bag, climb stairs, and kick a ball (Raytheon, 2014). Although these dynamic functions of the suit have been developed, an energy problem with the suit has not yet been resolved. It is limited due to a low battery density (Yuan, P., Wang, T., Ma, F., and Gong, M., 2014).

The XOS2 is a whole-body exoskeleton and does not entirely imitate the shape of humans with a much larger frame (Yuan, P., Wang, T., Ma, F., and Gong, M., 2014).

For military usage, the XOS2 needs to be reduced in size and have a simpler, more anatomic structure. The XOS2 utilizes several different sensors to minimize the amount of assistance the soldier receives. This allows for less effort by the soldier because the exoskeleton supports a large portion of the load (Yuan, P., Wang, T., Ma, F., and Gong, M., 2014)

The ReWalk, a wearable robotic exoskeleton, (Argo Medical Technologies Ltd., Yokneam Ilit, 20692, Israel) is one of the most unique exoskeletal robotic technology products that utilizes people's movements to control externally powered walking (Reinkensmeyer, D.J., Dewald, J.P.A., and Rymer, W.Z., 1999).

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The ReWalk supports powered hip and knee motion to enable individuals with a spinal cord injury (SCI) to stand upright and walk (ReWalk, 2014).

The design system allows independent, controlled walking and standing while simulating the natural gait patterns of the legs (Zelig, G. et al., 2012). The pilot study found that the ReWalk is safe and tolerated well. There were no significant complications related to cardiovascular stresses, fatigue, excessive skin pressure, and muscle pain (Zeilig, G., Weingarden, H., Zwecker, M., Dudkiewicz, I., Bloch, A., and Esquenazi, A., 2012).

In the study, eight participants successfully reached different levels of walking. Although the devices have significant potential physiological benefits, they still have not attained proficiency to be a functional daily use device. One of the major issues is that functional use of the commercially available ambulation devices for paraplegics is the high-energy demands imposed.

Developed by the Wyss Institute, the Soft Exosuit consists of a combination of sensors, such as a hyperelastic strain sensor and sensors around the wearer's hips, calves, and ankles secured by straps (Soft Exosuit, 2014). This Soft Exosuit has strong commercial potential for helping spinal-cord injury patients walk or helping soldiers carry heavy loads (Soft Exosuit, 2014).

The main benefit of the Soft Exosuit is its extremely light design due to the soft material. The soft flexible materials cannot only interface with the wearer but also provide a flexible structure so assistive torques can be applied to the biological joints (Soft Exosuit, 2014).

The wearer's bone structure must sustain all the compressive forces normally encountered by the body plus the forces generated (Asbeck, A.T., Dyer, R.J., Larusson, A.F., and Walsh, C.J., 2013). Therefore, the Soft Exosuit, as a potential tool, cannot only help physical workers with hard tasks and support gait but also assist in rehabilitation and protection from injury or spinal cords from impairment from heavy physical activity (Asbeck, A.T., Dyer, R.J., Larusson, A.F., and Walsh, C.J., 2013).

Focused on Low impedance – the RoboKnee, a prototype exoskeleton, presents low impedance to the wearer and has a natural interface. To achieve transparency, the exoskeleton must successfully perform the following functions: determine the user's intent, apply forces when and where appropriate and present low impedance, i.e. "get out of the way."

A series elastic actuator is used to achieve low impedance and is attached to the lower and upper part of the leg so that it provides torque across knee providing one DoF. User intent is determined through the knee joint angle and ground reaction forces (Pons, J.L., Moreno, J.C., Brunetti, F. J., and Rocon, E., 2007).

The RoboKnee allows the wearer to climb stairs and perform deep knee bends while carrying a significant load in a backpack. The device provides most of the energy required to work against gravity while the user stays in control, deciding when and where to walk, as well as providing balance and control (Pratt, J.E., Krupp, B.T., and Morse, C.J., 2014).

Due to low energy density of batteries, the RoboKnee does not yet achieve the long-life requirement. While it is very comfortable to use, the current implementation is somewhat difficult to don and doff. While the RoboKnee enhances strength and endurance, it was not designed for enhancing the user's speed, and, in fact, it restricts the user from running (Pratt, J.E., Krupp, B.T., and Morse, C.J., 2014). A recommendation from authors was to develop exoskeleton that incorporates other joints than just the knee (Pratt, J.E., Krupp, B.T., and Morse, C.J., 2014).

Lower exoskeleton robots should have the following characteristics: (1) light weight actuation and efficient transmission; (2) ability to maintain power, actuation, and other subsystems, off the shelf components do not meet the low weight, high efficiency, and other criteria needed to accomplish their

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design objective; and 3) examine quantitative performance results for exoskeleton devices that reportedly improve human locomotion.

To achieve the above characteristics, lower exoskeleton robots should develop computing, sensing, and control without pervasive application. Therefore, matching the structure of the exoskeleton to the wearer is one of fundamental factors: (1) alignment between joints of robot and the wearer; (2) segment running or jumping ability; (3) safety of human operator; (4) interfacing exoskeleton or active orthoses to the human body naturally.

UPPER BODY EXOSKELETONS

Upper body exoskeletons have many similar complications to that of the lower body but have their own additional slew of challenges that stem from their more varied types of upper body applications. While the primary function for most lower body exoskeletons is to bear weight and transport loads, "the main function of the arm is to position the hand for functional activities" (Rocon, E. et al., 2007). In addition to the more complicated functions being performed, the upper limb joint anatomy is complex. For example, the shoulder is located near three bones (clavicle, scapula, and humerus), and has four articulations. The calculations have involved dynamics and irregular centers of rotation (Gopura, R.A.R.C. et al., 2009).

A lot of research and development was done for using exoskeletons in the medical and rehabilitation field. While ABLE, developed at CEA-LIST Interactive Robotics Unit, was designed to have multiple purposes, its first application was in a rehabilitation project.

Further applications for industry and professional fields are in view such as intuitive telerobotics, as a haptic device for Virtual Reality (VR), and for sports training. ABLE used a circular guide for the shoulder joint, which solved the problem of singularity. The exoskeleton used a screw cable system and was able to be integrated with the motor power transmission of another robotic system without modification. The ABLE-7 axis model has lighter weight and a 3-axis open forearm-wrist, which can be used for teleoperation and virtual reality (Garrec, P., Friconneau, J.P., Measson, Y., and Perrot, Y., 2008).

ARMin is used for the rehabilitation purpose of the arm, which has four DoF and two passive DoF enabling elbow flexion/extension and shoulder rotations. It was installed with multiple sensors for position, force, and torque, so that this robotic system can combine the cooperation and motivation of the patients into the therapy activities and give the support to the patients based on their needs.

The development of ARMin is in prototyping and additional supervision from therapist needed for safety. Special mechanical design can be seen in ARMin, which includes customized module for upper arm rotation enabling small friction during rotation and patient comfort for wearing the device (Miller, C., Ruiz-Torres, R., Stienen, A. H. A., Dewald, J. P. A., 2009).

ARMin II, the second iteration, is a 7 DoF robotic system designed for therapy purposes. It can adapt to different patients' sizes with adjustments of five parts and be optimized for combining user cooperation with control strategies. The ARMin II is under evaluation and testing for further improvements (Mihelj, M., Nef, T., and Riener, R., 2007).

The Cable-Actuated Dexterous Exoskeleton for Neurorehabilitation (CADEN-7) is an anthropometric 7 DoF powered exoskeleton system that offered several advantages over other designs at the time of its development. "The anthropomorphic nature of the joints combined with negligible backlash in seven force reflecting articulations sets the CADEN 7 apart from other arms in the field (Perry, J and Rosen, J., 2006)." The CADEN-7 features low-backlash gearing, back drivable transmissions, low-inertia links,

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high stiffness transmissions, open mechanical human machine interfaces (mHMI's), and a range of motion (ROM) representing 99 percent of a human physiological ROM (Perry, J. and Rosen, J., 2006).

CADEN-7 was used in the development of myoprocessors for the upper limb based on the Hill phenomenological muscle model. Genetic algorithms were used to optimize the internal parameters of the myoprocessors using an experimental database that provided inputs to the model. Research results indicated high correlation between joint moment predictions of the model and the measured data, suggesting that the myoprocessor was sufficiently robust for further integration into exoskeleton control systems (Perry, J. and Rosen, J., 2006).

Cable-driven arm exoskeleton (CAREX) has lighter weight compared to a traditional rigid exoskeleton. Cables are used to move human upper body segments, which are powered by motors and guided by cuffs. CAREX can provide push and pull with predefined force in required direction during rehabilitation trainings (Mao, Y. and Agrawal, S.K., 2012).

The current Mirror Image Movement Enabler (MIME) robotic device was the development result from the continuous work from 1998. Early research indicated that bilateral training was more effective than unilateral training when using similar movements. A robotic controller (PUMA 560) was used to manipulate the forces needed, which therapists use for the normal therapy training.

The movements assisted by robot can be classified as 4 different types: passive, active-assisted, active-constrained, and bilateral. During passive training, the robot moves the human arm to reach the target with a defined path without human effort. During active-assisted training, humans initiated the movement using force and collaborated with the robotic device to reach the target. During active-constrained training, desired movements were defined by the robot and maximum effort of the human was needed to reach the target. During bilateral training, the target arm was assisted by the robot to do the same movement as the contralateral arm. In this study, Fugl-Meyer and EMG data were collected and analyzed for rating the improvement of the participants and the muscle engagement during the training (Lum, P.S. et al., 2006).

The SUEFUL-7 is 7 DoF upper-limb motion assist exoskeleton robot used to test electromyographic (EMG) control methods using neuro-fuzzy modifiers in assisting the motions of shoulder vertical and horizontal flexion/extension, shoulder internal/external rotation, elbow flexion/extension, forearm supination/pronation, wrist flexion/extension, and wrist radial/ulnar deviation of physically weak individuals. The use of the neuro-fuzzy modifiers allows impedance parameters to be adjusted in real time by considering the upper-limb posture and EMG activity levels (Gopura, R. A. R. C. et al., 2009).

WREX was designed and developed to assist children for daily living activities who do not have enough strength for their arms. WREX has 5 DoF and allows a wide range of naturalistic motions. The modified version for training stroke patients was called Therapy Wilmington Robotic Exoskeleton (T-WREX). The T-WREX contains an orthosis, a grip sensor and software, which enables a wide reach of the arm across the workspace, hand grip pressure detection and functional training movement simulation (Sanchez, R.J. et al., 2006).

The wearable orthosis for tremor assessment and suppression (WOTAS) provides a means of testing and validating non-grounded (i.e., wearable) control strategies for orthotic tremor suppression (Rocon, E. et al., 2007). Unlike most exoskeletons that seek to enhance intended muscle movement, the purpose of WOTAS is to dampen unintended movement, and it can operate in both active and passive damping modes. The control algorithm of WOTAS must distinguish between wanted and unwanted movement.

The Titan Arm is a lightweight upper body exoskeleton designed to closely mimic the human range of motion and assist weakened individuals regain mobility and independence. The Titan Arm provides 3

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DOF with non-localized actuation and a ratchet based braking system that allows the Titan Arm to hold static loads without requiring force from the user (Beattie, E., McGill, N., Parotta, N., and Vladimirov, N., 2012). The Titan Arm carries most of its weight in the back-plate and can augment the user's lifting strength by up to 40 lbs. In addition, the system can provide real-time joint tracking which can be streamed to a computer for analysis.

Most upper limb rehabilitation systems have been developed for unilateral training, but the upper limb exoskeleton rehabilitation device (ULERD) can be used for bilateral training. The ULERD has three active DoF and four passive DoF. The ULERD incorporates a commercial haptic device known as Phantom Premium, as well as an inertia sensor known as MTx, to detect input signals from one arm which is held stationary. The output movement is performed by a wearable exoskeleton on the right arm (Song, Z. and Guo, S., 2011).

EXTREMITIES

Much of the literature for hand exoskeletons points towards their use in rehabilitation. However, there has also been work done looking at the use of hand exoskeletons as haptic interfaces for interaction with the virtual environments and extra vehicular activities in space. In addition, hand-based exoskeletons have been making advancements in rehabilitation.

The Hand Exoskeleton Rehabilitation Robot, or HEXORR, is an exoskeleton whose robot joints are aligned with anatomical joints of the human hand and provides direct control of these hand joints. HEXORR uses a low-friction gear train and electric motors. This combination allows for both position and torque control which is an advantage. Additional advantages which HEXORR provides is the psychologically accurate grasping patterns which is controlled with just two actuators as against some complex designs that use eighteen actuators. All these factors make HEXORR unique compared to other devices (Schabowksv, C. M., Godfrey, S. B., Holley, R. J., and Lum, P. S., 2010).

The use of EMG signals to control exoskeletons is becoming more commonplace, especially in paraplegics and quadriplegics (Au, A.T.C., Arthur, R. C., and Kirch, R.F., 2000)(Ito, K., Tsuji, T., Kato, A., and Ito, M., 1992)(Kirsh, R.F., and Au, A.T.C., 1997) (Kuribayashi, K., Shimizu, S., Okimura, K., and Tamiguchi, T., 1993). There are over 12,000 new cases of spinal cord injury per year (FSCIP, 2014) and "nearly half of these cases result in a loss of sensation or motion to the arms and hands" (Lucas, L., DiCicco, M., and Matsuoka, Y., 2004). The researchers at Carnegie Mellon University developed an effective EMG-based hand exoskeleton that enabled pinching movements in patients who lacked hand mobility with the use of a functional electrical stimulation system - a system that stimulates muscles that no longer receive signals from the central nervous system - and a low-profile lightweight exoskeleton that consisted of "an aluminum anchoring plate mounted to the back of the hand and three aluminum bands, one for each of the finger bands (Lucas, L., DiCicco, m., and Matsoka, Y., 2004)," in conjunction with steel cabling that runs along the front of each finger band, a pneumatic cylinder, and a mechanical linkage mechanism.

An exoskeleton designed for upper arm rehabilitation and hand grasp training called the IntelliArm can control the user's shoulder, elbow, wrist, and finger with 8+2 DOF. The IntelliArm builds on the research of MIT MANUS, an upper body arm exoskeleton that assisted in arm reaching movements in post stroke rehabilitation (Hogan, N., Krebs, H.I., Sharon, A., and Charnaron, J., 1995) (Krebs, H.I. et al., 1997); Reinkensmeyer et al.'s Arm Guide robot, another upper body arm exoskeleton that was used

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to treat and evaluate post stroke patients by guiding their arm along a linear guide (Reinkensmeyer, D. J., Dewald, J. P. A., and Rymer, W. Z., 1999); and an industrial robot attached to a forearm splint called MIME, or a mirror image motion enabler, that assisted movement passively or actively (Burgar, C.G., Lum, P.S., Shor, P.C. and Machiel Van der Loos, H.F., 2000). The IntelliArm also built on the work of the ARMin, described earlier. The designs of the other rehabilitation robots that the IntelliArm built upon did not consider patients' hand posture. The researchers found that if they were to "ignore a proper control of the muscle tension of a subject's hand, the robot training may lower hand/fingers flexibility and potentially cause an abnormal muscle tone (Ren, Y., Park, H., and Zhang, L., 2009)."

A tendon driven exoskeleton that controls flexion of two degrees of freedom per finger was designed for physical therapy at the University of Salford (Sarakoglou, I., Tsagarakis, N. G., and Caldwell, D.G., 2004). A hand exoskeleton for the rehabilitation of stroke patients is the Rutgers Master II which actuates the user's fingers via four pneumatic pistons located inside the palm (Bonzit, M., Burdea, G., Popescu, G., Boizan, R., 2002).

Another hand exoskeleton designed for stroke patients is the Wrist/Finger Force Sensing module (WFFS) which is used during movements of the upper limb in chronic hemiparetic stroke patients. "The WFFS measures isometric flexion/extension forces generated by the wrist, fingers, and thumb during 3-D movements of the paretic upper limb (Mizen, N.J., 1965)." Unlike other hand exoskeletons, the WFFS can generalize 3-D movements of the hand in conjunction with the rest of the limb. This hand exoskeleton acts as a lightweight, portable, and rigid forearm orthosis of the ACT^{3D} robot. This allows for measurements of wrist and finger forces during any tasks that the ACT^{3D} normally performs.

One research focus is geared towards assisting astronauts in extravehicular activities or EVA. The current gloves used by NASA are less flexible than desired, requiring mechanical work to displace the glove and to hold the glove in any given position. This additional required work reduced EVA productivity and fatigues astronauts' hands. Work has been done to create a motorized hand exoskeleton with the ability to perform a power hand grasp and a precision finger grasp. The design consisted of a series of drivers, mechanical stops, sensor arrays, four bar linkages, DC motors, and cable driven cam systems. Human hands are particularly complex with over 25 degrees of freedom (Shields, B.L., Main, J.A., Peterson, S.W., and Strauss, A.M., 1997). The hand exoskeleton reduced the allotted degrees of freedom significantly leading to the system's primary shortcoming - the coupling of joints in the hand exoskeleton. The researchers found that if motion for one finger was attempted, the other fingers would also be forced to move, if only a little bit. Additionally, the sensor array would sometimes pick up hand motions that were not there causing undesired exoskeleton motion.

A robotic concept called Skil Mate was introduced to revitalize almost all human works skill on production sites introducing cooperation between human and robotic machines. This project was put into practice in August 1998. The aim of the project was to manufacture an exoskeletal structure to be worn by astronauts for EVA. It is designed to have no intelligence and memory but works synchronously with skilled workers. The exoskeletal structure covers the worker's arms, hands, fingers, body and legs (Umetani, Y. et al., 1999).

Much of the early literature for hand exoskeletons is geared towards their use as haptic feedback for virtual reality and augmented reality environments. VRLogic's CyberGrasp is a commercially available haptic interface for the hand that delivers a force feedback system to the fingers and hand. It utilizes pull cables with brakes on their distant end to restrict movement (VRLOGIC, 2014). A hand exoskeleton was developed at the Robotics Center-Ecole des Mines de Paris that can support bidirectional movement for two fingers. It is capable of four degrees of freedom for each finger, but can only control one at a time

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using a pull cable (Stergiopoulos, P., Fuchs, P., and Laurgaeau, C., 2003). Another hand exoskeleton developed for haptic feedback is the LRP Hand Master. It can support 14 bidirectional and actuated degrees of freedom (Tzafestas, C.S., 2003).

The reason for building the Knee Ankle Foot Orthosis, or KAFO, was to extend the pneumatically powered ankle orthosis concept to the knee and test its performance on healthy walkers. The KAFO was built with a unilateral powered knee-ankle-foot-orthosis with antagonistic pairs of artificial pneumatic muscles at both the ankle (i.e. plantar flexor and dorsiflexor) and the knee (i.e. Extensors and flexors) (Sawicki, G.S. and Ferris, D.P., 2009).

GAIT is an exoskeleton conceived as a compensation and evaluation system of pathological gait for application in real conditions as a combined assistance and assessment methodology of the problems affecting mobility in individuals with neuromotor disorders. Interaction with the human neuromotor system to assist locomotion requires adequate design of the components, both the biomechanical and functional aspects. Robotic exoskeletons conceived as an aid to mobility are designed to be used in numerous environments (Pons, J. L., Moreno, J. C., Brunetti, F. J., and Rocon, E., 2007).

FULL BODY EXOSKELETONS

The Berkeley Lower Extremity Exoskeleton, mentioned in the Lower Body portion of this document, is just the beginning work for the University of California, Berkeley. The researchers also plan to develop an upper body exoskeleton. After they are certain that both are capable of functioning independently, they will attempt to integrate the two systems (Kazerooni, H., 2005).

Ekso by Ekso Bionics is a primarily lower body exoskeleton for individual with any amount of lower extremity weakness or limb pathology to stand and walk. The exoskeleton uses battery powered motors to drive the legs when the exoskeleton's sensors pick up intended movement. The exoskeleton can provide natural gait and assists in gait training for patients who suffer from complete paralysis and who have minimal forearm strength (Ekso Bionics, 2014). The Ekso exoskeleton is considered a Class I medical device in the United States, a Class I medical device in Australia, and a Class IIa medical device in the European Union (Ekso Bionics, 2014).

Lockheed Martin's Human Universal Load Carrier (HULC) is a hydraulic-powered, titanium, anthropomorphic exoskeleton designed for military use. It can carry up to 200lbs, march at 3 mph, sprint at 10 mph, can travel 20 km on level terrain at 4 km per hour, and can be set to a long-range mode for extended 72-hour missions (HULC, 2014). The HULC weighs in at 53 lbs., is powered by lithium polymer batteries and can integrate with armor, heating and cooling systems, additional sensors, and other custom attachments.

The U.S. Government has officially sanctioned a full body exosuit for military use. The Tactical Assault Light Operator Suit, or TALOS, is the planned future of warfare. The US Army requested white papers from academia, industry, public labs, and any interested individuals on how to design and build TALOS (Singularity HUB, 2014). There hasn't been much released on this in development suit; however, there has been speculation that TALOS will feature an already designed exoskeleton at its core (Singularity HUB, 2014). The most likely candidates currently are Lockheed Martin's HULC and Raytheon's XOS 2.

TALOS, when fully completed, will be bulletproof, weaponized, able to monitor vitals, give wearer superhuman strength and perception, have layers of smart materials and sensors, and use wide-area networking and on-board computers to provide more substantial situational awareness (ARMY.MIL,

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2014). The U.S. Army Research, Development and Engineering Command, known as RDECOM will be involved in every aspect of TALOS development.

THE TECHNOLOGY OF EXOSKELETONS

Exoskeletons are very complex machines that attempt to mimic and augment human motion. These machines typically augment human performance using a pump or other form of actuation. Sensing can be accomplished with EMG. Unlike the Pneumatic actuators in the section below, hydraulic pumps do not have a high degree of compliance. They are relatively rigid and can be made compliant only through use of complex strategies. The feature that distinguishes these artificial muscles is the way inflation and deformation is handled. At pressures of about 500kPa to 800kPa which is ideal, hydraulic operators suffer from a very bad power to weight ratio which makes them less attractive. Hydraulic operators are preferred in rare situations where the manipulator is powered underwater. In such cases, the weight problem is eliminated since the surrounding fluid is the same as the driving fluid (Daerden, F. and Lefeber, D., 2002).

The hydraulic system for an exoskeleton comprises of an oil tank, motor, oil pump, one-way valve, pressure sensor, servo valve and an actuating cylinder. The hydraulic system has an advantage that the current motion is being sensed by a sensor. The speed of the actuating cylinder can be controlled precisely by moving a spool of the servo valve, speed of the motor and the oil pump component (Patent 467004A, 2014). With hydraulic systems, high pressures can be used which aids to the reduction in size of the operating system. However, these systems are not fire proof and they are noted for leakage and high maintenance (Patent 467004A, 2014).

Electric motors are the favored option because they are simple to install, lightweight, small, generally silent, and offer a clean actuation system (Bouzit, M., Burdea, G., Popescu, G., and Boian, R., 2002).

Hydraulic actuators use pressurized fluid to transmit power to a joint. This actuator has a very large potential force and torque, but it is noisy and needs a complex apparatus to work (compressor, cooling system, etc.) (Bouzit, M., Burdea, G., Popescu, G., and Boian, R., 2002).

Pneumatic Actuators use pressurized gas to produce output force. In comparison to hydraulic actuators, pneumatic ones are lighter in weight and cheaper. Moreover, they offer a clean, non-flammable alternative actuation device (they also require a compressor or a rechargeable pressured tank). Artificial pneumatic muscles are referred to as McKibbon muscles (Bouzit, M., Burdea, G., Popescu, G., and Boian, R., 2002).

Pneumatic Actuators were largely used in automation segments of manufacturing. Lately this technology has been used by robotics as a main motion power source (Bouzit, M., Burdea, G., Popescu, G., Bonian, R., 2002). One of the most attractive features of the Pneumatic Actuator is the low weight trait. Its complaint behavior is also one of its favorable features. Compliance is due to the compressibility of air and can be controlled by adjusting the operating pressure. This is one of most important requisites when there is human-machine interaction. The compliance of the system guarantees a safe and easy interaction.

There are several types of pneumatic actuators: cylinders, bellows, pneumatic engines and pneumatic stepper motors. There is another kind called the Pneumatic Artificial Muscles (PAM). These contract on inflation since their core is very similar to a membrane which makes them extremely light-weight and spring like. Due to this nature they are widely used to power exoskeletons (Bouzit, M., Burdea, G., Popescu, G., and Boian, R., 2002).

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Pneumatic Actuators are contractile and linear motion engines operated by gas pressure. Their core is made of a flexible membrane that is connected to the load on both ends by fittings and mechanical power. When the membrane is inflated it bulges and when deflated it gets squeezed. The force and motion thus generated are linear and unidirectional. The source of energy is usually air. The air pressure inside and outside the actuator is different and this aids to powering the actuator.

Magnetic brakes, as a passive technology, limit the motion by absorbing energy generated by the user. However, they are relatively heavy (Bouzit, M., Burdea, G., Popescu, G., and Boian, R., 2002).

Shape memory allows (SMA) are made from titanium-nickel (TiNi) metal and modify their shapes with a change in temperature. When heated, the wire or spring structure deforms producing very high forces. On the other hand, metal alloys can only generate small displacements (Bouzit, M., Burdea, G., Popescu, G., and Boian, R., 2002).

Piezoelectric motors convert vibrational motion into translational or rotational motion. When a piezoelectric material vibrates, frictional forces generate torque or force. Piezoelectrics are not widely used because they are difficult to manufacture and are quite expensive (Bouzit, M., Burdea, G., Popescu, G., and Boian, R., 2002).

Controls

- *Hand Held Controls*
  - Hand held pushbutton controllers are often used in conjunction with pneumatic muscles (Ferris, D.P. and Lewis, C.L., 2009).
- *Footswitch Control*
  - With this control scheme, the pressure in the pneumatic muscle is controlled based on the signal from a place in the subject's shoe (Ferris, D.P. and Lewis, C.L., 2009).
- *Proportional Myoelectric Control*
  - In this control scheme, the air pressure delivered to the artificial pneumatic muscle is directly proportional to the electromyographic (EMG) signal from a biological muscle (Ferris, D.P. and Lewis, C.L., 2009).
- *Passive Rehabilitation Controls*
  - Controls used in passive rehabilitation - without any effort from the wearer
    - Proportional Derivative (PD) controller (Lalami, M. et al., 2013)
    - Proportional Integral (PI) controller (Lalami, M. et al., 2013)
    - Proportional Integral Derivative (PID) controller (Lalami, M. et al., 2013)
    - Hybrid Assistive Limb (Combination of PD and EMG) (HAL-5) (Lalami, M. et al., 2013)
    - Exoskeleton Intelligently Communicating and Sensitive to Intention (EICOSI) controller (Lalami, M. et al., 2013)

Electromyography (EMG) can detect and receive signals from human skeletal muscle activity using electromyography. The muscle cells generate electrical signal during motion, which can be recorded and analyzed by EMG technology to study human biomechanics. This application was applied for a control method of exoskeletons using human intention for movements. EMG signals can represent the real-time muscle engagement information, which can enable manipulation of the exoskeleton in real time and simplify the control process. Gopura et al. (2009) combined Fuzzy-neuro with the EMG technique for the control process and used impedance as the intermediate controller to parameterize the real-time

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control based on postures and EMG signals. Problems of this method are that different people react different during motion as degrees of freedom increased the complexity of rules will increase as well (Gopura, R.A.R.C. et al., 2009).

Electro-rheological fluid can turn solid in less than a millisecond with the application of a voltage. This would provide resistance to motion on a healing joint and aims to help the muscle regain strength (Casolo, F., Cinquemani, S., and Coceta, M., 2008).

THE FUTURE OF EXOSKELTONS

Lo et al. (2012) stated that the exoskeleton training using in rehabilitation could potentially enable self-therapy activities without involvement of therapist, which can reduce the rehabilitation cost. Exoskeleton training could be flexible not limited to time and location, which can reduce schedule conflicts and provide a more frequent training. The cost associated with these problems can be reduced (Lo, H.S. and Xie, S.Q., 2012).

Rehabilitation improvement relies on intensity of training and patients' motivation. Recent studies on exoskeleton for rehabilitation indicate that the exoskeleton can provide trainings with different levels and more frequently compared to the traditional therapist training. Experimental results also show that the exoskeleton assisted trainings are effective for activities of daily living, which could benefit the stroke patients recover from neurological and orthopedic damages (Mihelj, M., Nef, T., and Rienner, R., 2007). Games are integrated into the exoskeleton training activities. Training processes are designed as games in order to provide patients with an entertaining experience, which can improve their motivation of therapy (Housman, S.J., Le, V., Rahman, T., Sanchez, R.J., and Reinkensmeyer, D.J., 2007) (Lo, H.S. and Xie, S., 2012).

Exoskeleton are used as human assistive devices in an industrial environment by reducing the load on human body, which extend the human capabilities. In virtual reality, the exoskeleton can be used as haptic device to allow human users to interact with virtual objects by parameterizing proper force based on their characteristics. Additionally, the exoskeleton served as a master device for manipulating control systems (Rosen, J., Perry, J.C., Manning, N., Burns, S., and Hannaford, B., 2005).

In order to enhance a soldier's capability and reduce soldier's workload, exoskeletons were developed to assist soldiers with better performance for heavy weapon carrying and firing (Winder, S.B. and Esposito, J.M, 2008). Among the most critical challenge lies in the design of a controller to allow natural movement of a highly articulate prosthetic with minimal ethical and physical invasion. For the foreseeable future, the first step is to determine a mapping from EMG patterns to muscle forces; this should be a primary research focus over the next few years. This method will allow individual finger movements coordinated with the hand, wrist, and elbow, unlike anything current prosthetics can accomplish. This will significantly increase the quality of life for the wearer and the utility of any prosthetic. Furthermore, perceiving and exploiting the intricacies of low-level neural signals will open the door for deeper understanding of cortical control and other methods tapping into spinal or peripheral nerves, thus jumpstarting the field of neuroprosthetics (Dellon, B. and Matsuoka, Y., 2007).

Actuator and power supply technologies still have limitations: current actuators are unable to provide both a high power-to-weight ratio and high bandwidth while modern power supplies have insufficient energy density (Lo, H.S. and Xie, S.Q., 2012). PMA has a high power-to-weight ratio but lack bandwidth

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while motors have sufficient bandwidth but have a poor power-to-weight ratio (Lo, H.S. and Xie, S.Q., 2012).

Current mobile exoskeleton robots rely on a lower limb exoskeleton to carry the weight of the actuators and power supply. Although this has been shown to a feasible approach with the recent success of the full body HAL-5 exoskeleton for assisting the elderly and physically weak, improvements on the weight and efficiency of the actuators and power supplies are needed to achieve better exoskeleton performance (Lo, H.S. and Xie, S.Q., 2012).

Another limitation is the singular configurations present in the exoskeletons 3 DOF shoulder complex which occurs when two rotary joints align with each other, resulting in the loss of 1 DOF. The current method used to address the problem merely shifts the configuration to an uncommon posture rather than eliminating the configuration from the upper limb workspace (Lo, H.S. and Xie, S.Q., 2012).

There is limited consideration of the interactions between the exoskeleton and the human user. The mechanical HRI location and interface area for optimal load transfer and comfort have not been considered in current exoskeletons (Lo, H.S. and Xie, S.Q. 2012).

The attachment locations of mechanical interfaces and EMG electrodes will inevitably vary each time the exoskeleton is worn. To enable better use of exoskeletons in practice, the device needs to be able to adapt to variations without long calibration downtimes.

WHAT CAN WE DO TO MAKE EXOSKELETONS BETTER?

There are few areas related to the mechanical design of exoskeletons that show promise and have largely been overlooked.

An improved understanding of walking and other movement may shed light on more effective exoskeleton leg architectures (Dollar, M.A. and Herr, H., 2008). Gait models based on actual machine elements that capture the major features of human locomotion may enhance the understanding of human leg morphology and control and lead to analogous improvements in the design of efficient, low-mass exoskeletons (Dollar, M.A. and Herr, H., 2008).

Investigation of non-anthropomorphic architectures may provide solutions to some of the problems associated with closely matching the structure of the exoskeleton to the wearer such as the need for close alignment between joints of the wearer and the exoskeleton (Dollar, M.A. and Herr, H., 2008). More research is required on recreational exoskeletons that augment running or with jumping ability (Dollar, M.A. and Herr, H., 2008).

Besides enabling technology and mechanical design there are a few issues related to the implementation of exoskeletons and active orthoses that needs further studying (Dollar, M.A., and Herr, H., 2008). Designing an exoskeleton with good mechanical strength, less weight, sufficient grip force, low power consumption, computational capability compatible to control scheme and high speed of operation (Singh, R.M. and Chatterji, S., 2012).

The design of structure is one area where an imaginative design may reduce lot of stress from weight constraint. The grip force and power consumption can be taken care by the proper choice of the actuators (Singh, R.M. and Chatterji, S., 2012).

The ideal requirements are materials for mechanical structure having mechanical strength, flexibility and weight like bone, the controller having computational capability, speed and adaptability like brain,

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actuator having high torque and flexibility like muscles, and the feedback elements having sensing capability like skin (Singh, R.M. and Chatterji, S., 2012).

EMG is a relatively new technology. It has a definite potential to be used as control signal for multifunction prosthesis. There is need to draw correlation between the physiological, physical factors and the EMG signal (Singh, R. M. and Chatterji, S., 2012). Advanced algorithms need to be developed to extract useful neural information (Singh, R. M. and Chatterji, S., 2012). One of the innovative aspects is the combined use of electroencephalogram (EEG) and electromyography (EMG) to relay information for controlling the lower-limb exoskeleton (Singh, R.M. and Chatterji, S., 2012).

WHAT ARE THE ISSUES FACED IN DESIGNING FOR EXOSKELETONS?

Current power supplies have insufficient energy density for truly mobile exoskeletons (Lo, H.S. and Xie, S.Q., 2012). Large, heavy power supplies limit portability and are one of the major factors limiting application of exoskeletons outside of clinical therapy (Lo, H.S. and Xie, S.Q., 2012) and other "grounded" applications. Some researchers have proposed interim solutions such as mounting upper body exoskeletons to powered wheelchairs (Kiguchi, K., Rahman, M, H., Sasaki, M., and Teramoto, K., 2008), but improvements on the weight and efficiency of power supplies are still needed to achieve better exoskeleton performance (Lo, H.S. and Xie, S.Q., 2012).

"A mechanism that synthesizes a human-type motion will necessarily also be complex, particularly from the control standpoint. Therefore, researchers in this area have often tried to reduce the number of degrees of freedom to as great an extent as is practical (Shields, B.L., Main, J.A., Peterson, S.W., and Strauss, A.M., 1997)."

In designing a prototype hand exoskeleton (Shields, B.L., Main, J.A., Peterson, S.W., and Strauss, A.M., 1997), researchers reduced complexity by reducing DOF to one per finger but discovered problems with this approach. "The human hand has over 25 degrees of freedom, many of which are coupled by the ligamentous structure and location of tendon insertions. This coupling was clear during exoskeleton tests (Shields, B.L., Mian, J. A., Peterson, S.W., and Strauss, A. M., 1997)," in which undesired exoskeleton motion was observed. "One obvious solution to this problem is to add more degrees of freedom to the exoskeleton. This will unfortunately also result in added complexity, weight, and bulk, not to mention a more sophisticated controller (Shields, B.L., Main, J. A., Peterson, S. W., and Strauss, A. M., 1997)."

Researchers involved with the BLEEX lower body exoskeleton took a different approach to this tradeoff. "Each BLEEX leg has 7 DOF..., but actuating all of them creates unnecessarily high- power consumption and control complexity. Instead, only joints that require substantial power should be actuated… [S]ince the primary goal of a lower-extremity exoskeleton is locomotion, the joint power requirements for the BLEEX were determined by analyzing the walking cycle…. (Zoss, A.B., Kazerooni, H., and Chu, A., 2006)" Additionally, the hip and other joints were simplified such that overall the BLEEX represents a "near anthropomorphic" design (Zoss, A. and Kazerooni, H., 2006).

Many present upper body exoskeletons overcome weight or bulk issues by being mounted to a wall or stand (i.e., "grounded"), or to a wheelchair (Lo, H.S. and Xie, S.Q., 2012). This is adequate for applications where a limited and defined workspace is involved, or where a patient requires a wheelchair. While lower body and full body exoskeletons bear their own weight, there are many applications for which a wearable, "ambulatory" orthotic or assistive device is all that is needed. Improvements in mass, power density (see above) and actuation are necessary precursors to widespread use.

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The aesthetic appeal of the exoskeleton will eventually have to be addressed, at least for some applications. For example, like many current exoskeletons, WOTAS was designed as a platform to explore a specific concept and not as a final orthotic solution. While it successfully demonstrated the feasibility of mechanical tremor suppression, it was too bulky and heavy to be used day-to-day (Rocon, E. et al., 2007). "The main wish expressed by the potential users was the possibility of hiding the exoskeleton under clothing (Rocon, E. et al., 2007)."

Skin surface EMG signals are often used as a control input because they directly reflect the intentions of the user, but EMG-based control is difficult to realize due to several issues: obtaining the same EMG signals for the same motion is difficult even with the same person, the activity of antagonist muscles affects the joint torque, many muscles are involved in a single joint motion, one muscle is simultaneously involved in more than one motion, the role of each muscle for a certain motion varies in accordance with joint angles, the activity level of some muscles such as bi-articular muscles are affected by the motion of other joints (Kiguchi, K., Rahman, M.H., Sasaki, M., and Teramoto, K., 2008) and the EMG signals can vary due to muscle fatigue (Lalitharatne, T.D., Teramoto, K., Hayashi, Y., Nanayakkara, T., and Kiguchi, K., 2013).

Additional uncertainty is related to the differences between humans and machines. "The exact locations of the human joint axes of rotation cannot be known on living subjects, due to coverage of the joints. Biological joints are not ideal "single DOF" joints, but have rather complex joint surface geometries, which cause shifting axes of rotation during motion. Additionally, fixation of a robotic device on a human limb is never rigid, such that slippage between the device and the limb will occur. This will lead to further misalignment between the mechanism and human joints (Schiele, A. and van der Helm, F.C.T., 2006)," on the order of a few centimeters. Such misalignment can lead to pressure sores on the skin, long-term joint damage, joint dislocation and cartilage damage, and stumbling (Schiele, A. and van der Helm, F.C.T., 2006).

The activity level of each muscle and the way of using each muscle for a certain motion is different between persons (Kiguchi, K., Rahman, M.H, Sasaki, M., and Teramoto, K., 2008). Several solutions proposed to provide adaptive control between users: adjusting impedance (Kiguchi, K. and Hayashi, Y., 2012), myoprocessors with optimization ("gene" modelling) (Cavallaro, E.E., Rosen, J., Perry, J.C., and Burns, S., 2006), adaptive gain (Kang, H. and Wang, J., 2013), neuro fuzzy modifiers (single) (Gopura, R.A.R.C., et al., 2009).

Safety is a paramount concern with robotic systems, especially for robots that must interact with humans. Unfortunately, "there is no industry-standard approach to designing these safety-critical robot systems. Numerous safety-critical software systems have been developed and deployed in other domains ranging from aircraft flight management systems to nuclear power plants (Roderick, S.M. and Carignan, C.R., 2005)." Similar analytical methods, such as fault tree analysis, should be applied to the design of robotic exoskeletons. Some common concerns with these systems are moving the human outside their safe position range, moving the human at an excessive velocity, and applying excessive torque to the human or allowing the human to apply excessive torque against the robot.

The system reaction to fault detection must also be carefully considered. For example, upon fault detection, the system could be commanded to either halt motion or power down the affected motors. Removing power has the undesirable effect of leaving the human to bear the weight of the device, which presents hazards of its own. This approach is only appropriate in response to more severe failures (Roderick, S.M. and Carignan, C.R., 2005).

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The safety requirements for mechanical design of the upper body exoskeleton include: "axes deviation of wrist flexion/extension axis and wrist radial/ulnar axis" should be satisfied, "ill effect caused by the movement of the center of rotation of shoulder joint due to upper-arm motions should be canceled out," and "the mechanical singularity should not be occurred within the workspace of the robot (Gopura, R.A.R.C. and Kiguchi, K., 2009)."

The two main aspects that need good consideration are (Schiele, A., 2007) implementation of the actuation and motor control and intrinsic mechanical and kinematic design of their structure. To ensure the human safety when using exoskeleton, mechanical constraint combined with software limitations are most popular methods. CADEN-7 used mechanical constraints to prevent the excessive movement of body segments. CADEN-7 also used a pulley in design to enable slip when limitation reached. Electrical system of CADEN-7 contained 3 shutoff switches to set electrical constraints. Gupta et al. and Gopura et al. also used mechanical stops and control limitations to ensure safety (Gopura, R.A.R.C. et al., 2009).

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Chapter 3
Positive Psychology and Aging

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ABSTRACT

The present chapter will help in understanding the role of positive psychology and intervention in approaching towards a healthy aging. Aging is inevitable. The clock cannot be turned backwards. At first glance, it seems that generally the growing population enjoy what they face which is true to a certain extent but at the same time it is important not to overlook or discount the stresses they face when they start to age. How they age depends how they look at their life. Positive intervention has its effect in all ages. Taking the help of positive psychology as a primary prevention can help eliminating various effects of aging. In the same way, it can also help in reducing the exiting trouble occurring in elderly. By taking preventive steps, one can take care of the body and the mind, and that can help stave off some of the devastating illnesses associated with age and live a full, meaningful and energetic life. Elderly person must acknowledge that their roles in life will change as their former lifestyles are replaced by new schedules, approaches and relationships.

INTRODUCTION

Aging is a gradual and slow process and generates significant changes in one's life. A person completes all the responsibility that comes in their way, completes education, work, raises children, retire from work and so on. At first glance, it seems that generally they enjoy what they face which is true to a certain extent but at the same time it is important not to overlook or discount the stresses they face when they start to age. Many a times these changes can be discouraging and may lead to feelings of insecurity and loss of self-worth. How they age depends how they look at their life. Positive psychology has its significant role to play in the process of aging and helps in overcoming various challenges that they face. Elderly person must acknowledge that their roles in life will change as their former lifestyles are replaced by new schedules, approaches and relationships.

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Worldwide, the population is ageing rapidly. World Health Organization (WHO), (2016) report says that between 2015 and 2050, the proportion of the world's population over 60 years will nearly double from 12% to 22%. The share of India's population aged 60 and above is projected to rise from 8% in 2010 to 19% in 2050, according to the United Nations Population Division (United Nations, 2011). This phase comes not only as an additional number to a persons' life but as a chapter with significant contributions from the surroundings. The higher the positive environmental inputs, the better the outcomes. There is a slow decline in the overall functioning of the body system as the person ages. They are more likely to experience several changes and disabilities at the same time (WHO, 2015). In 2011, approximately 22.7 million (62%) of community-dwelling older adults in the United States aged ≥65 years had at least one basic functional disability (National Center for Health Statistics, 2013).It is that life-cycle stage where individuals are forced to face life's most stressful experiences. They become more sensitive to criticism, become emotionally weak and dependent. However, there are some factors like lack of economic security, loneliness, loss of loved ones and limited social interactions that adversely affect aging process. However, positive psychology contributes significantly to the outcome of aging process. It focuses on the potentials and optimal functioning of human beings. The approach of positive psychology is not towards fixing problems, instead focuses on exploring things that make life worth living. This is not a distinct field, but rather a distinct way of viewing the human conditions. It focuses on people as having the potential to thrive given the right skills, strengths and social context (Kashdan & Ciarrochi, 2013.

It consists of interventions for promoting resilience, positive emotions, engagement, meaning, curiosity and social connectedness (Ciarrochi & Kashdan, 2013; Parks & Biswas-Diener, 2013).

The Gerodynamics/ Branching theory of aging explains about the branching behavior of an individual at the psychological, biological or social level of functioning. As an example, traumatic life events may result in lower order structures and a healthy life style may result in higher order structures, and consequently higher and lower probabilities of dying respectively. However, it may not hold true for everyone. There are exceptions. Some people are strengthened by illness, and divorce may have a positive rather than a negative effect on mental health in terms of life expectancy and quality of life for some people (Schroots, 1996). Similarly, in a theoretical continuum, with severe mental illness on the left and optimal human thriving on the right, Seligman pointed out that previous research had focused on the left half of the curve and that the right side of the curve mostly had been neglected. He focuses on more to mental health than the absence of mental illness. This field is dedicated to the rigorous scientific study of "strengths, well-being and optimal functioning" (Duckworth et al., 2005) and flourishing (Keyes & Haidt, 2003). Thus, aging with positive psychology helps a person to live a healthy life with a healthy approach.

AGING PROCESS

Tornstam (1989) suggested that the process of living into old age that is human aging visualizes a general potential towards gerotranscendence: that is a shift in metaperspective from a materialistic and rational vision towards a more cosmic and transcendent vision. This is normally followed by an increase in life satisfaction. Thus, there is a need to understand the basic requirements of elderly. This phase of aging has become much more a social phenomenon rather than merely a being a biological one. This process depends upon various components. It is a multidimensional construct where self-perception and attitude plays an essential role. The term "self-perceptions of aging" has been increasingly used to refer to adults'

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subjective aging experiences (Kleinspehn-Ammerlahn et al., 2008; Kotter-Grühn et al., 2009; Kotter-Grühn & Hess, 2012). It is related with both positive and negative age-related experiences (Wurm et al., 2007). A study conducted in-depth interviews with adults aged 50 to 80 years and identified five major dimensions of positive and negative aging experiences. These five dimensions described aging as: (1) a natural and gradual process; (2) a period of life evaluation, philosophical reflection, or increased wisdom and maturity; (3) a period of increased freedom, new interests, and fewer demands; (4) a period of physical health difficulties and health concerns; and (5) a period of losses, including interpersonal and job-related losses (Keller et al., 1989). Another important construct is "attitude towards aging" (Bennett & Eckman, 1973). It refers to both societal as well as individual attitudes and includes affective, cognitive, and evaluative components of behavior towards older adults as an age group and towards the process of aging as a personal experience (Hess, 2006). Bennett and Eckman (1973) pointed that attitude towards aging are considered critical for older people's adjustment and survival in the process of aging. It contributes to their adaptive and maladaptive behaviors and reinforces how individuals in younger age groups view and approach their own aging process. However, negative attitudes toward older adults are quite pervasive, and that older adults' views of their own behavior often reflect the societal beliefs and stereotypes about aging (Hess, 2006; Levy, 2009). They are often based on cultural images of aging and are developed from early childhood experiences. Attitudes toward one's own aging have also been referred to as self-related attitudes (Hess, 2006) to indicate the focus of the attitudes as studies have shown that older adults have more negative views about their memory than younger or middle-aged adults (Hertzog & Hultsch, 2000; Hess, 2006). Several studies have also shown that older adults who have more positive attitudes about their own aging tend to perform better on memory tasks (Levy, 1996; Levy & Langer, 1994), are more likely to engage in positive life styles (Levy & Myers, 2004), show less decline in disablement processes (Levy et al., 2012), and live longer (Levy et al., 2002). Studies show substantial positive associations with adults' health (Wurm et al., 2007) and preventive health behaviors (Levy & Myers, 2004; WurmTomasik & Tesch-Römer, 2010). However, a large body of work documented the association between negative age stereotypes and older adults' maladaptive behavior, such as lower cognitive functioning and poorer functional health behaviors that are very much associated with the vulnerabilities of old age (Hummert, 2011; Levy, 1996, 2003).

This is a stage where one requires assistance in their activities of daily living because of their physiological decline due to the aging process. When they fail in meeting physiological needs it results in psychological decline. A study reported that among the elderly population 47.8% reported an unmet need with one or more activities of daily livings (ADLs) or instrumental activities of daily livings (IADLs). Significant adjusted correlates of unmet assistance need included greater number of ADL and IADL difficulties and lower levels of social support (Schure et al., 2015). Research has identified several factors associated with an increased risk for unmet assistance need among adults including greater number of ADL limitations, greater morbidity, dementia, lower income, younger age, and living alone (Allen & Mor, 1997, Desai et al., 2001; Kennedy, 2001; LaPlante et al., 2004; Lima & Allen, 2001; Newcomer et al., 2005; Sands et al., 2006; Williams et al., 1997). This population with an unmet assistance need have been shown to have an increased likelihood of experiencing weight loss, dehydration, falls, burns (LaPlante et al., 2004), increased number of emergency room and hospital visits (Allen & Mor, 1997), increased number of hospitalizations and nursing home placements (Sands et al., 2006), and higher mortality rates (Blazer et al., 2005).

In this process, the psychological experience of old age group leads to increased introspection, search for meaning of life and of the very existence, questions of identity and sense of privacy. It is important

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to notice that, while the young have shorter pasts and longer futures, older people have longer pasts and shorter futures. It is a time of loss: the loss of spouse, friends, jobs, standard of living, and health. Increased psychological well-being is a significant protective factor from the occurrence of future episodes of major depression (Wood & Joseph, 2010; Sin & Lyubomirsky, 2009). Positive mental health is different from merely the absence of psychological distress (Keyes, 2002). Thus, aging process not only involves additional number to their age but various other significant factors that hinders the healthy process of aging. Therefore, increasing well-being and positive intervention might not only increase positive factors but also reduce negative states and psychopathology.

EFFECTS AND FACTORS CONTRIBUTING TO AGING

The aging population may be most aware of their new gray hairs and wrinkles, but this is just the external manifestation of aging. Changes are taking place throughout in the entire body. Poor diet, inactivity, weight gain, and a slower metabolic rate all set the stage for circulatory problems and cardiovascular disease. Blood pressure tends to rise with age, visual acuity diminishes, and difficulty seeing things, decrease hearing ability and sense of taste may become affected as well. Diabetes, obesity, and hypertension are all also reported to be higher among American Indians than the general population (Indian Health Service, 2014). There are various neuropsychological changes that take place in aging such as the slow decline in information-processing speed, dual task, task shifting, encoding, storage and retrieval of memory, deterioration in intellectual capacity. The old person finds it difficult to remember names and location. The psychomotor activity becomes very slow and they take more than usual time to complete a particular task. Dementia and Alzheimer's disease hinders their normal functioning significantly. However, some changes that have long been thought of as normal aging can be, in fact, the signs of a potential disease for example, sudden changes in personality. A common belief is that people become cranky, depressed, and withdrawn as they get older. But an analysis of long-term data from the Baltimore Longitudinal Study of Aging (BLSA) showed that an adult's personality generally does not change much after age 30. People who are cheerful and assertive when they are younger will likely be the same when they are age 80. Their findings suggest that significant changes in personality are not due to normal aging, but instead may be early signs of disease or dementia (National Institute of Aging, 2008).

Stressful life events have detrimental effects on physical and mental health in elderly (Cohen et al., 2007; Pearlin et al., 2005; Thoits, 2006). It results in various neuropsychiatric disorders that account for 6.6% of the total disability for this age group. Approximately 15% of adults aged 60 and over suffer from a mental disorder. The most common neuropsychiatric disorders in this age group are dementia and depression. Anxiety disorders affect 3.8% of the elderly population, substance use problems affect almost 1% and around a quarter of deaths from self-harm are among those aged 60 or above. Substance abuse problems among the elderly are often overlooked or misdiagnosed and mental health problems are under-identified by health-care professionals and older people themselves, and the stigma surrounding mental illness makes people reluctant to seek help (WHO, 2016). In India, in the year 2014, 7107 males and 2654 females (Total 9761) aged 60 years and above committed suicide. This comprises 7.4% of total number of suicides in the country (National Crime Record Bureau, 2014). Retirement is another phase which is inescapable. One person can see retirement as a phase of relaxation and freedom from responsibility and other can take it as stress and threat to financial condition and dependency on others. Limited social involvement is also a significant contributor. A systematic review of studies has shown

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that in industrialized countries, limited social connectedness is associated with suicidal ideation, non-fatal suicidal behavior and suicide in later life (Fassberg et al., 2012).

Elder mistreatment is another stressful life event that may lead to psychological distress in the victims. Several cross-sectional studies have shown that older adults who were mistreated had higher levels of psychological distress than those who had no such experience (Comijs et al., 1999; Mouton, 2003). Clinical studies suggest other effects of elder mistreatment, including feelings of learned helplessness, alienation, guilt, shame, fear, anxiety, denial, and posttraumatic stress syndrome (Wolf, 2000). At least 1 in 10 older adults suffers some form of elder abuse, and many in repeated forms (Government Accountability Office, 2011). Another very important factor in elderly is the sexual relationships. A study found that sexual pleasure and the need for intimacy continue to be important for older women, but that changing sexual abilities and sexual health needs, such as the reduction of sexual desire, as well as increased painful intercourse due to menopause-associated vaginal drying, were persistent barriers to sexual fulfillment and satisfaction (Taylor et al., 2016). Cultural and social factors contribute significantly to these changes. Sexual activity in old age is perceived as a social stigma in Indian society. In Indian culture sex in later life is a taboo and a shameful act. It is a kind of suppressing id and overpowering super ego. Old people suppress their desires and avoid talking about their sexual life because of this social stigma.

Functional limitations and health problems are the additional factors that also increase the risk for isolation and the need for social support in elderly (Langford et al., 1997). A study reported negative relationship between depression and social support for both American Indian adults and older adults (Roh et al., 2014; Whitbeck et al., 2002). However, despite fewer network ties, evidence suggests that different types of social support may increase with age, for example, instrumental support in conducting activities of daily living (Van Tilburg, 1998). Women generally report higher levels of social support and social network ties than men (Antonucci & Akiyama, 1987). It was significantly associated with excellent or good self-reported health status, especially for women (Richmond et al., 2007). A study of persons aged ≥65 years reported that functional decline and death due to acute heart failure at 12 months were predicted by low baseline scores of social support in men, but no effects were seen in women (Berard et al., 2012). Social support withdrawal with age stresses a potential concern that older adults are more at risk of low social support during a time when their need is high (Richmond et al., 2007). Experimental and longitudinal studies have found that increased positive emotions lead to social, occupational, and health benefits (Lyubomirsky et al., 2005). Correlational evidence also links higher reported focus on engaging and meaningful activities to greater occupational success and higher incomes (Schueller & Seligman, 2010).

EMPTY NEST CONCEPT

Successful agers are able to enjoy higher levels of well-being in spite of deteriorations in various domains of life because they have more spiritual, social and psychological resources mainly the positive attitude and approach towards healthy life changes. A high level of life satisfaction and positivity is achieved only when the aging population utilizes the above resources and applies existential coping policies of acceptance in the life. With aging these major sources of personal meaning, such as family, work, social status, and activities start shrinking, giving rise to question of 'Why to live?'. According to the "Empty Nest" concept of aging, in early phase of life whole family lives together. As the children grow they move away from their parental nest for further education and career and then get settled with their

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own families. Parents stay alone with their companion. They want their near and dear ones around. The situation gets worse when they lose their spouses. They already suffer from the biological changes and deterioration in their body which worsen by the addition of these environmental and emotional factors. This fatal combination gives rise to various psychiatric and psychological issues. The adverse conditions of physical and mental health can influence the elderly sense of life satisfaction (Pinto et al., 2016). Additionally, Ericksons' psychosocial theory (1959) explains old age as exemplified by integrity vs. despair. In this stage there is a question of existentialism of the self. Erikson believed that the last stage involves much of reflection of past life. As older people, some can look back with a feeling of integrity; a contentment and fulfillment, having led a meaningful life and did valuable contribution to the society. Others may have a sense of despair during this stage, reflecting upon their experiences and failures, feel guilty about the past, or feel that they did not accomplish their life goals, they become dissatisfied with life. Dissatisfaction and despair in life gives rise to many psychiatric and psychological problems. Depression, anxiety and loneliness become very common when the aging result in despair from life. This phase often leads to decrease in social activities and interaction. They prefer to stay within a very closely-knit environment, with family members, close relatives and very close friends. Many a times the youth find it very uninteresting to spend time with their elderly. This gives the elderly a feeling of being unwanted. A feeling of loneliness and sadness gradually sets in. Loneliness is highly prevalent among older persons with depressive symptoms (Van Beljouw et al., 2014). Community-based studies have identified a variety of risk factors for loneliness/isolation including widowhood, no (surviving) children, living alone, deteriorating health, and life events. Certain situational factors heighten the risk for increased loneliness. These include low socioeconomic status, marital discord, infrequent contact with friends and family, few social roles, lack of participation in voluntary organizations, physical health symptoms, and physical limitations (Hawkley et al., 2008; Santini Koyanagi et al., 2015). Apart from this, loss of loved ones, separation and retirement are also contributing factors causing isolation and depression in old age. Dealing with the issues of life changes and acceptability with positive approach and intervention helps in preventing its various devastating effects on aging.

EFFICACY OF POSITIVE INTERVENTION

Seligman (2004), proposes three pillars of positive psychology, that is: 1) study of positive emotions like checking satisfaction with the past, happiness in the present moment and the hope for the future; 2) study of the qualities/positive traits especially strengths and virtues such as: flexibility, self-control, courage and wisdom and; 3) study of positive institutions e.g. school, family, community. Similarly, searching meaning through inner and spiritual resources is a promising way of transcending personal losses and despair in old age (Wong, 1998). One way of seeing these changes can be positive approach mainly positive intervention. This is an intervention or therapy aimed at increasing positive feelings, positive behaviors, or positive cognitions, as opposed to ameliorating pathology or fixing negative thoughts or maladaptive behavior patterns (Sin & Lyubomirsky, 2009). Exercises like "Three Good Things," a gratitude exercise, outperformed the "You at Your Best" intervention, where participants are asked to describe a time in the past when they were at their best (Seligman et al., 2005). For example: The "Best Future Self" exercise instructs participants as follows:

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Think about your life in the future. Imagine that everything has gone as well as it possibly could. You have worked hard and succeeded at accomplishing all of your life goals. Think of this as the realization of all of your life dreams. Now, write about what you imagined (King, 2001).

Positive interventions along with exercises are designed to promote kindness, generosity, and mindfulness (Layous et al., 2011). With aging these components can help in having a different perspective and approaches while aging. In a randomized control trials, a 7-week loving-kindness meditation workshop was shown to increase positive emotions, which in turn predicted increases in psychological, cognitive, social, and physical resources, which went on to increase life satisfaction and decrease depression (Fredrickson et al., 2008). Similarly, a meta-analysis of 51 randomized controlled studies of positive interventions of individuals who were healthy and of individuals who suffered from depression showed increase in well-being and decrease in depression (Sin & Lyubomirsky, 2009).

Ciarrochi et al. (2016) focus on two components of positive psychology interventions; Content and context -focused positive interventions. Content-focused positive interventions is defined as those that focus on altering the content of people's thinking, that reinforce the notion that a certain way of thinking is inherently good, and that tend to underemphasize or ignore the role of context. These interventions often seek to increase positive mental content or diminish negative mental content. For example, theorists have argued that positive emotions cause people to "broaden and build" (Fredrickson, 2001), optimism and grit cause people to succeed (Seligman, 2002; Duckworth& Gross, 2014), and a lack of positive thinking or the presence of negative thinking causes failure and unhappiness (Byrne, 2006; Peal, 2012). On the other hand, Context-focused positive interventions refer to situational and historical events that exert an organizing influence on behavior" (Hayes et al., 2011). It refers to influence that comes from the immediate antecedents and consequences of behavior, the historical context and the multiple groups and structures within which a person is nested, e.g., social class, culture, family group, friendship group (Bronfenbrenner & Ceci, 1994). Context-focused positive interventions help in treating the causes of behavior as largely residing within the environment. However, even contextual interventions can be done in a content-focused way. For example, mindfulness interventions can be treated as a universal way to reduce stress.

Long before positive psychology, the great philosophers (Socrates, Plato, Aristotle) and psychological thinkers (Freud, Jung, Adler, Frankl, Rogers, Maslow) articulated theories of the good life, pleasure, wholeness, purpose, health, and actualization (Duckworth et al., 2005; Ryff, 2003). In addition, empirical work existed on adaptation, resilience, thriving, spirituality, and growth (Aspinwall & Tedeschi, 2010). There are subsets of positive interventions, a self-administered without professional administration, such as "positive activity interventions" defined as "relatively brief, self-administered, and non-stigmatizing exercises that promote positive feelings, positive thoughts, and/or positive behaviors, rather than directly aiming to fix negative or pathological feelings, thoughts, and behaviors" (Layous et al., 2011). Lazarus criticized positive psychology for taking an overly simplistic approach to the complexities of human emotion and the harsh realities of human life (Lazarus, 2003). However, consistent findings suggest that stronger social relationships reduce mortality and help us cope with life stressors (Holt-Lunstad et al., 2010) Furthermore, psychological well-being in general and positive emotion in particular, appear to promote meaning-making in stressful situations, which in turn leads to more effective coping (Tugade & Fredrickson, 2004).

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SOLUTIONS AND RECOMMENDATIONS

Acceptance and healthy welcome of aging can prevent various difficulties which one face during this process. Dependency on anyone makes a person handicap in dealing or adjusting with the life changes. The humans have a tendency to plan everything in advance to secure healthy and safe life. However, fails to plan a very essential aspect of life i.e. *"Old Age"*. Here are few recommendations along with positive interventions which can help a person in having a healthy approach towards aging;

- Plan aging before it comes and takes preventive measures to avoid the devastating effect of aging. For example, post retirement financial plan can prevent various psychiatric and medical conditions in an aging persons' life.
- There should be a policy of primary, secondary and tertiary management for aging population. Primary prevention should focus on a healthy lifestyle like exercise, yoga, meditation, healthy eating and sleeping habit, good interpersonal and social relations etc. In short, holistic bio-psycho-social management focusing on healthy aging. Secondary prevention should focus on early identification of factors that can further contribute to various medical and psychological complications to aging. These factors could be the unhealthy life style, personality traits, initial identification of illness and unhealthy environment etc. Tertiary prevention should focus on to decrease the impact of factors contributed to unhealthy aging, such as, psychotherapeutic psychosocial and pharmacological management etc.
- Have a good social support system as evidences report that older men and women having social support experience better health and decreased mortality (Hessler et al., 1995). Social support may play a more important role in moderating the relationship between their risk factors and poor health outcomes (Arthur, 2006).
- Existential approach to positive aging because there is no point having more time and live longer if not optimizing the appropriate conditions to live more fully.
- Positive psychotherapy is a novel and distinct therapy technique that focuses on positive emotions, engagement, and meaning rather than targeting negative states and depressive symptoms (Seligman et al., 2006).
- Internet and mobile Apps make it more convenient to take help of the online positive intervention programs (Seligman, 2002). These techniques might be less stigmatizing than other interventions that deal with difficulties and deficits. The "three good things exercise" was even integrated into Facebook through an application that provided users with tools to complete the gratitude journaling online and share with friends in their network (Munson et al., 2010).
- Targeting negative schemas with cognitive behavior therapy and tackling environmental issues mainly interpersonal with interpersonal therapy can also be useful in improving positive health in elderly.
- Having a positive and confident attitude has been identified as a protective factor for loneliness (Grenade & Boldy, 2008).

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CONCLUSION

Aging is inevitable. We all will face it one day. The clock cannot be turned backwards. Our smooth skin will start wrinkling. Hands will start shaking, voice will tremble. The telomerase enzyme (which prevents cells from aging) will deplete. Prakriti (Nature) works in that way. We all want a happy ending in order to achieve that we need to plan early. We have to choose to face it and not to avoid it. How we deal with it is what makes the difference. Aging should be thought of as a spiritual journey. Positive intervention has its effect in all ages. Taking the help of positive psychology as a primary prevention can help eliminating various effects of aging. In the same way, it can also help in reducing the exiting trouble occurring in elderly. By taking preventive steps one can take care of the body and the mind, and that can help stave off some of the devastating illnesses associated with age and live a full, meaningful and energetic life.

वासांसजीर्णानयिथावहियनवानगृह्णातनिरोपराणा।
तथाशरीराणविहियजीर्णान्यन्यानसिंयातनिवानदिही।।

Death is but a change of attire in an uninterrupted continuity of immortality. (The Bhagwad Gita Chapter 2 V: 22.)

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KEY TERMS AND DEFINITIONS

Aging: A process of becoming older.
Life Changes: Change in one's life or circumstances in a substantial way.
Positive Psychology: An applied approach to optimal functioning.
Satisfaction: Fulfilment of needs.
Successful Aging: It refers to physical, mental and social well-being in older age.

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Chapter 4
The Architect of Organizational Psychology: The Geert Hofstede's Dimensions of Cultural (Corporate and Organizational) Identity

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ABSTRACT

Globalization, used in the architect of the organizational psychology world, often evokes images of a shrinking world, in which accelerating flows of information and travel technology compares time and space in the relationships between world cultures, political economies and the built environment. In the world of organizational psychology, the field of organizational psychology is a byproduct of business (organizational behavior and management), psychology [clinical and industrial and organizational psychology (I/O)], and culture. The one common paramount connection between architecture and organizational psychology in the world of globalization is (or the corporate/organization) culture. Hence, the purpose of this chapter is the architect of organizational psychology, with an emphasis on culture. Specifically, Geert Hofstede's dimensions of cultural (corporate and organizational) identity, and how culture influences architecture and business in globalization.

INTRODUCTION

Globalization, used in the architectural world, is a disputed term packed with a rich and intricate array of interpretive possibilities that, once released, raise important questions about architecture, its institutions and its outcomes. Globalization, used in the corporate world, has been associated with flows of capital, labor, products, and ideas that have crossed, challenged, and blurred established national and international boundaries. Globalization, used in the architect of the organizational psychology world, often evokes images of a shrinking world, in which accelerating flows of information and travel technology compares

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time and space in the relationships between world cultures, political economies and the built environment. Today the idea of the global city, once characterized by nodes of high-rise towers associated with nexuses of capital flows vying for command and control of the world economy, is being reconsidered. With the advances in electronic media and telecommunications, people can live simultaneously in both bounded urban public environments as well as highly constructed personal virtual environments. Such virtual connections permit national formations to be maintained across international boundaries, as individuals construct virtual neighborhoods that sustain a life of what theorist Benedict Anderson refers to as long-distance nationalism (Walker, 2001).

In the world of architecture, the field of architecture is of an island, with estranged connection with engineering, (material) science, geology, art, and culture. In the world of organizational psychology, the field of organizational psychology is a byproduct of business (organizational behavior and management), psychology [clinical and industrial and organizational psychology (I/O)], and culture. The one common paramount connection between architecture and organizational psychology in the world of globalization is (or the corporate/organization) culture. Hence, the purpose of this chapter is the architect of organizational psychology, with an emphasis on culture. Specifically, Geert Hofstede's dimensions of cultural (corporate and organizational) identity, and how culture influences architecture and business in globalization. Thus, this chapter will cover:

1. Identity and architectural heritage.
2. Globalization and architecture.
3. Geert Hofstede's dimensions of culture.

IDENTITY AND ARCHITECTURAL HERITAGE: HISTORICAL PERSPECTIVE

The term identity is defined in the Oxford English Dictionary (Crowther, 1995) as the state of being very like or the same as something or somebody, or the state of being closely involved with a part of something. The core meaning of any national identity is a sense of sameness over time and space. Presently it seems that everyone claims a right to identity— architecture for academic and organizations for business. Nations demands identity as if it were a necessity of life itself, a sacred objective, because it brings power by sustaining certain subjective positions and social boundaries (Saliya, 1986). Identity is a huge part of who we are, and identity is the end result of many factors combine to shape identity such as genetic, social, cultural factors, and the build environment.

Architecture can be best defined as the art and science of integrating the physical environment within a socio space-time organization. It can also be seen as a gesture and its insertion within any context should be aesthetically relevant (Vale, 1997). Aesthetics, a Greek word meaning perceptions and feelings, are the feelings that this integration process and their arrangements prompt us to have. This argument raises the question of the morality of architecture: that is considering architectural heritage in modern designs. Heritage can be understood as a pure human instinct that comes from the knowledge and benefiting ways that nature revealed though trails and experiences. Heritage sites are considered as our tangible and intangible identity and collective memory. It is sustained by remembering and what is remembered and what is remembered is defined by the assumed identity.

Architectural heritage is important and worth preserving because it is the storehouse of memories, a link with the past, and because of its universal aesthetic and historic value. In Archibald's (2004) words:

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"memory is a dynamic process of using the past to define and redefine who we are, what we believe, what we like and dislike, and the values we hold dear". Therefore, the loss of heritage as storehouse of memories will lead to a loss of memory and then a loss of identity, because, as Gillis states, identity is "something that can be lost as well as found" (Gillis, 1994). However, Loewenberg (1996) argues for adopting psychoanalysis in historic studies in order to recognize and utilize the pattern of feelings, attitudes, and behaviors that shape history. This argument is derived from the fact that "history is not the collective memory of mankind, rather, it is the reformation and reinterpretation of that memory by each historian according to his time, social circumstance, method, and subjective past" (Loewenberg, 1996).

Living in or close to historic sites, especially World Heritage sites, requires emphasizing the influence of the physical environment on identity and self-perception. In this process, the place-identity theory has provided important contributions to the field of architecture (Hauge, 2007). It proposes a new integrative model of place in both built and natural environments. The influence place has on identity is seen as a result of the interaction between people and their physical environment: people affect places and places influence how people see themselves. Relph (1976) argues that "there is for virtually everyone a deep association with and consciousness of the places… this association seems to constitute a virtual source of both individual and cultural identity and security, a point of departure from which we orient ourselves in the world". The physical features and settings of the place, together with activities and functions carried out in it, are acknowledged by Relph (1976) as a source of identity of place, for places are an integral part of human experience.

For Relph (1976), the essential quality of place was its power to order and to focus human intentions, experience, and behavior spatially. It is related to the place where people grew up, taking into account the emotional connections between human beings and their environment, in other words, their sense of place. When attachment to places develops, we start to identify ourselves with these places. Elkadi (2006) identified the term identity as stemming from the cultural dialogue between users of the place and their surrounding built environment. The places in which people have lived influence their environmental preference and affect the kind of environment they may prefer to live. Hence, the discussion of architectural heritage is now considered a popular phenomenon (Abel, 2000; Taylor, 1986).

As Aylin Orbaşlı (2000) highlights, "The interaction of human beings with the past and the present, with buildings, spaces and one another produces an urban dynamism and creates a spirit of place". Society passes on identity with a place from one generation to another, leaving a legacy in the physical environment. From this phenomenon, the present generation can gain an awareness of the cultural and environmental values of the past on which to build for the oncoming generations (Çelik, 2003). They must realize that maintaining their architectural heritage means maintaining the continuity of a culture.

Architecture, as mentioned above, is a very distinct tool for shaping identity (Abel, 2000; Çelik, 2003). Architectural heritage can be the shadow behind today's production. A nation's architectural heritage is an important part of its identity. Its components are architecture, identity, and history (Lahoud, 2008). Architecture can generate the past, prefigure the future, and articulate the present. This is how one can bridge the gap between the past and the present. The integration will lead to the creation of new buildings which are faithful to the inspiration provided by the inherited cultural heritage. Contemporary architecture in this context is understood as a reference to all significant planned and designed interventions in the historic built environment, including open spaces, new constructions, additions to or extensions of historic buildings and sites, and conversions. The central challenge of contemporary architecture is to respond to developmental dynamics in order to facilitate socio-economic changes and growth on the one hand, while simultaneously respecting the inherited built environment on the other (Rababe'h, 2010).

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GLOBALIZATION AND ARCHITECTURE

Cities and regions are facing great challenges as a consequence of globalization. The term globalization was coined in the latter half of the 20th century, but the term and its concepts did not permeate popular consciousness until the latter half of the 1980s (Chris, 2006, p. 42). Serving as a buzzword of the decade, the phenomenon of globalization has attracted more significant global attention than perhaps any other issue in recent memory, yet the term is used in so many different contexts, by so many different people, for so many different purposes. Giddens defined globalization as "the intensification of worldwide social relations that link distant localities in such a way that local happenings are shaped by events occurring many miles away and vice versa" (Oncu & Weyland, 1997, pp. 1-2). In the sequence, globalization is considered a discourse of knowledge that elevates awareness of the links between various scales of life. The Encyclopedia Britannica defines globalization as the process by which the experience of everyday life is becoming standardized around that world (Adam, 2008). It is also a contested discourse exhibiting many variants, some of which are clearly more influential than others.

The tension between anti-global and pro-global forces has long existed, with two opposing forces affecting architectural globalization. One force seeks to safeguard and promulgate established indigenous architectural traditions, forms, decorative motifs, and technologies. It advocates historical continuity, cultural diversity, and preservation of identity, all symbolized by a particular architectural vocabulary, just as spoken languages and local dialects impart identity. The other force promotes invention and dissemination of new forms using new technologies and materials in response to changing functional needs and sensibilities. It places a premium on systemization, flexibility, and interchangeability (Lewis, 2002). For some, globalization entails the Westernization of the world. Some see globalization as generating increasing homogeneity, while others see it producing diversity and heterogeneity through increased hydridization. Global change represents a new class of problems that severely challenges our ability to achieve sustainable development. These problems are fundamentally nonlinear in causation and discontinuous in both their spatial structure and temporal behavior. Acting in the present age involves understanding the matrix of global and local forces, of domination and resistance, and of a condition of rapid change and great transformation brought about by the global restructuring of capital and multidimensional effects of trends and new technologies.

Trends

In an ongoing dialogue, according to Eldemery (2009) between architects and society, architects consider globalization a distinguishing trend of the present moment, whereas theorists see it either as a necessary and positive vehicle of progress and diversity or as a force of inspired homogenization and destruction. Architecture addresses our meta-physical, philosophical, and cultural identities within a material context. It challenges us to look at history and, therefore, at architecture in a new way (El-Husseiny, 2004). Architectural history is filled with movements opposing cultural and aesthetic diversity while sanctioning particularly philosophies of architecture for national and international distribution. Pro-global design sponsors include governments using architecture for symbolism, companies employing architecture for corporate purposes and product identification, and zealous, sometimes self-righteous, architects preaching their own theories.

In the early 20th century, many architects argued stridently that the modern age demanded new architecture in response to new industry, technologies, mobility, and social and political orders. Thus

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born the International Style, epitomized by German architects Mies van der Rohe, Walter Gropius, and others (Eldemery, 2009). Today, pressure to globalize architecture primarily springs from two sources: the culture of commerce and the culture of design. The global culture of commerce is driven by changing consumer expectations, market opportunities, and business agendas (Oncu & Weyland, 1997). Their architectural manifestations include iconic, sky-scraping banking towers, chains of standardized hotels, franchise restaurants, and shopping malls full of all-too-familiar name-brand stores. The global culture of design is supported by architects who study what other architects are creating, no matter where. With skilled photographs in slick magazines and professional journals, trend-conscious designers can scan and span the global, sharing high-style concepts rendered in stylish materials. Glass, aluminum, stainless steel, copper, titanium, and natural stone are readily available, and if they cannot be acquired locally, they can be imported.

Technology

It is certainly arguable that during the past decades the world has been undergoing the most significant period of technological innovation and global restricting since the first decades of the 20th century. Cities have always been centers of civilization and vitality that, through the years, have led to human progress through material and scientific advances. Globalization is now an unstoppable historical process led by technological change and involving the dissemination of science and new technologies. Rapid urbanization has only been made possible by the introduction of modern technology as a part of the development process. Furthermore, in one of the oldest treatises on architecture, Vitruvius proposed three essential requirements for all good architecture: firmitas, utilitas, and venustas (Morgan, 1914). In order to guide the quality of a building, one should consider the technical means, the practical and functional aspects of the building, and the aesthetic results. According to Schoon (1992), Auguste G. Perret also defined architecture as "a living art that faithfully expresses and visualizes its time through the manifestation of contemporary construction techniques" (Schoon, 1992, p. 10). Complex construction and advanced building design require mastering the skills of structures and construction technology, and as Michelle Addington (2006, p. 64) mentions, "technology is often considered the handmaiden of design and, as such, is meant to be subordinate: design is the why and the what, whereas technology is the how-to".

New technologies are changing the nature of work—with its multidimensional effects—by creating new forms of leisure, including the hyper-reality of cyberspace, new virtual realities, and new modes of information and entertainment. Dramatic change and innovation have been part of modernity for centuries, as has technological development and expansion. A new global culture is emerging as a result of computer and communications technologies. Transitional forms of architecture are traversing national boundaries and becoming part of a new world culture. The new wave of technologies in electronics, robotics, telecommunications, new materials, and biotechnology has given rise to a new technology paradigm that accentuates the role of the world cities (Lo & Yeung, 1998). Thus, the adoption of appropriate technologies is a natural and unforced consequence of appropriate architecture. Together, they offer valid forms and images to take the place of models offered by industrialized nations, and as Shahin Vassigh (2004, p. 112) mentions, "the practice of architecture is a delicate balance of art and science—a creative endeavor which also requires that the architect master a broad array of technical skills, including engineering".

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Place Identity

Within the last few years, globalization has become a catch phrase in architecture associated with a loss of place identity (Eldemery, 2009). There seems to be a general consensus that identity plays a significant role for the continuity of humanity's culture, otherwise, humanity will be cut off from one's past. Place identity is attracting increasing interest from both architects and planners, as well as in social-science research. The phrase place identity conveys many different dimensions such as physical size, tangible versus symbolic, and known and experienced versus unknown and not experienced. Place also includes that which influences the meaning occupants give to it through personal, social, and cultural processes (Altman & Low, 1992; Burd, 2008). Hence, place can be described in terms of many multidimensional physical and psychological environmental attributes.

Individuals' psychological sense of place identity can be understood in many ways: as an experience, a convergence of cognitions, how residents feel towards their town, or an assessment of the extent to which they agree with the sentiment "this is not the place for me". Place identity is sometimes described as an implicit psychological structure, and it is also considered a cognitive structure that contributes to global self-categorization, and social-identity processes. It emerges from involvement between people and place and it is described as the individual's incorporation into the larger concept of self. Harold Proshansky (1978, p. 152) stated that "there is no physical setting that is not also a social, cultural, and psychological setting". According to Eldemery (2009), Proshansky coined the term place identity to denote the dimensions of self that define an individual's personal identity to physical environment (Proshansky, 1978).

Proshansky latter attached the concept of place identity to belongingness. Identity, or more precisely, place identity as discussed by Proshansky, refers to conscious ties between the community and its residents as these develop over time. Hummon (1986, p. 34) reinforces the view by defining place identity as "an interpretation of the self that uses place—a significant, symbolic locale—as a sign or locus of identity." Hummon considers places environmental contexts with real consequences for people and lays a great deal of stress on ties between the place and the people. Proshansky, Fabian, and Kamminoff extended identity theory to the area of environmental psychology and proposed that place identity is a "physical world socialization of the self" (Proshansky et al., 1983, p. 62)—commonly known as biophilia (Tran, In Progress). When defining the concept of identity, Rapoport recognizes the complexity of identity formation, and his method of establishing the desired functional, and symbolic connections between an environment and people, privileges ethnicity above all other identity-constructing factors. This occurs because of Rapoport use of the culture-core concept to attempt to drive key features of tradition that need to be supported (Rapoport & Hardie, 1991). The analysis following from the use of this concept assumes that identity comes from using available cultural resources from a spectrum of cultural presentations extending from traditional to modern (Mthethwa, 2002).

Place identity is also defined precisely as a set of cognitions about physical settings. The concept of place identity underpins the collective sense of cultural identification with a particular building and its design features. This concept considers the debate around decisions with regard to buildings and the sources of architectural elements used in the design project or building. It implies that there are essential natural characteristics that identify a place and that, in effect, these are latent and without structure but can be released by a sensitive design solution. Under this criteria, a locally appropriate building or proposed project is determined by a general consensus on the building and/or proposed project with incorporation of an acceptable architectural language drawn from vernacular design aspects, including site, vernacular architectural forms, materials, and symbolism. It also considers the setting of buildings

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and the sources of architectural elements used in the design project of building. Under this, a locally appropriate building to proposed project could be determined by a general political consensus on the proposed project with incorporation of an acceptable architectural language drawn from the national vernacular language, such that materials substance, shape, texture, and color, together determining the essence of place, where place is seen as a product of physical attributes—biophilia (Tran, In Progress).

Environments for Inhabitation

The primary products of architecture are cultural artifacts we call buildings. They are intentional compositions of forms and spaces organized as structures that provide environments for humans (and other animals) to inhabit. Hence, it is worth noting that architects design many other cultural artifacts besides buildings: drawings and paintings, models, books, cutlery, cloth patterns, and the like. When they do, they are not producing architecture: rather, they are employing architectural methods to produce other cultural artifacts. By definition, architecture refers to the design of inhabitable environments. Thus, buildings are intentional compositions because they are designed by people for the purpose of inhabitation. Although for us they are a given, buildings are not required for human habitation: there are many non-designed (non-intentional) inhabitable environments in the world, uncomfortable as they may be. Nevertheless, the central role that architecture — and by extension, culture — plays in our self-identity as a species consists of two components: forms and spaces (Arango, 2011).

Forms are the physical component of buildings. They are the tangible elements that make up a building, such as its brick walls, stained glass windows, wooden columns, copper roof, stone paved paths, garden layout, and so forth. Forms can contain other forms: for example, a wall can contain a window. While they are discreet elements, they are comprised of building materials such as bricks, sand, and glass that can be considered discreet forms in and of themselves. Spaces are the voids between a building's forms. They are defined by and hey also define the relationship between these forms. Spaces are not "real" in the same sense that forms are: they are only experienced in time by the person inhabiting the building. Spaces do not exist independently of this individual experience. This leads us to an important consideration we tend to easily overlook: architects are, by definition, in the business of designing for experience. Most interestingly, forms and spaces cannot exist independently of each other. They are inextricable parts of a whole: they are the yin and the yang of architecture.

Culture and Politics in Building Architecture

Architects cannot help but be cognizant of the fact that their interventions on the environment will have a cultural impact that extends far beyond providing cover from the elements (Brand, 1994). Some architects even focus on these cultural functions as the primary force that informs and animates their work. This is because architecture is an area of practice with a long history, all architectural artifacts also exist in constant dialog — self-conscious or not — with their precedents. For example, the design of the Capitol building in Washington, D.C. can only be appreciated in full if the viewer knows the classical language and forms of Roman and Greek architecture. Without such knowledge, while one can certainly experience the building itself, much of its cultural meaning is absent from its design (Arango, 2011).

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Environments for Understanding

While information architecture shares many traits with building architecture (Arango, Hinton, & Resmini, 2011) there is however one crucial difference: the objective of IA is not the production of environments for inhabitation, but for understanding. Just like architecture enables environments for inhabitation by the organization forms and spaces, information architecture enables environments for understanding by the organization of nodes and links (Arango, 2011). According to Arango (2011):

1. **Nodes Are Discreet Units of Meaning:** They consist of content elements — texts, images, videos, and the like — that jointly communicate a concept or idea. A node can be as simple as a single word, and can be infinitely complex. A web page is a node, but so are the sentences, images, and visual elements that comprise it. One of the information architect's critical responsibilities is defining a node's boundaries so that it conveys meaning optimally.
2. **Links Are Much Like Spaces:** Links define and are defined by the relationships between two or more nodes (Lynch, 1960; Passini, 1984). There are many types of such relationships. For those of us reared on the web, the most obvious example is the hyperlink, in which a node refers to a second node in such a way that clicking on the node causes the user's display to load and present the second node. There are many linking approaches that can be used to establish relationships between nodes. Some obvious ones:
    a. **Sequential:** One node follows another in sequence. For example, multiple words can be strung together to form sentences, which can in turn be strung together to form paragraphs, sections, chapters, and entire treatises,
    b. **Spatial:** The relationship between two or more nodes is defined by their geometric position relative to each other. For example, the content of two images can be compared by placing them side by side,
    c. **Hierarchical:** One node contains another. The most obvious example is a website's navigation sitemap. It is also worth noting that pages themselves are collections of nodes. Pages are thus hierarchical containers, and
    d. **Conceptual:** One node triggers conceptual associations with a second node in the user's mind, even though the second node is not itself present. This linking strategy is dependent on the user having previous knowledge of the second node (Arango, 2011).

CONCEPT OF BIOPHILIA

Wilson calls biofilia an "innate tendency to focus on life an lifelike processes" (Wilson, 1984, p. 1), an "innate emotional affiliation of human beings to other living organisms" (Wilson, 1993, p. 31), or an "inborn affinity human beings have for other forms of life, an affiliation evoked, according to circumstances, by pleasure, or a sense of security, or awe, or even fascination blended with revulsion" (Wilson, 1994, p. 360). In other words, in the biophilia hypothesis, Wilson concentrates on the fact that the creation of the human cognition "pattern" during the process of evolution was not contributed to by only the abiotic, and/or social environment, but also the biotic. Furthermore, in the first listed definition from the book Biophilia (Wilson, 1984), it is claimed that the human mind is generally focused on "life and lifelike processes".

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Thus, biophilia can be understood as "inborn affiliation with the rest of life". Defined like it has its place within the evolutionary theory of the biosphere (Lovelock & Margulis, 1973; Vernadsky, 1945). However, according to the other two definitions, the concept of biophilia can be understood to be "inborn focus on other life forms", that is a complex of cognitive evolutionary modifications of the human mind, which directs learning relationships to natural phenomena. It developed under prehistoric sociocultural and natural conditions. This is how evolutionary psychologists or human ethologists, anthropologists and sociologists understand biophilia. It is a complex, or set, of instincts (Wilson, 2002, p. 137), which sometime in the evolutionary past of humankind favored the individual at some level of natural selection.

The original cognitive rules of understanding and dealing with nature have not disappeared, even in today's world of artificial artifacts, in which we can only difficulty find natural stimuli. Biophilia, as a complex of weak rules of learning, influences our thinking about nature, the landscape and even about art, myths, and environmental ethics. The deeply ingrained cognitive rules have, in Western society manifested themselves, for example, in the popularity of zoos, preferential housing on hills with views of water or in phobias (Wilson, 1984, p. 32). Many of them are fundamentally connected to avoiding danger, or motivation for exploring, and exploiting the environment.

In traditional societies, these biophilic tendencies are functional, as humans are there to use their environment directly. In Western civilization with humans' technical capabilities, these tendencies however overload nature, for they are not correctly reflected in culture, and thus, they are not even functional. Many of today's rules for treating nature/other species are the result of a long history of intimate contact with nature, and the short period of mechanization of our environment, which have reduced this contact and at the same time, greatly changed the way we view the value of other species (Wilson, 1975).

GEERT HOFSTEDE'S DIMENSIONS OF CULTURE

Geert Hofstede is a Dutch researcher who is seen as a significant informant and researcher in intercultural studies. Hofstede's book, *Cultures and Organizations: Software of the Mind* (Hofstede, Hofstede, & Minkov, 2010), is considered an important cornerstone in the research field. A great number of business studies have taken Hofstede's theory as a framework and many other cross-cultural training programs are based on his data. In comparison with Hall's theory, Hofstede's theory is more significant on two grounds:

1. First, it departs from verbal/nonverbal communication, which is largely related to the outward expressions of the Tree Model, and hence, easier to change. Focusing on the second layer, Hofstede draws a framework of values, deep assumptions, and guiding morality that are difficult to see and very slow to change, and
2. Hofstede conducted systematic research on these values and projected them on a 100-point scale of measurement.

While with Hall's theory one can only have observation and conclude that this culture is likely to be more Monochronic than the other culture, Hofstede's theory, permits a look at a wide range of cultures with a comparative perspective and attach a number to it. Furthermore, it must be noted that Hofstede does not deal with co-cultures, because Hofstede's data mostly points at values of a dominant culture within a nation. On the Tree Model, Hofstede does not discuss the fundamental concerns, and only

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points out the typical outward expression of these values without warning that the non-typical elements are constantly present (Hofstede, 2011).

The Hofstede model (Hofstede, 2001; Hofstede & Hofstede, 2005), according to Tran (2014) and Shaiq, Khalid, Akram, and Ali (2011), distinguishes cultures according to five dimensions:

1. Power distance,
2. Individualism/collectivism,
3. Masculinity/femininity,
4. Uncertainty avoidance, and
5. Long-term/short-term orientation (Hofstede, 2011).

Hofstede defined these four dimensions as follows (Tran, 2014):

1. **Power Distance:** Power Distance is "the degree of inequality among people that the populace of country considers as normal" (Harzing & Hofstede, 1996, p. 304). Power is a fundamental concern because human group everywhere are organized into a hierarchy. Decision makers are present in groups of any size and ethnicity. The value attached to power is called Power Distance, defined as the extent to which the less powerful members of the society accept and expect that power is distributed unequally (Hofstede, 2011).
    a. **The Typical Outward Expression of Power Distance in Society:** At the top level of the Tree Model, language appears to be the most obvious outward expression of Power and Power Distance. While English has only two pronouns you and I, some societies, especially China, Japan, and Vietnam, have more than a dozen ways of social role indication, dictating how people address each other (Yamada, 1997). In China and Vietnam, it is sometimes impossible to talk appropriately if two persons do not know the age of each other, and cannot establish a ranking relationship for communication.
    b. **The Origin of Power Distance:** Most of the high Power Distance countries are at lower latitudes and most of the low Power Distance countries are at higher latitudes. At lower latitudes, agricultural societies are prevalent and survival and population growth in these climates demands a relatively limited intervention of man with nature: everything grows. In this situation the major threat to a society is the competition between human groups for the same territory and resources. The better chance for survival exists for those societies that have organized themselves hierarchically and are dependent on one central authority who keeps order and balance. At higher latitudes, nature is less abundant. There is more of a need for human intervention with nature in order to carve out an existence. There are stronger forces supporting the creation of industry next to agriculture. Nature, rather than other humans, is the first enemy to be resisted. Societies in which people have learned to fend for themselves without being too dependent on more powerful other have a better chance of survival under these circumstances than societies which educate their children towards dependence.
2. **Individual-Collectivism:** Individual-Collectivism describes "Whether one's identity is defined by personal choices and achievement o by the character of the collective groups to which one is more or less permanently attached" (Smith & Bond, 1993, p. 38). While Hofstede does not give a generic name to this universal value like what Hofstede did with the previous value of Power

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Distance, but for the purpose of this chapter, the term Group Attachment, by Phuong Mai Nguyen, Cees Terlouw, and Albert Pilot (2006) will be adapted.

a. **The Typical Outward expression of Group Attachment in Society:** The first characteristic of Group Attachment is the perception of harmony. Although this notion is universally important in all societies, the emphasis placed on it differs along the scale of individualistic-average-collectivistic. Harmony is attached with much more significance on the collectivistic end, showcasing a strong Group Attachment and willingness to maintain order and stability, therefore, direct confrontation is considered rude and undesirable. In this sense, Hall's High Context strongly correlates with collectivism, since indirect communication also aims at maintaining harmony and avoiding direct confrontation. The second characteristic of Group Attachment is a universal notion called face, understood as public dignity of a person or a group. The desire for face goes hand in hand with the desire for harmony, since losing face leads to shame and confrontation, and thus, losing harmony. The third characteristic of Group Attachment is how interdependence is perceived in each society. Although this is a universal virtue and nobody can survive without relying on a network of reciprocal support, individuals can be expected to reach different levels of interdependence. The fourth characteristic of Group Attachment is trust. Naturally, trust is universal, and it can be further distinguished as affect-based trust and cognition-based trust. The former is more associated with collectivism and the latter is more associated with individualism.

b. **The Origin of Group Attachment:** Many factors support the guesswork: climate, population, and wealth. The latitude was the first predictor of power distance and it also plays a role in predicting the score on this value dimension. Inter-group conflicts in lower latitudes promote group dedication and attachment for survival. Countries with moderate and cold climates in higher latitudes tend to show more individualist traits where people's survival depends more on personal initiative. Population growth is also strongly related to collectivism.

3. **Masculinity-Femininity:** Masculinity-Femininity is "the degree to which values like achievement, assertiveness, performance, success, and competition, which in nearly all societies are associated with the role of men, prevail over values like the quality of life, maintaining warm personal relationships, services, care for the weak, and solidarity, which in nearly all societies are more associated with the role of women (Cummings & Worley, 1994, p. 304). In our modern days, the role of men and women are largely overlapped. Men are increasingly working in occupations which traditionally are more popular with women and vice versa. That is to say Gender is never too far from our universal concern, and we associate different traits of gender as masculine or feminine. One must not mistake this value for Gender Role, which is the outward expression in the Tree Model, indicating how a man or a woman is expected to do. Therefore, Nguyen changed the original term used by Hofstede (Masculinity-Femininity) for Gender Association.

   a. **The Typical Outward Expression of Gender Association in Society:** The outward expression of this value can be seen in two categories: gender role and social activities. Firstly, when it comes to gender roles, femininity associated societies have feminine traits prevailing among both men and women, with male roles tending to overlap with female roles: Both men and women are expected to be modest and caring, such that more men are doing traditionally female professions such as nursing and secretarial jobs, and more women are taking traditionally male profession such as police and soldiers. In masculinity associated societies, women tend to split into two groups:

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i. They stick to traditional female jobs and behavior, and
ii. They break the barrier and spreading to fields that are traditionally male dominated. Secondly, when it comes to social activities, each society can be associated with more feminine or masculine virtues.

b. **The Origin of Masculinity-Femininity:** No strong correlations have been found with outside factors which could explain why some countries have dominant masculinity. Feminine cultures are somewhat more likely in colder climates, suggesting that an equal partnership between men and women improves the chances of survival and population growth in these harsh climates.

4. **Uncertainty Avoidance:** Uncertainty Avoidance is the degree to which people in a country prefer structured over unstructured situations. Structured situations are those in which there are clear rules as to how one should behave, and planning and stability counter uncertainty. Trying to predict and avoid harm is universal and part of basic human instinct. Fear is the result of both strongly innate feeling and social learning.
5. **Long-Term/Short-Term Orientation:** Long-term orientation is when one is focused on the future. One is willing to delay short-term material or social success or even shot-term emotional gratification in order to prepare for the future. If one has this cultural perspective, the individual values persistence, perseverance, saving and being able to adapt. Short-term orientation is when one is focused on the present or past and consider them more important than the future. If one has a short-term orientation, the individual values tradition, the current social hierarchy and fulfilling your social obligations. One cares more about immediate gratification than long-term fulfillment.

Human societies have always been organized within space and time. The former is related to the relationship between human and nature, a value dimension within the framework of Trompenaars. The latter focuses on how we perceive and vision our life activities across the time spectrum. Time Orientation is a universal value that relates to how we see the influence of the past, the presence, and the future in our life: How far we plan ahead, how quick we expect our result and our reward, how important is saving and spending, and like. At the collective level, time spectrum exerts different degree of influence in different societies, creating two orientations on this value dimension: short-term and long-term Time Orientation. In a nutshell, a focus on the past and the present would lead more towards short-term Time Orientation, and a focus on the future will lead more towards long-term Time Orientation.

This value dimension is inspired by Confucianism, a philosophy of life originated in ancient China. It focuses on virtues with incredibly strong emphasis on acquiring skills and education, working hard, not spending more than necessary, being patient and persevering, and being well prepared for the future. These fundamental virtues play as cornerstones of life in all the societies under the influence of Confucianism: China, Vietnam, Korea, Japan, Singapore, and Taiwan. Not surprisingly, these are also the countries with a tendency of learning towards long-term Time Orientation. In the index table, the higher the score, the more important future exerts a significant influence in people's life (Hofstede, 2011).

Cultural models define patterns of basic problems which have consequences for the functioning of groups and individuals (Tran, 2014): 1) relation to authority; 2) the conception of self and ego identity; and 3) primary dilemmas of conflict and dealing with them (Inkeles, 1997; Kluckhohn & Strodtbeck, 1961). These basic problems can be recognized in the Hofstede model (Hofstede, 2001; Hofstede & Hofstede, 2005), and have been found in other studies such as those by Trompenaars (1993), Schwartz (1994), Schwarts and Bilsky (1987), and also the GLOBAL study (House & Associates, 2004). Culture

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impacts the behavior of corporate and organizational identity. According to Fletcher and Fang (2006), this is the case with buying at both the consumer level as well as the industrial level, and although the impact of culture may differ to a degree between these two levels, generally there will be cultural differences in how buyer in different environments behavior or act. It is for this reason that western derived models of buyers need to be modified when doing business in developing countries. Different tastes, customers and habits are likely to result in different preferences.

Cultural models on conducting business, especially effective cultural models on business and marketing, are essentially a lesson in rhetoric. Since the study of rhetoric has been around for many years, there are a number of different definitions for the word, and the three traditional ways and one architectural cultural way, in which culture conducts business create an artistic proof for an argumentative message are with the usage of ethos, pathos, logos, and feng shui [風 水 (through the correlation and causation of biophilia)]:

1. **Ethos:** Ethos is the appeal of a message's meanings, and is also an attempt to gain the audience's support for the message argument through portraying the cultural methodology of conducting businesses resulting in the type of corporate and organizational identity the audience would be likely listen to and believe.
2. **Pathos:** Pathos is the appeal to the audience's emotions. Pathos is easiest of the four types of appeals to explain but the most difficult to use effectively in practice.
3. **Logos:** Logos is the appeal to reasons. It is probably the most involved appeal to explain and the most straightforward to apply, which is what businesses have all been taught all their professional lives in terms of making arguments: arguments should make logical sense. The appeal to the reason is exactly that: businesses illustrate why the position taken is logical in light of the evidence. In so doing, corporate and organizational identity are formed, branded, and continuously marketed through the Geert Hofstede's dimensions of cultural identity, resulting in the architecture of organizational psychology (Tran, 2014).
4. **Feng Shui (Biophilia):** Feng Shui is a Chinese philosophical system of harmonizing everyone with the surrounding environment. It is closely linked to Daoism. The term feng shui literally translates as wind-water in English. This is a cultural shorthand taken from the passage of the now-lost Classic of Burial recorded in Guo Pu's commentary (Pu, 2009): Feng shui is one of the Five Arts of Chinese Metaphysics, classified as physiognomy. The feng shui practice discusses architecture in metaphoric terms of invisible forces that bind the universe, earth, biophilia, and humanity together, known as qi. Historically, feng shui was widely used to orient buildings—often spiritually significant structures such as tombs, but also dwellings and other structures through biophilia—in an auspicious manner. In so doing, corporate and organizational identity are formed, branded, and continuously marketed through the Geert Hofstede's dimensions of cultural identity, commonly known as the architecture of organizational psychology.

FUTURE RESEARCH

Biophilia refers to the positive influence of nature on all living things due to the healing aspects of vibrant nature. Biophilia is more well-known in architecture and the architectural field. Feng shui is the Chinese art of the placement of buildings and the organization of interior spaces and furniture to create

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a smooth flow of chi, to energize environments and to create harmony, health and prosperity in the lives and work of the users of the spaces. Feng shui has been around for some two thousand years and variations, such as Vastu, are used in many Asian countries. Buildings that possess feng shui elements and biophilic features have been found to foster higher levels of human health, well-being and productivity. These design strategies allow natural design elements and shapes to improve flow throughout the floorplan and interior space.

It has been found that in order for people to truly connect to buildings, a balance of natural elements and shapes must be present, including natural light, air, minerals, plants, animals, color, natural shapes, materials, and other organic elements. Known to encourage and improve health and well-being, these integrated natural design disciplines, are simply a superior way to design our spaces in which we live and work. While the fields of environmental psychology and industrial and organizational (I/O) psychology are not naïve about the concept and practice of biophilia, is not exactly well-known, researched, or practiced in the field and subfields of psychology. Hence, biophilia would no doubt yield educational and practical results through the interdisciplinary partnership among architecture, environmental psychology, and industrial and organizational (I/O) psychology.

CONCLUSION

While biophilia is an influential concept in ecopsychology and a practical methodology, there are arguments that it should be "taken with a pinch of salt" (Bone, 2009). The argument that Bone (2009) forwards is that biphilia can be interpreted as biologically determinist, and as such it is on conflict with what we know of our social environment (Newton, 2007), the best example being behaviorism and its theories of conditioning (Bandura, 1965). Freudian theory is often criticized for similar reasons, and as the two share a focus on the unconscious (Rosak, 1995), some criticisms can ring true for both. It is argued that this kind of determinism attempts to precede and set limits on the effects of culture on the psyche (DeCecco & Elia, 1993), whereas there is a wealth of psychology indicating that cultural and social factors are hugely influential (van der Veer, 1996). It can be argued that many aspects of both biophilia and biophobia are learned, through theories like Banduras (1965) imitation of behavior model. This expands into a cultural argument, as shown by Noe and Snow (1990), through different cultures (Hispanic & Non-Hispanic) experiencing a different level of sensitivity for the ecological concerns and natural environments, implying a cultural effect on this variable. While these criticisms of biophilia are relevant, the field has taken some steps to address them, for example, Kahn (1997) notes that cultural issues do play a role in the way we express biophilia, with it being more acceptable in some cultures compared to others.

Hence, there are three major flaws with biophilic, and other evolutionary based explanations of behavior, identified by Schlinger (1996, pp. 72-73), and these are validity and reliability, poor use and understanding of statistics and loose interpretations of data. By this Schlinger identifies that much of the data in biophilic research is difficult to replicate as the conclusions come to be researchers are hard to verify due to its overall lack of empirical research. Schlinger (1996) continues by arguing the problem with evolutionary basis for behavioral and emotional development is partly of evidence supporting these arguments due to this flaw. This is compounded by the work of geneticist Futuyama (1979), who states that the field of genetics provides no means for "investigating the inheritance of an invariant trait", which in this case is biophilia.

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Futuyama argues that making these kinds of claims is pointless as they are unstable (1979), but does put forward the idea of instead of being a universal trait, traits like biophilia could be canalized in different cultures instead. This is supported by research such as that of Dobzhansky, Ayala, Stebbins, and Valentine (1977), who found that instead of behavioral rigidity in reacting to natural stimuli, which is implied by biophilia, there is a degree of plasticity, with people reacting differently to stimuli, and sometimes not at all, showing a variance in responses, that would support a canalized theory of biophilia.

The crux of this set of arguments against biophilia is that correlational data does not imply causation (Neale & Liebert, 1973) and we do not understand the reactions, for example, in animal assisted therapy to draw conclusive evidence in favor of biophilia (Melson & Fine, 2010). However, based on practice, biophilia (in relations to feng shui), through practice, has demonstrated that correlation does indeed imply causation. As such corporate and organizational identity continue to form, brand, and continuously marketed through the Geert Hofstede's dimensions of cultural identity, commonly known as the architecture of organizational psychology.

For example, the MGM Grand Las Vegas is a hotel casino located on the Las Vegas Strip in Paradise, Nevada, USA. The MGM Grand is the third largest hotel in the world by number of rooms and the largest hotel resort complex in the United States, ahead of The Venetian. When it opened in 1993, the MGM Grand was the largest hotel in the world. Originally, the main entrance on the Strip was inside the mouth of a giant lion, a play on a cartoon-like version of MGM's logo, Leo the Lion, but this entrance feature was changed to a more traditional entrance. The change, was rumored by the Asian culture, based on feng shui, where guests entering the hotel through the lion's opened mouth, symbolizes that all guests are preys and that the MGM is the predator. All who enters will lose to the house when gambling.

Hence, in 1998, a large bronze statue of Leo was added above the entrance to keep with the MGM Lion theme, while not scaring away guests. The statue weighs 50 tons, and at 45 feet (14 m) tall, on a 25-foot pedestal, is the largest bronze statue in the U.S. (MGM Grant Fact Sheet, 2016). Hence, based on practice, biophilia (in relations to feng shui), through practice, has demonstrated that correlation does indeed imply causation. As such corporate and organizational identity continues to form, brand, and continuously marketed through the Geert Hofstede's dimensions of cultural identity, commonly known as the architecture of organizational psychology.

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KEY TERMS AND DEFINITIONS

Architecture: Can be best defined as the art and science of integrating the physical environment within a socio space-time organization.

Biophilia: An innate human emotional affiliation to nature and living organisms in general is proposed as an adaption to our history.

Biosphere: The biosphere is the global sum of all ecosystems. It can also be termed as the zone of life on Earth, a closed system, and largely self-regulating. By the most general biophysiological definition, the biosphere is the global ecological system integrating all living beings and their relationships, including their interaction with the elements of the lithosphere, geosphere, hydrosphere, and atmosphere.

Ecopsychology: Ecopsychology studies the relationship between human beings and the natural world through ecological and psychological principles. The field seeks to develop and understand ways of expanding the emotional connection between individuals and the natural world, thereby assisting individuals with developing sustainable lifestyles and remedying alienation from nature. Theodore Roszak is credited with coining the term in his 1992 book *The Voice of the Earth*. Roszak later expanded the idea in the 1995 anthology Ecopsychology with co-editors Mary Gomes and Allen Kanner.

Environmental Psychology: Environmental psychology is an interdisciplinary field focused on the interplay between individuals and their surroundings. The field defines the term environment broadly, encompassing natural environments, social settings, built environments, learning environments, and informational environments.

Feng Shui: A Chinese philosophical system of harmonizing everyone with the surrounding environment.

Geert Hofstede: The founding father of the five cultural dimensions: 1. power distance, 2. individualism/collectivism, 3. masculinity/femininity, 4. uncertainty avoidance, and 5. long-term/short-term orientation.

Globalization: Defined as "the intensification of worldwide social relations that link distant localities in such a way that local happenings are shaped by events occurring many miles away and vice versa".

Globalization (in Architecture): In the architect of the organizational psychology world, often evokes images of a shrinking world, in which accelerating flows of information and travel technology compares time and space in the relationships between world cultures, political economies and the built environment.

Globalization (in Corporations): Associated with flows of capital, labor, products, and ideas that have crossed, challenged, and blurred established national and international boundaries.

Identity: The state of being very like or the same as something or somebody, or the state of being closely involved with a part of something.

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Individuals' Psychological Sense of Place Identity: Can be understood in many ways: as an experience, a convergence of cognitions, how residents feel towards their town, or an assessment of the extent to which they agree with the sentiment "this is not the place for me".

Industrial and Organizational (I/O) Psychology: Industrial and Organizational Psychology [also known as I–O Psychology, Occupational Psychology, Work Psychology, Work and Organization (W/O) Psychology, Industrial, Work and Organizational (IWO) Psychology, and Business Psychology] is the scientific study of human behavior in the workplace and applies psychological theories and principles to organizations and individuals in their workplace.

Place: Can be described in terms of many multidimensional physical and psychological environmental attributes.

Place Identity: Conveys many different dimensions such as physical size, tangible versus symbolic, and known and experienced versus unknown and not experienced.

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Chapter 5
A Primer for Beginners in Pharmaceutical Care:
A Call-to-Action to Pharmacists

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ABSTRACT

This article describes how pharmacists are highly accessible healthcare professionals, and their clinical services are among the most accessible healthcare assistance systems worldwide considering the availability, geographic distribution and location of compounding pharmacies, clinical laboratories and drugstores. Pharmacists need to move from the focus in administrative management to patient-oriented practice, such that the access and the quality of clinical services can be improved. Pharmaceutical Care can influence pharmaceutical services to become more accessible and with a broader coverage of patients. Here is presented an approach on the implementation of effective strategies to improve the quality of Pharmacists' performance as specialized healthcare providers.

INTRODUCTION

More than half of the world population cannot access the medication they demand. Prices are often too high for patients and health systems to afford, and therefore, such expenses represent a significant part of the total healthcare budget. And it is in this context that Pharmacy profession has evolved to include the provision of services beyond the traditional role of medication dispensing. Pharmacists are highly accessible healthcare professionals given the availability, geographic distribution and location of establishments such as drugstores and compounding pharmacies. The Pharmacist is usually the first professional addressed by a patient with minor or complex health issues, commonly due to the scarcity of physicians, or even due to financial barriers to private clinical services when public healthcare services cannot address the patient's needs (Hepler, 1996; 2004; Wiley et al., 2014; Kamei et al., 2015; Penm et al., 2015; Lopes et al., 2017; Mateti et al., 2017).

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Pharmaceutical services are among the most accessible healthcare assistance systems worldwide, being quite often provided without additional charges (beyond medication prices) by Pharmacists in enterprises like drugstores and compounding pharmacies; yet, some of these services are remunerated in some countries, including consultations, blood pressure measurements or preparation of healing bandages. The published experience on the traditional way that pharmaceutical services are established and offered has shown that they have historically been working relatively well for patients in conditions such as: a) common and controlled acute or chronic diseases, b) use of not many medications (like two or three formulations), c) simple therapeutic schemes, d) adequate education level to understand pharmaceutical advising on rational use of medications (Citrome, 2011; Fisher et al., 2014; Gabr & Shams, 2015; Molino et al., 2017).

In some countries, in addition to counseling patients on all technical aspects concerning appropriate medication usage, Pharmacists are allowed to prescribe some types of medications, a relevant support for patients to take decisions on self-treatment with medication. This may explain in parts why patients often seek advice in pharmacies, and frequently do not consider a physician consultation. Nevertheless, there are several challenges for providing these services for patients with limitations such as low education, difficulties on reaching the Pharmacist, the need for individualized monitoring (due to the complexity of therapy), and reports of low quality services are growing worldwide. These facts have been requiring Pharmacists to rethink the way in which pharmacy practice is performed (Lewin, 2013; Sakthong et al., 2013; Fishera et al., 2014; Malewski et al., 2014; Sakharkar et al., 2014; Abe et al., 2017; Babar et al., 2017).

Pharmaceutical services are generally designed in agreement to health policies in order to ensure access, affordability, and delivery of essential medicines to the population. Usually, they comprise medication dispensing, counseling on rational use, logistic organization of dispensing accordingly to local clinical and epidemiologic data. Strategies for the rational use of medications are than planned to promote safe and cost-effective treatments, considering regulatory and quality standards defined by local laws. Pharmacists should, therefore, develop mechanisms for regular review or new proposals of formularies, guidelines and policies regarding drug dispensing and prescribing; therefore, developing trained pharmaceutical human resources is of paramount importance, and efforts have been made worldwide to provide this improvement in different levels of pharmaceutical education, such as PharmBSc (Bachelor of Science in Pharmacy), PharmMSc (Master of Science in Pharmcy) and PharmD (Doctor of Pharmacy) (Vijayanarayana et al., 2014; Kamei et al., 2015; Nuffer et al., 2017).

Patients' needs regarding drug therapy are in continuous fluctuation (Malewski et al., 2014; Obreli-Neto et al., 2015). Thus, evidence-based pharmacy practices are the key to provide effective pharmaceutical services and improve the quality of healthcare as a whole. In this sense, Pharmacists must move from being medication dispensers with focus in administrative and logistics management, to patient-focused and clinically-oriented care providers, with more responsibility and commitment to improve their technical knowledge, but now with a humanistic view of practice (Sakharkar et al., 2014; Cho et al., 2015; Novais et al., 2017; Sakthong & Sangthonganotai, 2017).

Here, strategies to expand the access of patients to pharmaceutical services focusing in pharmaceutical care, and ways to improve the quality of such services. Data regarding patients' views and satisfaction with Pharmacists' performance as a specialized healthcare provider, and Pharmacists' perception of receptiveness and evolution of patients will be also discussed in light of evidence-based practice.

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PHARMACEUTICAL CARE AS A PROCESS: AN OVERVIEW

Since the 1990s, Pharmaceutical Care (PC) has been described as an important service and element of pharmacy practice and healthcare, in which Pharmacists are responsible for the quality. PC is a pharmaceutical service designed to achieve definitive therapeutics outcomes through preventing or solving drug related problems, and is generally defined as a direct provision of drug related care by the Pharmacist through health education, in order to improve patients' quality of life when using medication. It represents a shift of practice in pharmacy from being drug product-oriented to a patient-oriented view (Hepler & Strand, 1990; Cipolle et al., 2004). As described by Hepler (1996), PC services involve:

1. Recognition and correct identification of clinical conditions requiring safe and efficient drug therapy
2. Prescribing for definite outcomes
3. Dispensing and patient counseling, involving the patient or family/caregiver in all decisions
4. Monitoring and management of outcomes
5. Documentation of all actions

PC activities include medication dispensing, providing education on drug use through patient counseling, drug use monitoring, preparation of parenteral nutrition formulations, monitoring adverse drug reaction, development of drug use guidelines, and cooperation with the healthcare team; these are offered in a mutually beneficial exchange way, in which the patient asks and consents to be supported by the Pharmacist regarding pharmacotherapeutics needs, and the Pharmacist accepts the responsibility to provide drug therapy support with competence and commitment. The Pharmacist provides this service for one patient each time, but groups can also be reached by PC services, in consultations that vary in time and frequency according to the patient's needs (Dias-Souza & Barros, 2012a; Alturkia et al., 2013; Cheng et al., 2014; Wongpakaran et al., 2017).

The steps of pharmaceutical consultations include (but are not limited to):

A. Collection and organization of patient-specific information (such as demographic data, body mass index and blood pressure);
B. Identification of health problems;
C. Analysis of all the medication being used, in order to identify potential drug-related problems (DRP) like dosage form, therapeutic schemes, administration, and drug-drug and drug-food interactions;
D. Patient counseling on pharmacological and non-pharmacological management of the disease;
E. Monitoring of the desired outcomes through clinical investigations.

In PC services, the Pharmacist work in concert with the patient and other healthcare providers to promote health, prevent diseases, and to assess, monitor, and when necessary, modify medication use, in order to assure that drug therapy regimens are adequate, safe and therefore, effective. PC services should optimize quality of life regarding the use of medication, and achieve definitive and positive clinical outcomes within realistic financial expenditures. Oriented plans for diagnostic drug use in addition to pharmacologic drug use are important for this (Morello et al., 2016; Neeman et al., 2017).

The implementation of PC depends on data collection and documentation systems that register patients' information such as demographic data and clinical history, communications with other professionals like nutritionists and the physician in charge, and data for studies on medication use profile (Maher et

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al., 2011; Kaufmann et al., 2015; Kuhmmer et al., 2015). Also, specific equipment are needed to assess medication therapy adherence and effectiveness, clinical resource materials, and also patient education materials, as described in the previous section.

Interactions between the Pharmacist the patient (and the family and/or caregivers, when necessary) should occur to assure efficient mutual communication and cooperation, and that the decision-making process on pharmacotherapy is shared by the Pharmacist and the patient. The Pharmacist uses technical knowledge and skills to optimize drug therapy, and the patient agrees to supply personal information and actively participate in the process of care as a whole (Schmelz et al., 2010; Yu et al., 2013; Pauwels et al., 2015; Srivastava & McGuire, 2015). Nevertheless, varied barriers have been described for the implementation and success of PC services, and some of them will be briefly discussed:

- **PC Courses in Curriculum:** Many pharmacy faculties still do not give attention to social activities of Pharmacists, and PC is still often regarded as pharmaceutical assistance and vice-versa.
- **Disparity of Cultures and Believes, Fear of Change and Poor Education in Communication Skill:** The lack of training in these is the most critical issue regarding human resources in PC.
- **Counseling Guideline or Plan for Effective Patient Counseling:** This is a critical point in PC: although patients have different needs, all steps in PC must be standardized when possible, to guarantee that care will be delivered to all patients in a similar way.
- **Poor Documentation of the Provided Care and Improper Use of Registration Formularies:** For an effective follow-up, all actions must be registered and properly saved.
- **Continuity of Quality Improvement:** the lack of interest and motivation for quality improvement is very common when the Pharmacist is not properly valued.
- **Access to Effective Drug Information Resources:** some professionals have scarce training in searching for evidence-based data in articles, for example. This can be overcome with specific training in articles search platforms.
- **Access to Full Patient Information:** This happens specially when the Pharmacist is dealing with the caregiver and not directly with the patient.
- **Profession Fees to Reward Care Services:** PC services are charged in some countries. Although it is a fair practice, not all patients with real need of PC services can afford them.
- **Software for Medication Assessment Support:** To avoid handwritten formularies, software for registration of the activities are necessary.
- Space and layout within the pharmacy, inadequate private counseling area, lack of time.
- **Lack of Insurance Assistance:** Most insurance services world-wide do not cover pharmaceutical services at all.
- **Professional Resistance to Interactions with The Pharmacist:** Often, some prescribing or care professionals do not interact with the Pharmacist. A good alternative is to try a personal contact and provide scientific literature as an ice breaker.
- **Patient Interest:** Not all patients will be interested in PC. When the patient is adult and in his own, there is not much to do but to show the advantages of PC. When the patient demands family or caregiver support, it is important that the Pharmacist clearly shows how much the service can help the improvement of quality of life, promote financial savings and adequations on the use of medication.
- **Patient Literacy and Socioeconomic Status:** This is also critical for the patient that demands instructions. Memorizing is not always possible because of the load of information.

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Pharmacists must collect subjective and objective information regarding the patient's general health status, past medical history, medication use history, social habits history (like alcohol use, smoking), diet, physical activities routine history, history of the current clinical condition, financial and insurance status, when necessary. To perform this, the Pharmacist should ask the patient for medical prescriptions, charts and reports, and should create health/physical assessment instruments. Some validated instruments have been published elsewhere, and often, adaptations are not required. Also, interviews with family members or the caregiver are important, mainly for pediatric or senior patients. Other healthcare providers including physicians, nurses, mid-level practitioners and other Pharmacists should also be contacted when necessary. (Hepler, 1996; Cipolle et al., 1998; Mazhar et al., 2017).

Despite pharmaceutical consultations have professional limitations such as providing diagnosis and requirements of clinical exams, the experience of patients in pharmaceutical consultations generates opinions and views for both patients and Pharmacists, which are important tolls to evaluate and optimize the quality of services and to assess the need for new services. To perform PC services, Pharmacists must have characteristics like being a caregiver, communicator, decision-maker, teacher, researcher, leader, and manager, in order to offer individualized care to patients (Hepler, 1996; Cipolle et al., 1998). Conversely, the experience reported in the literature describes lack of training in such abilities during university (Sakharkar et al., 2014; Neeman et al., 2017).

All the information is then evaluated and a drug therapy plan is developed with the patient. Based on a thorough understanding of the clinical picture of the patient and the treatment options available and affordable, the Pharmacist plans an outcomes-oriented drug therapy plan. For this, the Pharmacist considers not only clinical aspects of the disease, but also psychological and social consequences, including the complexity of therapy and alternatives to improve patient adherence (Hepler & Strand, 1990; Cipolle et al., 2004; Weiss et al., 2015).

The patient should be instructed about side effects, important negative or positive interactions with food and other medication, and eventually, of other therapeutic options and non-pharmacological complementary alternatives. The therapeutic therapy plan must be documented in the patient's pharmacy record and communicated to the patient's other healthcare providers when necessary. The therapeutic plan must be completely explained to the patient, including the responsibilities shared with the Pharmacist. Information should be provided to the patient at a level the patient will understand, thus, appropriate language should be used, avoiding, for example, detailing drug mechanism of action at a molecular level. At the end of the consultation, the patient must know how to take the medication, why it is being administered, for how long it will last, risks and benefits of the use and what other health-related behaviors can increase quality of life (Dias-Souza & Barros, 2012b; Dias-Souza & Barros, 2012c; Ross et al., 2015; Lopes et al., 2017; Mateti et al., 2017).

PC CONSULTATION: STEPS AND METHODS

Data Collection

An initial interview should be conducted with the patient/family/caregiver. In this first interview, all patient's need on pharrmacotherapy should be met. Therefore, sufficient time (often 30 to 60 minutes) should be spent to assure that questions and answers are provided without embarrassment or hurry. The patient should be comfortable with the questions, and for scientific and professional protection of both

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Pharmacist and patient, a consenting form approved by an Ethics committee should be signed by them (Cadogan & Ryder, 2015).

Standard procedures should be used to systematically record patient-specific subjective information, including health and activity status, past medical history, medication history, social history (including economic situation), family history, and history of present illness. Such records must be properly organized and kept updated. Patients' perceptions, thoughts, beliefs and feelings of the diseases should be included on the formulary. When necessary, physical assessment techniques like blood-pressure monitoring and capillary measurements of lipids and sugars should be performed (Sancar et al., 2011; Safaeian et al., 2015).

Evaluation of the Information Obtained at the Interview

The Pharmacist begins an evaluation of the subjective and objective information gathered from the patient and 1) investigates what drug-related problems are happening or can happen in the current clinical picture; 2) analyses opportunities for optimizing the safety, effectiveness, and financial aspects of the drug therapy; and 3) discuss the conclusions with the patient in the second consultation. The discussions with the patient should guarantee an appropriate understanding of the clinical picture, treatment strategies and administration schemes, and what will be necessary for an effective management (Hepler, 1996; Cipolle et al., 1998; Cipolle et al., 2004; Cheng et al., 2013; Al-Quteimat & Amer, 2014).

Preparation of the Care Plan

The Pharmacist identifies, evaluates and then chooses the most appropriate actions to improve and/or assure the safety, effectiveness, and/or cost-effectiveness of current or planned drug therapy, and to minimize the existing or potential drug-related problems. The care plan is prepared according to the desired outcome. The plan may include work with the patient as well as with other health professionals to provide therapy protocol adjustments or to modify prescribed drug therapy, implement clinical monitoring, recommend alterations on diet, add non-prescription medications or non-pharmacological treatments, or recommend a visit to a specific professional (Montgomery et al., 2008; Petrillo et al., 2011; Vijayanarayana et al., 2014).

For each problem identified, the Pharmacist should consider each of the patient's needs and determine the desirable and mutually agreed outcome and incorporate these to the care plan. The plan may include specific disease state and drug therapy endpoints and monitoring endpoints. The Pharmacist reviews the plan and desirable outcomes with the patient and with other healthcare professionals when it is necessary (Cipolle et al., 2004).

Implementing the Care Plan

The Pharmacist take the steps necessary to implement the plan, which include contacting other health professionals when necessary for any modifications on drug therapy, counseling the patient and/or the caregiver about the correct use of the medication and all problems associated to the incorrect use, coordinate the acquisition of medications and related supplies and begin the clinical monitoring. The Pharmacist should maximize patients' understanding and involvement in the care plan, guaranteeing that the parameters for drug therapy monitoring like blood pressure, molecular markers, blood glucose and

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cholesterol testing, are made and understood by the patient, family and the caregiver (Lin et al., 2011; Hirsch et al., 2017).

The patient should be instructed on how to properly use all medications and related products when necessary. Information should be provided to the patient in an easy way to understand. All this information must be registered in the pharmacy record, as well as the steps taken to implement the plan including the appropriate baseline monitoring parameters (Austin et al., 2006, Nkansah et al., 2008).

Monitoring Outcomes and Modifying the Care Plan

The Pharmacist should review subjective and objective monitoring parameters in order to determine if the desired outcomes will be achieved as outlined in the drug therapy plan. If any problems are detected, the Pharmacist must make the required modifications with the patient, family and caregiver. As progress towards outcomes is achieved, the Pharmacist should provide positive reinforcement and update the care plan. The Pharmacist uses appropriate professional judgment to assess the need to notify other healthcare professionals involved in the patient's case about the registered evolutions (Classen et al., 2002; Brown et al., 2003; Cranor & Christensen, 2003; Malone et al., 2003; Osterberg & Blaschke, 2005; Scuffham et al., 2008; Fiz et al., 2011)

Establishing evidence-based practice is important for effective, updated and relevant PC services. Furthermore, the implementation of PC is relevant to patients because not only drug therapy will be optimized, but complex pharmacological regimens prescribed may be restructured or simplified by the Pharmacist in order to make it more understandable to the patient. This becomes even more important when we consider that a single patient may visit more than one physician in a given clinical condition and get different prescriptions, and the communication among them about drug prescription is often insufficient (Dashti-Khavidaki et al., 2013). Additionally, medication costs consume a significant proportion of patients' and public health financial resources, what makes PC services economically relevant, and different pharmacoeconomics analysis have proven that significant financial savings could be achieved by patients, institutions and health insurances (Nkansah et al., 2008; Dias-Souza & Barros, 2012b; Lewin, 2013; Cazarim et al., 2017).

Different methodologies of PC have been used worldwide, and the most explored (and published) will be presented briefly:

A. **PWDT (Pharmacists Workup of Drug Therapy):** In this method, patients are assessed by a single Pharmacist for the all medications used for any health problems that the patient might be affected by, and the DRP are analyzed for each formulation used. Therefore, if the patient has migraine and diabetes, the same Pharmacist is responsible for optimizing the drug therapy of both diseases (Hepler & Strand, 1990).
B. **TOM (Therapeutic Outcomes Monitoring):** In this method, patients are assessed by more than one Pharmacist for the medications used for each health problem that the patient might be affected by, and the DRP are analyzed for each formulation used. Therefore, if the patient has asthma and arthritis, a specialist Clinical Pharmacist in asthma and another, specialist in arthritis, shall be visited (Dias-Souza & Barros, 2012b; Dias-Souza & Barros, 2012c)

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C. **Dáder Method:** This method was developed by a Spanish group of PC headed by Maria José Fáus-Dáder, and has similarities with PWDT in its organization and coverage of diseases, but DRP are analyzed in a different way. This method is widely used also in Latin America (Amariles et al., 2012).

PROVIDING WRITTEN INFORMATION IN PC

A critical point regarding PC is that most of the counseling offered by Pharmacists to patients is provided orally, and hardly ever the patient or the Pharmacists take notes of the information in a standardized and validated way. As a result, patients may misunderstand or forget important details like drug onset of action and side effects, leading to poor compliance problems and negative results. Doubts regarding the need for therapy may arise and complex therapeutic schemes, usually difficult to be managed by patients without professional support, also contributes to poor compliance. The use of written and/or pictorial aids and other educational approaches is still scarce in pharmacy practice, and here, I would like to encourage the reader to explore this resource to improve the access of patients to pharmaceutical services. In this sense, previous works of our group provided evidence of the relevance of written information for patient counseling and education on drug administration (Worley et al., 2007; Seybert et al., 2008; Dias-Souza & Andrade, 2010; Dias-Souza & Barros, 2012c, Khan et al., 2013).

A clinical case of chronic pain in an elderly patient had drawn our attention at first: because of the use of several medications, the patient had difficulties in administrating them correctly, and several interactions were detected in the first pharmaceutical consultation. We reorganized the therapeutic scheme and provided handwritten information in a simple and accessible language such that the elderly patient could easily understand. As the clinical monitoring followed, the evolution of the patient was positive and pain was finally under pharmacological control. We recommended physical therapy sections for the patient, and advised for a clinical-functional assessment by a Physiotherapist (Dias-Souza & Andrade, 2010).

Nevertheless, all this was directed for a single patient. How to deal with several people that simultaneously demand specific written information like this patient? And how to do this for so many possible medications – isolated or combined – in compounding pharmacies or drugstores? The answer comes in a study developed by our group, published in 2012. The development of drug use instructional cards (DUIC) for different pharmacological groups was described by the first time (Dias-Souza & Barros, 2012c).

The DUICs were developed due to a rising demand of basic advising on the correct use of medications on the pharmaceutical setting where the work was developed (a Brazilian compounding pharmacy located at the state of Minas Gerais). Using patients' complaint formularies (PCF) – a document that the good manufacturing practices (GMP) laws from the National Sanitation Regulatory Agency (ANVISA, an agency equivalent to the FDA in the U.S.A.) obligate compounding pharmacies to have in order to register any complaints from patients or clients – we have explored the most frequent drug-related problems to delineate how the DUICs should be designed. The parameters we considered were:

1. Drug-drug interactions
2. Drug-food interactions
3. Correct way and time of administration
4. Storing the dosage form
5. Experienced side effects and potential toxicity

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After analyzing these data, we performed an extensive literature review for collecting technical information for correct drug using, regarding:

1. Most common drugs and their indication
2. Pharmacokinetics and metabolism
3. Drug-drug interactions (obtained at the drug interaction checker in Medscape website)
4. Drug-food interactions
5. Basic Nutritional Support
6. Best time of administration
7. Pregnancy, lactation and fertility impairment warnings
8. Contraindications
9. Common Clinical Adverse Reactions

DUICs were then developed for the following groups:

1. Antihistamines
2. Antimicrobials
3. Anti-hypertensives
4. Anti-lipemics
5. Proton pump inhibitors
6. Non-Steroidal Anti-inflammatory Drugs (NSAID)
7. Psychotropic drugs

After, the design was created and adjusted for the size of the document, such that it could be attached to the medication that was dispensed through the delivery service or at the counter. DUICs samples (in Portuguese) are shown in Figure 1.

We provided evidence that the DUICs not only were effective in counseling patients in a standardized way, but also improved telepharmacy services: the basic instructions provided in the DUICs could be assimilated by non-Pharmacists attendants, and some basic information about drug use could be rapidly provided for patients. Although the DUICs were planned (and are still being used) for compounded medication, the same instructional material can be adapted for industrialized medication, for which, information commonly found on package inserts has been described as poorly designed by professionals and not completely understood by patients. Also, patients often describe that written information on prescription drug labels are confusing or incomplete.

To overcome these problems, Kripalani et al. (2007) developed illustrated medication schedules for helping low-literacy patients to administrate medications correctly. The development of the cards design began by raising the needs of the patients through surveying local Pharmacists by telephone and posted emails on national pharmacy list servers, asking about the use of medication aids, visuals, or other patient education tools. Physicians with expertise in medication adherence, patient education, and literacy helped to draft the cards, using pictures to illustrate instructions to follow drug therapy schedules. A multidisciplinary team of healthcare providers then reviewed the content and format of the design draft. Twelve patients of different age and educational attainment reviewed sample pill cards to provide input into the types of pictures used, the size of the text and overall document, and the desired content. The instrument could maximize comprehension across levels of health literacy, providing only the most es-

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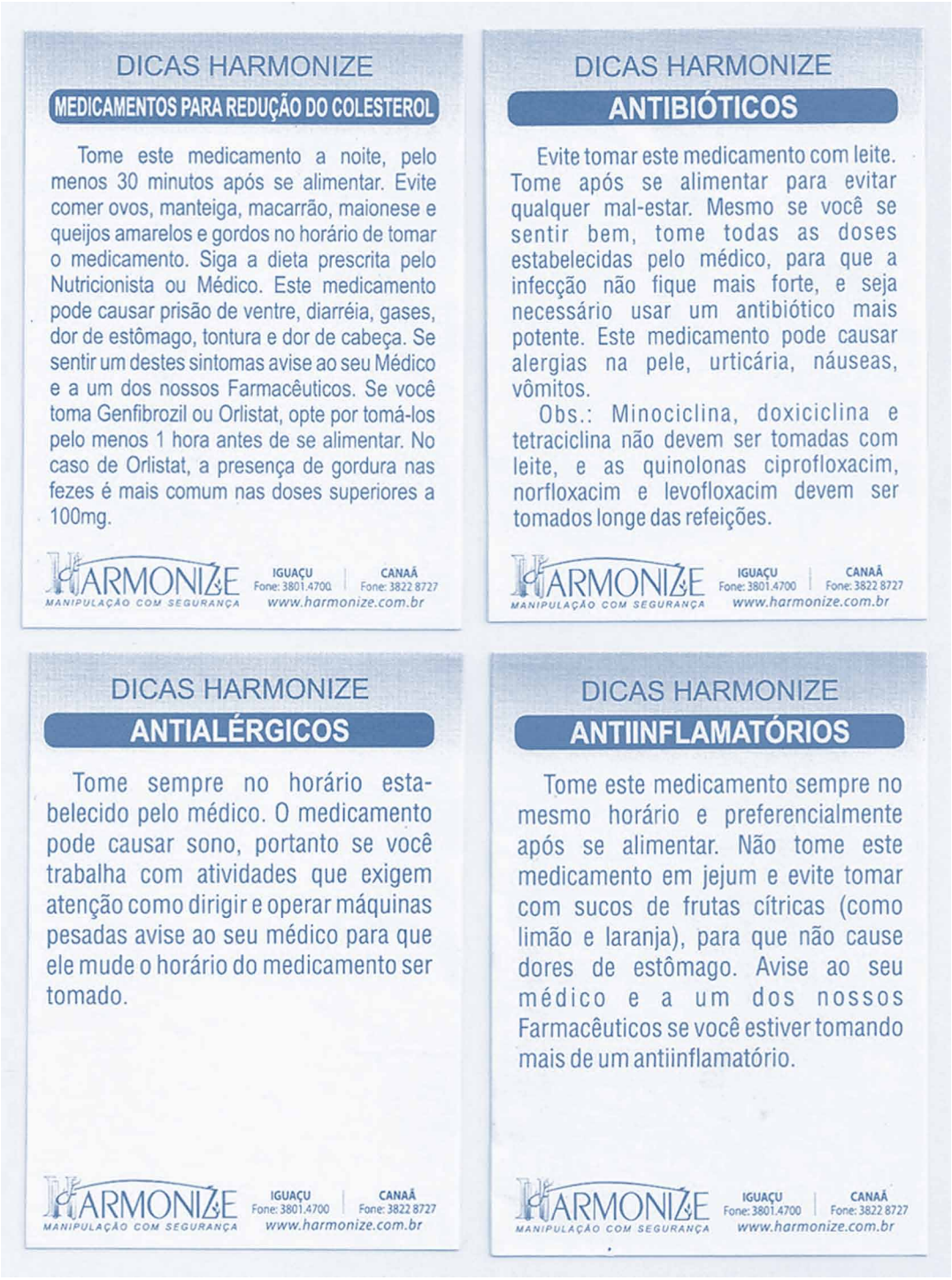
Figure 1. DUIC samples (available only in Portuguese) developed by Dias-Souza & Barros (2012c): a) antihistamine drugs; b) NSAID; c) antilipemic drugs; d) antimicrobials. DUICs are still being distributed for patients that are costumers of the compounding pharmacy where the study was conducted



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sential medication instructions like name, purpose, appearance, and time of administration. Patients with inadequate or marginal literacy skills, less than high school education, or cognitive impairment were most likely to refer to the card on a regular basis initially and after 3 months. Patients found it easy to understand and helpful for remembering important medication information, such as the name, purpose, or time of administration.

Kassardjian et al. (2008) validated a Pictorial Representation of Illness and Self Measure (PRISM) as a measure of suffering in patients with chronic non-cancer pain. Patients were recruited from 2 hospital pain clinics, and the majority of them was middle-aged women, in whom chronic pain is more prevalent and also more treated. For the task, patients were shown a letter size white paper with a fixed yellow circle glued in the bottom left-hand corner of the piece of paper. Patients were asked to imagine that the paper represented his/her life and that the yellow disk represented his/her concept of self. They were given a red paper disk representing their pain and asked to glue it in a location related to the "self" disk, reflecting the impact of pain into their lives. The same request was made regarding work, family, spouse/partner and recreation. Patients glued the disks onto the page in whatever order they wanted. Blind patients also completed the task, indicating that it also behaved as a tactile tool. Eight main parameters were assessed: Physical functioning, role-physical, bodily pain, general health, vitality, social functioning, role-emotional, and mental health. Higher scores in a scale of 0–100 indicated better health-related quality of life. Different situations were identified using this PRISM system: Patients reported that their close relatives were a negative influence to the treatment because they were overly controlling, or did not believe in the state of disability due to pain. Patients with high scores felt controlled by partners or family members, or emotionally distant from them. It was also reported by group of patients that their partner and family have either very little influence over their lives, or a significant negative influence. Patients found PRISM thought-provoking, and it was described by the authors as a quick, simple, and manageable tool for patients with chronic pain to complete.

A randomized blind trial comparing picture versus prose-based information pamphlets was conducted by Thompson et al. (2010). The authors compared memory, comprehension, and preference for medication information presented in a prose-based medication information pamphlet versus a pictorial-based information pamphlet. Specific information regarding methotrexate was used in this study. A total of 100 participants aged 18–65 years of age, who had not completed high school, could read English, and had no prior knowledge about methotrexate were included. Superiority of pamphlet type was assessed using immediate free recall, cued recall and comprehension. In the end, each participant was shown a card displaying both the picture and prose-based pamphlets and asked to decide which pamphlet they felt to be most visually appealing, which they would rather receive, which looked more useful, and which was easier to read. According to the statistical analysis, no differences were detected between picture and prose pamphlets in free recall, cued recall, and comprehension either immediately or after a 1-week interval, and the pictorial pamphlet was preferred over the prose-based pamphlet.

Mohan et al. (2013) conducted focus groups and interviews with Latino patients with diabetes at two safety net clinics in the USA to understand medication taking practices and perceptions of illustrated medication instructions. They explored PictureRx™, a software platform that generates illustrated, patient-centered medication lists in a daily medication schedule. The following essential information for patients is included: name, dose, frequency, purpose, and special instructions when needed. The design of PictureRx cards was evidence-based, drawing on research and best practices for the creation of patient education materials with illustrations for medication instructions and other health-related information.

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Patients reported confidence in being able to take medications and expressed preference for illustrated medication instructions, which could overcome patients' difficulties on administrating the medication.

Pictorial representations of clinical scenarios for asthmatic patients and of commonly used inhalers devices were developed by Roberts et al. (2010). Initial images were developed, designed and reviewed in consultation with medical and nursing respiratory members of staff before testing it with patients. A computerized software package was developed for the preparation of personalized asthma action plans during a consultation: the health professional should select the options according to the patient's needs. Following a series of sequential screens, the professional identifies appropriate images and scenarios to build a plan. In the end, a pictorial action plan is generated, which should be printed and provided to the patient. The software package automatically checks dosages used, and maximizes inhaled therapy. When the patient uses peak flow for self-monitoring, the program calculates the personalized action levels based upon the reported best peak flow. Users can print out a picture only plan, a words only version or a plan containing pictures and words. According to the authors, the pictorial care plans are quickly prepared to be printed for the patient to take away in several formats, and the data can be stored in the patient's record.

A recent work evaluated the efficacy of a pictorial medication sheet to improve adherence in patients with heart failure and cognitive impairment (Hawkins & Firek, 2014). A total of 36 patients were enrolled. Four study visits spread over approximately four months were performed. At visit one, subjects were asked to bring in all of their regularly prescribed medication for a direct count of administered tablets. After 30 days, in visit two, another tablet count was performed, and adherence was estimated. The subject then received a customized pictorial medication sheet with brief instruction on how to use the pictorial medication sheet, that represented their actual prescribed medication regimen. Subjects were asked to use the new sheet in place of any prior medication instruction sheet they may have been using. The medication sheet included of images of the subject's current medications printed in full color and dose range, arranged in columns for morning, noon, and evening administrations. Descriptions of the medication name, indication and dose were also included. Authors reported that although medication adherence was poor, statistically significant improvements (described in tablets counting) were detected after the interventions.

Nevertheless, written information must be used properly, and should be used regardless of problems not related to the patient. A negative example in this sense was described recently: Hamrosi et al. (2013) examined and compared the use and provision of written medicine information in Australia, focusing in Consumer Medicine Information (CMI) - available for medicines as package inserts, computer prints, or leaflets - by pharmacists and consumers. The reasons surrounding readership and provision of the CMI and comparisons on its use by both consumers and pharmacists were also investigated. A total of 1000 consumers and 1100 pharmacists were interviewed by postal or telephone surveys. The authors found that 66% of consumers usually read the CMI looking for information regarding side effects and clinical use of the medication.

Reasons mentioned for not reading the CMI comprised previous experience with the medications, enough information was provided verbally from the Pharmacist, and also that the document was too long or contained too much information. Interestingly, the disparity detected by the authors amongst the types of written medicine received by patients and provided by pharmacists is strongly suggestive of incomplete/inadequate (or both) provision of pharmaceutical services. Almost 90% of pharmacists reported providing package inserts, but 88% of consumers reported receiving them when provided with written medicine information. Personalized computer-generated CMI was provided 99% of pharmacists,

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but only 37% of consumers reported receiving it. Forty percent of pharmacists and 25% of GPs (n = 45) also reported providing loose leaflets/brochures yet only 7% (n = 47) of consumers reported receipt.

TELEPHARMACY SERVICES

In this section, I would like to introduce the need and the context of telepharmacy services, a powerful tool for expanding pharmaceutical services when used correctly. According to the World Health Organization (WHO, 2010), telemedicine is defined as the delivery of healthcare services, where distance is a critical factor using information and communication technologies for the exchange of information for diagnosis, treatment and prevention of diseases, research and for the continuing education of healthcare providers, all in the interests of advancing the health of individuals and their communities. Telepharmacy, following the example of telemedicine, offers pharmaceutical services at a distance, i.e., with the Pharmacist and patient communicating through telephone, videoconferencing systems such as Skype®, or any online communication system such as WhatsApp® and social networks. Online chat services available at the website of the pharmacy are also a good alternative when affording is possible.

And why this is important? Telepharmacy technologies can improve patient access to pharmaceutical services beyond remote medication dispensing, including PC. This sort of communication is especially important when the patient cannot reach the Pharmacist due to several possible limitations like mobility issues (the patient does not have access to a vehicle), or if the patient is affected by a disease that impairs the patient to meet the Pharmacist (Garrelts et al., 2010).

Nevertheless, to use this kind of service, a Pharmacist must work exclusively on it, and must have trained people on using the system for technical support or as workmates, to make the service work in a normal flow. In this service, patients can be advised about any aspects of the medication. Also, as some are not comfortable on going to the pharmacy for several reasons (embarrassment on talking to the Pharmacist face-to-face about the health problem, embarrassment on talking about it in public), the service may make the patient more comfortable on talking to the Pharmacist through typing or by phone.

Bynum et al. (2001) assessed the effect of telepharmacy counseling and using interactive compressed video, on how to use the asthma inhaler and patient satisfaction among adolescents with asthma. The telepharmacy service provided accessible education regarding asthma inhaler techniques for adolescents.

Moser et al. (2004) found 4136 documents using the search term “telemedicine” in MEDLINE from 1964 to 2003. They reported significant correlations between publications per million inhabitants and GDP per capita. Fatehi and Wootton (2012) examined the occurrence of the terms “telemedicine”, “telehealth”, and “e-health” in the Scopus database and a total of 11.642 documents were found in 2012. They found that “telemedicine” was the most common term with 8.028 documents.

Stubbings et al. (2005) described a telepharmacy call center service that was developed at a multidisciplinary health service through collaboration among the health professionals and the health plan to care for patients with medication-related questions. Pharmacists work close to physicians, nurses, and service associates of the call center. The team answered approximately 1.200 calls daily, regarding their transition into the health insurance plan and drug therapy questions. The service improved the quality and cost-effectiveness of drug therapy regimens and significant cost savings were registered.

The group of Lam et al. (2009) reported telepharmacy-related services and outcomes in western Washington State from 2007 to 2008. Five network clinics without in-house pharmacies were remotely connected to a central pharmacy to provide telepharmacy services, and automated drug dispensing

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system (ADDS) units, webcams, and electronic medical charts were used to provide remote medication order processing/dispensing, patient counseling, refill authorizations, and medication assistance referral services. Patient demographics, numbers of dispensed medications, patient consultations, and refill authorizations were registered, and service referrals, Pharmacist feedback and workflow changes as well. Antimicrobials were the most frequently dispensed medication, and Pharmacists described webcam-enabled interviews as an excellent method for better privacy and longer counseling.

Garrelts et al. (2010) implemented a telepharmacy service at five hospitals from a Catholic, nonprofit, integrated delivery network health system. Telepharmacy services were provided by a team of Pharmacists employed by the health system. Using a virtual private network or terminal server, Pharmacists directly accessed hospital servers and information systems to conduct their work. The time spent in routine orders of medication reduced significantly after telepharmacy services were implemented. The number of clinical interventions documented increased and annual savings reached 1 million dollars.

Sankaranarayanan et al. (2014) documented remote Pharmacist interventions for patients at eight rural hospitals in the Midwestern United States during prospective prescription order review/entry from 2008 to 2011. Remote Pharmacists' interventions were divided in three broader-level definitions: (a) interventions in interactions and potential interactions, contraindications, adverse effects, drug product selection, drug regimen and recommendations, (b) patient medication management regarding therapy review and action, and (c) health system-centered medication use process, regarding medication prescribing, transcribing and documenting, administering, and monitoring clinical results. Frequencies of intervention levels were compared by year, hospital, remote Pharmacist, and hospital pharmacy status. Frequency of interventions significantly increased each year, and differed significantly across the hospitals, suggesting that patients' needs were addressed particularly.

CONCLUSION

Strategies on expanding and improving pharmaceutical services have been presented in opportunities that are still poorly explored in daily practice: the provision of written information for patients and telepharmacy services. Written information may help patients to remember and reinforce how medication should be correctly taken, and in case of low literacy, alternatives of pictorial support were discussed. Telepharmacy services may help patients and health professionals to quickly reach the Pharmacist and solve drug-related problems, especially when there are mobility issues. The implementation of these services in PC context is not a simple endeavor; however, to overcome the technical difficulties, the Pharmacist must work together with patients, families and caregivers, generating solid services, and along with other health professionals. This team work is the key for improving and expanding pharmaceutical services.

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Section 2

Development and Design Methodologies

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Chapter 6
The Assessment for Career Counseling Skill for Teacher at High School: A Case Study in Vietnam

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ABSTRACT

In Vietnam, career counseling for students after graduating high school has limitations and advancing the career counseling skills of the high school teachers has not been highly assessed. An effort for the factor theory and measure proposal is the base for dealing with the problem. The author carried out a survey of 115 teachers belonging 40 high schools in Vietnam. As a result, the reality of career counseling skills of teachers at high schools is at the average level. This research is the base for enacting policies for the training of career counseling skills at high schools in Vietnam in the future. The result is described in the content of this article.

1. INTRODUCTION

In Vietnam, confucius culture influenced the life and psychology of high school students and their parents. Their parents always wish them to enter the university that makes the problem “master lack of workers” clearly. The ministry of Education and Training has the policies about the career counseling to improve the training career counseling and divides students after finishing High school effectively. In Vietnam, the head-class teachers anh technology teachers teach mostly the career counseling activity at High school. These groups are not trained formally about the career counseling field. Therefore, researching the reality and building the modul about training measure for career counseling skill for teachers at high school at present is very important to improve teaching career counseling and it is the base of the ministry of Education and Training proposing the policies in the next time.

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2. RESEARCH OVERVIEW ON CAREER COUNSELING

In Vietnam, the career counseling is concerned and practiced at the target, content in the general education program. Especially, The ministry of Education and Training promulgated the project of whole general education programs on 19th January 2018 with particular target: "Helping students develop continuously and competence of the labourers; citizen's awareness and personality; self-study ability and self-study awareness forever, suitable career choice ability with competence and hobby; condition and circumstances of themselves to continue studying higher; studying career or taking part in labour life; correspondence ability with the changes of global background and new industrial revolution."

The career counseling is an important content in all periods of the general education program. However, some places, some schools carry out the career counseling ineffectively, the people who work in this field are mainly head-class teacher and technology teachers. Those teacher groups are not trained formally, a lower number of teachers and not enough qualification. They are not equiped with knowledge and skill about career counseling. They help students mainly by their experience. Therefore, the career counseling at High school activity has difficult and ineffecient. The qualification doesn't respond with the requirement of students and society. The students don't prepare carefully to choose a suitable job for them and the demanding of society.

The career counseling appeared in the end of 19th century in the world, as well as the creation of career theory, development career with the typical representators such as:

The authors gave many career counseling theories which have value nowadays for example: Trait and factor theory (Parsons, 1909), career development and system theory (McMahon & Patton, 2006), theory about position controlling (Krumholtz & Levin, 2004), five factor theory (McMahon & Patton, 2006), theory of personality (Holland, 1997). These theories poit out:

- In choosing career procedure, each individual must understand himself, career world and the relation between individual feature and detail work requirement to choose a suitable work;
- Choosing career of each individual only not belongs to the subjective elements but also the objective elements that are influenced by their family, friends'idea, social trend, local customs. We can't control surroundings but we may control our internal feelings and be the master of our fate;
- Emphasizing five main factors in career counseling influence to each individual's career choice decision: 1. The effort; 2. The sense; 3. The extrovert; 4. The satisfaction; 5. The pleasant with experience: Intelligent, brave, imaginative, curious, creative, different;
- Describing six kinds of typical people, six types of environmental correspondence. There are careers correspondence with each personality type and working environment. Therefore, there is the agreement between people and working environment.

The authors Schmidt (1996), Roger (1998), Vernon (2002) pointed out the career counseling activity at High school to give the advice and help students in finding career world, their competence, personality, hobby to choose the suitable job.

In the book *Counseling in school: Essential services and comprehensive programs* of Schmidt (1996) and *Handbook on career counseling* of Unesco (2002) pointed out the content of career counseling including: Providing information about career world, connecting students with labour sources, helping students aware of their hobby, value, ability and personality, encouragement, promotion and giving advice for students to choose the as well as become a whole life learners.

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In the career counseling procedure, there are some author: Kidd (2006) giving the career counseling procedure including four period and author group: Gysbers, Heppner and Johnston (2009) giving five period of the career counseling procedure. The authors pointed out the contend and the way to do each period and the counselors have role to help people aware and deal with their problem.

In the career counseling skill, the presentators are Kidd (2006), Ali and Graham (1996), Gysbers, Heppner and Johnston (2009). They pointed out to get the career counseling work effectively that the counselors need their knowledge and skill such as: setting up relationship skill; understanding skill; hearing skill; sharing skill; observation skill; feedback skill; exploring information skill; analysis skill; finding psychological feature of student skill.

The authors Thang (2008) Ai (2011) and Hoa (2015). consumed the theory of development job in career counseling from the foreign authors such as personality theory and factor of Parsons; Holland's theory; Ann Roes's theory; Ginzbegr's theory; Krumboltz's theory…and reasearching about role, condition, requirement and using multiple choice in career counseling; the career counseling proceduce Qui (2007), Ai (2011) and Hoa (2014).

In summary, there were many researches of many scientists in the world and Vietnam about the career counseling project from target, content to practice procedure in career counseling in and outside High school. The authors gave the needing skill system of counselors generally. However, there weren't research project mentioned to the career counseling skill and training career counseling skill at High school in Vietnam – The essential group in helping students orientating and choosing suitable career with their competences and social requirements.

Therefore, determining the necessary career counseling skills of teacher doing career counseling and proposing the content for fostering skill program for teacher is important and meaningful for Vietnamese education system.

2.1. Career Counseling Skill of High School Teacher

There are some conception about the career counseling skill, author think: *"The career counseling skill of High school teachers is a action that teacher practice naturally base on science knowledge about the career counseling activity and biological, psychological, social condition relating to teacher to support students to improve their solving competence with difficulties in choosing job"*.

Basing on purpose, duty, content, procedure of the career counseling, it is inhervited the research on the career counseling from the authors: Kidd (2006), Ali and Graham (1996), Gysbers, Heppner and Johnston (2009), determine the career counseling skill of teacher including the following.

2.1.1. Basic Career Counseling Skill Group

1. Establishment relationship skill with students;
2. Making question skill in career counseling procedure;
3. Hearing student skill;
4. Observation student skill;
5. Feedback skill;
6. Understanding skill.

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2.1.2. Particular Career Counseling Skill Group

1. Skill for finding physiological and psychological feature of students;
2. Skill for applying multiwork in career counseling procedure;
3. Skill for using multiple-choise and device calculation the physiological and psychological qualification;
4. Skill for working in personality and group in career counseling procedure;
5. Skill for exploring, analysing, appreciating information in career counseling procedure;
6. Skill for researching about world work, requirement about labour of job market in local, nation, area and internation;
7. Skill for designing and remaining data involving in career counseling procedure.

2.2. The Appreciation Criteria About Career Counseling of Teacher at High School in Vietnam

The career counseling skill of High school teacher consists of 2 groups with 13 ingredient skills. Basing on analyzing, consuming scale about the development skill of author in country and foreign, author give the criterias to estimate each ingredient skill as following: 1. Sufficient content and structure skill; 2. Logical and proficient level of skill; 3. Flexible level of skill; 4. Effective skill (see Figure 1).

Each skill is estimated from one to four scores. To determine scale, author calculate the score of scale by the way:

Level = Maximum score – Minimum score

The distance between the scale level: (4 – 1): 4 = 0,75 marks

The minimum score of level 1 is: 1 mark

The minimum score of level 2 is: 1 + 0,75 = 1,75 marks

The minimum score of level 3 is: 1,75 + 0,75 = 2,5 marks

The minimum score of level 4 is: 2,5 + 0,75 = 3,25 marks

Four levels of scale are shown in Table 1.

Table 1. Estimating level

Skill Level	Average Score
Poor level	From 1 to less than 1.75
Average level	From 1.75 to less than 2.5
Good	From 2.5 to less than 3.25
Very good	From 3.25 to 4

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According to the appreciation criteria and the career counseling of High school teachers, the author build the assessment tool about career counseling of High school teachers (see Appendix). This is the newest finding like the base for appreciating career counseling of High school teachers in Vietnam.

3. METHODOLOGY

A measure tool was used to collect information from 115 teachers of 40 High schools in Vietnam (see Appendix). The head-class teachers and the technology teachers are people chosen to research because they are teachinh the career counseling directedly at High school. All of the collecting datas were treated by SPSS software 22.0.

4. THE RESULT OF ASSESSMENT CAREER COUNSELING OF TEACHERS AT HIGHT SCHOOL

To appreciate the career counseling skill level of teachers in this field, we used the assessment tool for collecting information from 115 teachers of 40 High school in Vietnam (see Appendix). Results are shown in Table 2.

Table 2. Teachers estimate about doing the career counseling skill by themselves

Skill	Self-Appreciation	
	Average Score	Number
Basic career counseling skill group		
1. Establishment relationship skill with students	2.51	3
2. Making question skill in career counseling procedure	2.51	3
3. Hearing student skill	3.05	2
4. Observation student skill	3.35	1
5. Feedback skill	2.17	9
6. Understanding skill	2.37	7
Particular career counseling skill group		
7. Skill for finding physiological and psychological feature of students	2.41	5
8. Skill for applying multiwork in career counseling procedure	1.97	11
9. Skill for using multiple-choise and device calculation the physiological and psychological qualification	2.17	9
10. Skill for working in personality and group in career counseling procedure	1.97	11
11. Skill for exploring, analysing, appreciating information in career counseling procedure	2.37	7
12. Skill for researching about world work, requirement about labour of job market in local, nation, area and internation	1.91	13
13. Skill for designing and remaining data involving in career counseling procedure.	2.41	5

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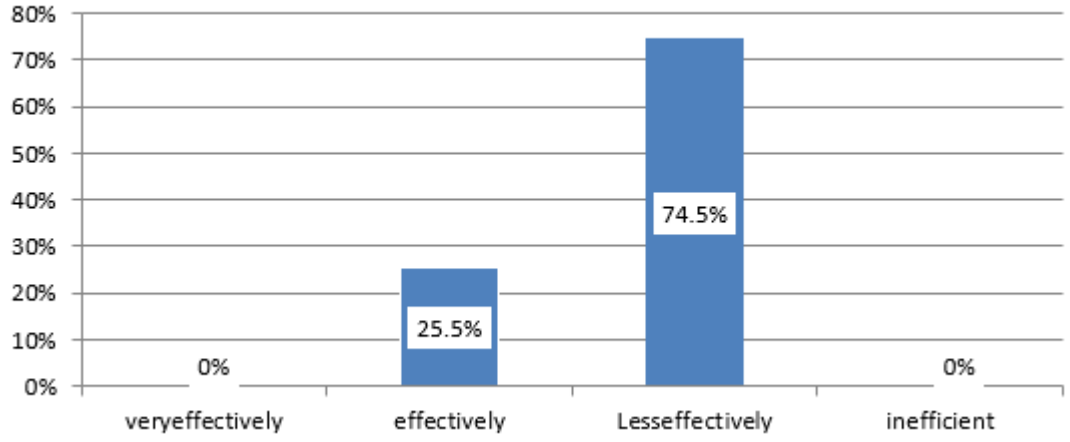
According to staticstic result in Table 1, generally the career counseling of High school teacher is at the Average level. Only 4/13 skills are estimated at good level (Average score: From 2.5 to less than 3.2) and very good level (Average score: From 3.25 to 4) is "Establishment relationship skill with students","Making question skill in career counseling procedure"(Average score = 2.51); "Hearing students skill" (Average score = 3.05) and "Observation students skill" (Average score = 3.35) (see Table 2). These skills of teachers are highly appreciated because these are basic and necessary skills for teaching and other educational activities of teachers and these skills are practiced regularly by teachers in their professional activities.

Other skills are appreciated at average level (Average score: From 1.75 to less than 2.5) especially "Skill for applying multi-work in career counseling procedure", "Skill for working in personality and group in career counseling procedure" and "Skill for researching about world work, requirement about labour of job market in local, nation, area and internation" that have the lowest average score. These particular career counseling skills are very important. They affect directly to the efficiency of career counseling. So, finding the improvement measure of this skill group for teacher is very essential.

To examine the research result about teacher's career counseling skills, author research the effect of career counseling activity which teacher does. Results are shown in Figure 1.

Figure 1. The effect of career counseling



Most of teachers think that the career counseling nowadays is "Less effectively" (74,5%), few other ideas tell this activity is "effectively" (25,5%). The effect of career counseling is not high because there are many career counseling skills, especially the particular skills, teachers do them at average level as the analysis above. In reality, the teachers working is career counseling aren't trained through official program. They work on their experience and self-study. Therefore, the effect of career counseling activity is limited.

Moreover, author asked: "Did you study the training course about the career counseling skill?" 100% teachers said that they hadn't taken part in any training course about career counseling skill.

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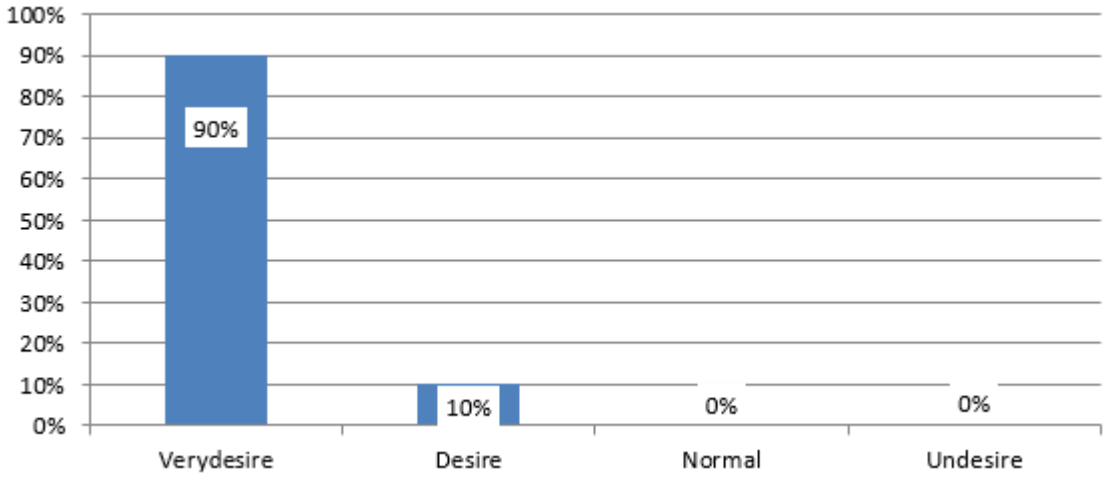
Mrs Luong has taught at Khoai Chau High school for eight years said that: "I'm a class head teacher, I often help students orient, choose career, choose subjects and the university they want. However, I teach career counseling by self-finding and support students by my experience. During eight years working at High school, I haven't taken part in any training coure about career counseling."

The questionaire survey sheet:" Do you want to join in the advanced training of career counseling course?" Results are shown in Figure 2.

Figure 2. Needing of joining career counseling course



Looking at Figure 2, we find out the needing of joining career counseling training course is very high (90% - very desire; 10% desire) because career counseling is the work teachers have to do at High school to help student solve the difficulties in choosing career procedure. However, teachers at High school are not trained the specialization and skill in the career counseling field. Therefore, the requirement of joining in the advanced training of career counseling course and the skills is completely correct.

Mr Cuong, the head of the Ho Chi Minh Communist Youth Union of Pham Ngu Lao High School said that: "Every year, when the students enroll in the university, the Head school boad members organize the career counselling for school students, especially grade 12. However, the effect of this activity is not really as good as we expected. Recently, the school has combined with inviting experts to organize consultations for students, but there are also difficulties in time, funds for expert payment. My school hope the teacher group, especially the class head teachers, technical teachers, teachers in charge of Communist Youth Union of school ... will have opportunity to participate in career counseling skills training course for high school students to be able to improve the quality and efficiency at my school."

With the career counseling situation at present, establishing program and training High school teachers about the career counseling skill is very important, especially whole ministry of education and training is rushing to prepare all need and enough condition for carring out the new general education program in Vietnam.

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5. THE TRAINING CAREER COUNSELING SKILL PROGRAM FOR HIGH SCHOOL TEACHERS

Basing on the career counseling theory, the reality of career counseling skill of High school teachers and background in Vietnam now, author propose the career counseling program for High school teacher as following:

- The training career counseling skill program for High school teachers.

5.1. Scope of the Study

The teachers of Technology, the Head of Communist Youth Union at School, the class-head teacher, teachers working the career counseling at the High school in country.

5.2. Aims and Purposes of the Study

After training course, learners will be able to do the following.

5.2.1. Knowledge

- Analyse some basic knowledge about career counseling;
- Demonstrate the content of skills in career counseling;
- Analyse aims and purposes, meanings, practicing period of career counseling for High school students.

5.2.2. Skill

- Use the multiple choise sheet about hobby, competence, career trend…to appreciate students' competence;
- Guide students to know about features, requirement of job, labour market in local, domestic and internation;
- Use the skills in career counseling;
- Design and organize the career counseling lesson for High school student.

5.2.3. Behaviour

- Have active awareness in doing career counseling.

5.3. Content and Time

With the training program shown in Table 3, the teacher at the University of Technology and Education (having both professional pedagogical skills and job skills) will take part is training the main teacher group – working in career counseling at High school.

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Table 3. Content and time of training

Training Content	Time
1. The general issue about career counseling	10 periods
2. Career counseling theory and multiple choice	10 periods
3. Determining student's vocational competence	10 periods
4. The skills in career counseling	10 periods
5. Integration career counseling for High school student with other subjects	10 periods
6. Organize the career counseling for High school student	10 periods

6. EXPERIMENT

Basing on career counseling skill program for High school teacher, author carry out experiment training skill as following:

- **Experiment aims:** To improve the career counseling for High chool teachers, author choose to train improvement for the particular career counseling skill group of teachers;
- **Author experiment:** On 30 staffs of 6 High school in Hung Yen;
- **Place and time:** From February to March 2017 at Methodology room, Department of Education, Hung Yen University of Technology and Education;
- **Content experiment:** See Table 4.

Table 4. Content experiment

Time	Training	Skills
Day 1	The general issue about career counseling	-Skill for finding physiological and psychological feature of students -Skill for applying multi-work in career counseling procedure -Skill for using multiple-choise and device calculation the physiological and psychological qualification -Skill for working in personality and group in career counseling procedure -Skill for exploring, analysing, appreciating information in career counseling procedure -Skill for researching about world work, requirement about labour of job market in local, nation, area and internation - Skill for designing and remaining data involving in career counseling procedure.
Day 2	Career counseling theory and multiple choice	
Day 3	Determining student's vocational competence	
Day 4	The skills in career counseling	
Day 5	Integration career counseling for High school student with other subjects	
Day 6	Organize the career counseling for High school student	

* Organize experiment

The experiment of training career counseling skill for High school teacher is carried out as following steps: 1. Prepare experiment; 2. Design experiment program; 3. Appreciate before experiment; 4. Train skill; 5. Appreciate after training and finishing experiment.

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6.1. Average

6.1.1. Score

Looking at Figure 3, in general, the level of career counseling of High school teacher after experiment changed clearly before experiment (see Table 5). After experiment, most of teachers have better career counseling skill level. Particularly, some skills such as "Skill for applying multi-work in career counseling procedure", "Skill for using multiple-choise and device calculation the physiological and psychological qualification", "Skill for working in personality and group in career counseling procedure", "Skill for researching about world work, requirement about labour of job market in local, nation, area and internation" and "Skill for designing and remaining data involving in career counseling procedure" improve quickly after experiment (from average level to good and very good). Those skills are very important for teachers to do the career counseling effectively.

Figure 3. The level practice career counseling skill of teacher before and after experiment

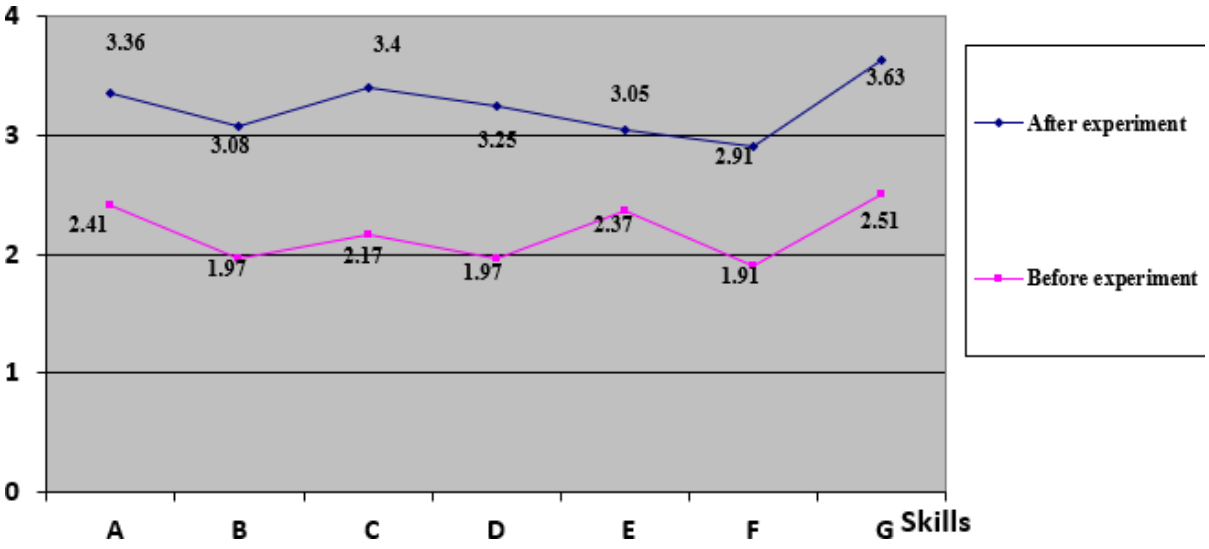

Table 5. Skills

A:	Skill for finding physiological and psychological feature of students
B:	Skill for applying multiwork in career counseling procedure
C:	Skill for using multiple-choise and device calculation the physiological and psychological qualification
D:	Skill for working in personality and group in career counseling procedure
E:	Skill for exploring, analysing, appreciating information in career counseling procedure
F:	Skill for researching about world work, requirement about labour of job market in local, nation, area and internation
G:	Skill for designing and remaining data involving in career counseling procedure

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Mrs Thuy– a teacher of Tran Quang Khai High school said that: "Before, we appreciated students by ourselves, combined with contacting their parents. There were very few tools to appreciate and difficulty in organizing the career counseling for students. After taking this training course, we have not only knowledge but also special skills in career counseling. We are provided and known how to use the tools to appreciate students. Thanks to training knowledge, I believe that the career counseling activity at my school will have new advance".

The result of experiment proved that the establishment of training program and organizing the training courses is possible and effective in improvement career counseling skill for High school teachers.

7. CONCLUSION

The career counseling is important meanings in helping High school students to choose future career. The career counseling skill of High school teacher includes the basic career counseling skill and particular career counseling skill. The result of survery about career counseling is the proposing foundation to set up training career counseling program for teachers. The experiment result proved that the content has value in training career counseling for High school teachers in Vietnam.

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APPENDIX: QUESTIONNAIRE

Your questionnaire will be anonymous.

1. General Information:
   - Gender:
   - Working time:
   - Specialization:
   - Place of working:
2. **Information About the Career Counseling Skills:** Teacher's self-assessment career counseling skill according to the level below by tick in the blank suitably:
   Level 1: Understanding theory but not doing action.
   Level 2: Doing action but the mess and unreasonable manipulation.
   Level 3: Doing the manipulation in the normal condition skillfully.
   Level 4: Doing action in all conditions creatively.

TT	Skills	Level			
		1	2	3	4
Basic career counseling skill group					
1	Establishment relationship skill with students				
2	Making question skill in career counseling procedure				
3	Hearing students skill				
4	Observation students skill				
5	Feedback skill				
6	Understanding skill				
Particular career counseling skill group					
7	Skill for finding physiological and psychological feature of students				
8	Skill for applying multiwork in career counseling procedure				
9	Skill for using multiple-choise and device calculation the physiological and psychological qualification				
10	Skill for working in personality and group in career counseling procedure				
11	Skill for exploring, analysing, appreciating information in career counseling procedure				
12	Skill for researching about world work, requirement about labour of job market in local, nation, area and internation				
13	Skill for designing and remaining data involving in career counseling procedure.				

Thank you very much!

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Chapter 7
Solution-Focused Brief Counseling in Schools:
An Alternative Approach to Problem-Solving and Counseling

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ABSTRACT

Solution-focused brief therapy (SFBT) has become a popular methodology used in business, counseling, and other fields to help individuals problem-solve. In education, this approach is known as solution-focus brief counseling (SFBC). This chapter will review the origins of the solution-focused approach to counseling and problem-solving, present the major tenants, and discuss challenges. The chapter will also present interview data from current school counselors to examine how school counselors use SFBC in schools and provide strategies for implementation.

INTRODUCTION

You cannot solve a problem with the same kind of thinking that created it. – Albert Einstein

Solution-Focused Brief Therapy (SFBT) has become a popular approach used in business, social policy, education, criminal justice services, child welfare, and counseling (Institute for Solution-Focused Therapy, 2017). Originally used in therapeutic settings, Solution-Focus Brief Counseling (SFBC) has become common practice in education, particularly as a tool school counselors use when working with students to solve problems. To provide a foundation in the development and use of SFBC, this chapter will review the solution-focused approach to counseling and problem-solving, present the major tenants

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of solution-focused brief counseling. Additionally, focus group data will be presented to examine how school counselors use solution-focused brief therapy in schools to guide students toward solutions., and several strategies for incorporating the tenets of SFBC into the school counselor's year are shared.

BACKGROUND

Solution-Focused Brief Therapy has evolved from brief psychotherapy which typically is focused on a specific problem and the development of a direct intervention to address the problem in a short period of time. The solution-focused approach further expanded the belief from brief therapy that clients can achieve successful results in a short period of time if clients could identify their strengths and apply them to the current problem (Henderson & Thompson, 2016). This approach assumes that people are willing and able to change their behaviors to obtain a desired outcome or solution. It also assumes that even when people are not doing well, pieces of the solution are present at times; thus, counseling sessions often begin by highlighting what is going well in the client's life in order to discover exceptions to the problem, what is working, what they plan to continue doing, and what goals they would like to achieve.

De Shazer et al. (2007) built upon the brief therapy framework and further expanded the theory by testing new techniques at the Brief Family Therapy Center in Milwaukee, Wisconsin during the 1980's and 90's. The appeal of this technique is that it was developed by therapists in a clinical setting. Unlike many other theoretical models that are oriented around a hypothesis or theory, the solution-focused framework evolved from a series of discoveries when researchers evaluated the effects of different interventions on client outcomes (Murphy, 2015). De Shazer noticed that when he shifted the focus of his counseling sessions from discussions about the problem that client was trying to solve to highlighting successes, noticing what improvements occurred in their lives, and identifying exceptions or times that the problem was less severe or absent, two-thirds of his clients reported significant improvements by the next session (Sklare, 2014). Shifting the philosophy of counseling from an exploration of problems to a focus on solutions appeared to effectively improve client outcomes while reducing the number of sessions needed to achieve positive results.

The solution-focused approach to problem-solving differs from the traditional problem-solving method in several ways. The traditional problem-solving process can be conceptualized as the act of defining a problem and determining the cause of the problem; then, identifying, prioritizing, and selecting alternatives for a solution, and finally, implementing a solution. Traditional approaches, even the current restorative justice approach or restorative practice, tend to be problem-focused in that they highlight the problem, discuss what is not working, and identify solutions to the problem. A problem-focused approach has been found to narrow thinking, hinder solutions, limit creativity, and trigger emotional responses (Murphy, 2015). The solution-focused counseling approach, on the other hand, takes a strengths-based approach that presumes the individual is able to identify and implement actions toward solving the problem; thus, keeps the conversation on the solution(s) rather than an analysis of the problem. The major tenets of a solution-focused approach include:

- Future-focused; emphasizes future possibilities rather than discussing past problems or problem roots
- Highlights "exceptions", or times when the problem does not occur

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- Belief that the individual already knows the solution, or has the basic skills needed to create a solution
- Focus on the individual's abilities and strengths, not deficits or challenges
- Client creates goals and determines the desired outcome
- A collaborative relationship between the individual and the counselor
- Examines the perceptions of the individual in an attempt to foster hope and motivation instead of reframing thinking (i.e. changing negative thoughts into positive ones, miracle questions, scaling questions, etc.) (Institute for Solution-Focused Therapy, 2017; Skalre, 2014)

SFBT includes all of the above tenets and is typically limited to 10 sessions or less. These core features of SFBT were developed from an important assumption: effective solutions to problems did not require extensive knowledge or analysis of the problem itself (Murphy, 2015). This assumption belief is the starting point for the SFBT approach. Clients begin their counseling sessions by briefly describing a statement of the problem or why they are seeking counseling, rating their feelings associated with the problem, listing exceptions to the problem, and setting goals for what they would like to accomplish. These items serve as markers that will help the counselor determine the effectiveness of the sessions and client outcomes. The remainder of the meeting and future sessions typically consist of discussions that emphasize the positive emotions, events, and actions in the client's life. The purpose of counseling is to highlight the client's strengths and capabilities and guide them toward identifying solutions through active reflection of what is working. Solution-focused counselors believe that if clients remain positive and motivated change will occur because change is constant and inevitable (O'Hanlon & Weiner-Davis, 2003), and the role of the counselor is to keep client's moving forward towards positive change.

Solution Focused Brief Counseling in Schools

In the school setting, Solution-Focused Brief Therapy (SFBT) is referred to as Solution-Focused Brief Counseling (SFBC), and it has become a commonly used theoretical framework school counselors use to guide their counseling work with students. Solution-focused school counselors must employ great skill when applying SFBC strategies with students as many students are sent to the counseling office unwillingly and may be initially defensive of their actions rather than open to change. Additionally, school counselors' meetings with students are very brief. Many student-counselor interactions last only several minutes because of pressures from teachers and administrators to minimize disruptions to instructional time and keep students in their classes. Therapy, even brief counseling, is still perceived as something which is outside the scope of schools and roles of school counselors (American School Counselor Association, 2012). However, since schools are charged with the social, emotional, and academic development of students, a paradigm shift is beginning and approaches to counseling such as SFBC are being implemented to facilitate holistic student development.

Advantages and Challenges of Solution-Focused Brief Counseling in Schools

SFBC has gained popularity in schools because it takes a brief and practical approach to solving problems that appeals to students, teachers, and school counselors. Murphy (2016) referred to solution focus-counseling as "less talk, more action", and states that it is attractive because of the limited time to do counseling in schools. Furthermore, the process encourages innovative thinking and discussion

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that is centered upon the individual's strengths, goals, and actions rather than the problem its causes or effects. The Solution-Focused Brief Counseling model chooses to value the individual's capabilities toward finding solutions rather than focusing on what is not working or why it is not working (Guterman, 2014). Unlike the many negative outcomes that may result for a problem-centric conversation such as "paralysis by analysis" (the inability to act due to not being able to identify the correct course of action), with skilled solution-focused questioning by the counselor, the student is empowered to create new outcomes and maintain a positive outlook that will keep them motivated toward achieving their goals.

While De Jong and Berg (2013) suggest that core features of SFBC such as respecting the student's worldview promote cultural sensitivity, Henderson and Thompson (2014) point out that because SFBC values individual responsibility over the collective family, it may not align with every student's worldview. Students from cultures that value collective problem-solving and focus on outcomes that are in the best interest of the group may not respond well to SFBC. American schools value and promote individual responsibility and accountability, and aim to teach students to make positive choices for self-improvement. School counselors must carefully consider the student's culture and worldview when choosing to use SFBC strategies and not make assumptions that any one counseling approach will be effective with all students.

Trust, mutual respect, and a collaborative relationship between the student and counselor are essential elements in the effectiveness of SFBC. However, in many counseling situations in schools there is an inherent power dynamic because adults are in elevated positions authority. This hierarchical structure within schools poses challenges to creating a collaborative environment where students can learn, grow, fail, and solve problems without judgment. Students in schools have been conditioned to seek the "right answer" and turn to the teacher or counselor to provide the answer or solution (Perry, 1979). This can lead to superficial solutions or behaviors where the student temporarily conforms to the requests and expectations of the adult either to please, receive a reward, or avoid punishment.

The primary strength of the SFBC process is that it validates the student's experience and ability for effective action. With guidance from the counselor, the student is able to determine the best course of action and implement change, think positively about the problem and future possibilities, be motivated to make a change, and believe in their own ability to succeed. In order for SFBC to work effectively, school counselors need to be well trained in SFBC. Additionally, the collaborative relationship between the student and school counselor is important to the SFBC process and outcomes. Finally, school counselors must carefully consider and plan to address barriers that may impede student success. For example, school counselors must work closely with students to mitigate the effects of the social structures and power dynamics within the school environment, and ensure students do not feel inferior to educators but rather equal partners in their journey toward change.

Deconstructing School Problems: Threats to the Efficacy of SFBC

The effectiveness of any counseling strategy or intervention is only as strong as the efficacy of its implementation. Existing school conditions may create barriers to utilizing a solution-focused approach with fidelity. American schools are designed to operate in a behaviorist model that rewards conformity to the established norm, a traditional way of thinking and problem-solving, and a desire for immediate results (Flinders & Thornton, 2013). These conditions may affect the ways in which school counselors interact with students and use SFBC.

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Traditional Default Approaches

Many educators employ the same traditional techniques repeatedly even if they are not successful. Cooley (n.d.) argues that a traditional, default approach consisting of "lecturing, threatening, withholding, cajoling, persuading and sharing the dreaded facts" is typically not a successful strategy to foster solutions or change (as cited in Patterson, 2009, para 27). A school counselor may work with the student to build positive rapport, motivation, and encourage action, but these efforts may fade in light of a contending school experience where the student feels hopeless, loses confidence in their abilities, or is told what the correct course of action should be.

School counselors have been found to use two similar approaches: rational persuasion or fatalistic future discussions (Murphy, as cited in Patterson, 2009). These tactics, which have been found to be largely ineffective, include persuading students to change their opinions or actions through discussions about consequences or pointing out flaws in students' thinking. One common example is telling students with poor or failing grades that they will not be able to go to college or be doctors or lawyers because of their bad academic performance. Another example includes pointing out flaws in students' action plans and suggesting other courses of action such as telling a student that studying on their own is not going to help them improve their grades and they should go to after school tutoring.

Problem-Focused Thinking

Teachers tend to have a fixed mindset and are problem-focused (Dweck, 2016). They spend most of their instructional time posing questions to students and guiding them towards the answer. Their professional development trainings, conferences, and discussions with parents and colleagues center around identifying and analyzing problems. This mindset becomes the governing lens they use, which makes it difficult to think differently when working with students who do not respond as desired. Remaining focused on the problem often results in traditional default behaviors and creates barriers to attempting innovative approaches to solving problems.

Limited Time

Another factor that affects fidelity of implementation is time. Teachers and school counselors are time strapped. The pressure on all school personnel to demonstrate effectiveness and solve problems efficiently is high. The average student-to-counselor ratio in the United States is 482:1 (NACAC and ASCA, 2018). Time constraints and increasing workloads may affect SFBC practices by limiting the number of sessions or reducing the amount of time the counselor spend building a collaborative relationship and building student motivation and self-efficacy. Additionally, busy counselors may limit or eliminate homework, and instead, provide students with academic plans or other suggestions on how to solve the problems.

SFBC in Schools: School Counselor Thoughts, Experiences, and Strategies

Since there is little empirical research on how counselors use SFBC and the effectiveness of SFBC in a school setting, and an informal study was conducted during a SFBC professional development training. Interview data were collected on how SFBC was used in the field, what were the challenges to implementation, did the counselors feel SFBC was effective, and what additional training or resources

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were needed to improve SFBC practices in schools. School counselors also shared tips on practices that facilitate the use of and effectiveness of SFBC in schools. Nine public high school counselors from Los Angeles served as the focus group and their thoughts and experiences are shared in the subsequent sections.

How Do School Counselors Use Solution-Focused Brief Counseling?

Counselors stated that SFBC is used in their daily counseling interactions with students. Examples provided were meeting with students to create academic plans and individual and group counseling sessions. However, after further probing asking the counselors to explain their process and student questions, it was evident that counselors often combined SFBC with other theoretical counseling approaches such as cognitive-behavioral counseling, rational emotive therapy, and restorative justice practices. Counselors also used a tradition problem-solving approach that emphasized identifying the solution to the problem, barriers to the solving the problem, and creating an action plan to implement. For example, one counselor stated:

We meet with students quarterly to review their academic progress. I start each meeting with a discussion about what went well for them during the quarter and what accomplishments they are most proud of. I ensure that everyone provides at least one example of an accomplishment to build motivation and self-esteem. Then I ask them to identify what problems they had during the quarter, how they addressed them, and what worked or did not work for them. At the end of the meeting we review their grades and I ask the student to create an action plan for the next quarter. (Counselor 2, personal communication, January 22, 2018)

In this example the counselor felt she was applying SFBC; however, the discussion reveals a blended theoretical approach. Another example of a group counseling process illustrates a similar conclusion. The counselor states:

Every year I run a group on conflict resolution. Students who have difficulties solving problems and often exhibit anger or violence in response to a conflict are referred by their teachers. The group meets once a week for 8 weeks. Rather than focusing on the reason for the referral we discuss students' strengths and future goals…students learn to identify their triggers…and respond appropriately. (Counselor 1, personal communication, January 22, 2018)

Additional probing questions revealed that the primary counseling approach used was rational emotive behavioral therapy (REBT) to identify and alter irrational beliefs about self and others and change negative thinking patterns to avoid future conflicts. While all counselors stated that SFBC was the most common counseling approach they use, their examples indicate that SFBC is often combined with other counseling orientations.

Building collaborative relationships with students through solution-focus conversations is another application of SFBC cited by school counselors. School counselors do not have much time with students during the school day to build relationships, so they must use time outside of the classroom and counseling office to develop relationships with students. During supervision which occurs before school, after school, during lunch, and passing periods (in between classes), school counselors use SFBC techniques to interaction with students and build positive relationships. In one example the school counselors stated:

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When I greet students every morning I ask them what great thing they plan to do during the day. If they cannot come up with an answer, I ask them to share something they are most proud of that occurred recently. Then I ask them to come up with how they will continue to build off the positive things that occurred in the future weeks and share with me the next time we see each other. (Counselor 1, personal communication, January 22, 2018)

This example illustrates the use of solution-focused brief counseling questioning to help students focus on goals, highlight accomplishments, build motivation and self-esteem, and presents opportunities to compliment students. These questions facilitate the development of collaborative relationships and create the foundation needed for school counselors to implement remaining SFBC tenets with students during an individual counseling session.

What Are the Challenges to Implementing SFBC in Schools?

All of the focus group school counselors stated that the greatest challenge to implementing SFBC is time. Counselors felt that many times there was an intent to use an SFBC approach, but due to the limited time they had available they would end up having a more typical problem-solving conversation that includes the questions of "what happened? What should you have done? What will you do next time?" Counselors did share that they knew this was not an effective approach to problem-solving or student development. One counselor stated:

Students already know what they did wrong [problem] and what they should have done [solution]. However, getting them to choose to do the right thing all the time is something that takes time, and when you have 800 students on your caseload there is no time for that type of counseling. (Counselor 4, personal communication, January 22, 2018)

Is SFBC Effective in Schools?

The counselor focus group unanimously agreed that while solution-focused brief counseling is effective, it is not always the best approach for every student. Counselors must use their professional judgment and often attempt a variety of strategies to determine what works best for a particular student. A counselor shared the following example:

One student I was working with the other day was referred to me after making an inappropriate statement to the teacher…I was attempting to have a strengths-based conversation and build a relationship with the student, but I quickly realized that the student was very depressed and we needed to address that first. (Counselor 2, personal communication, January 22, 2018)

This example illustrates the importance of determining the full scope of a problem prior to selecting a counseling technique to address it. School counselors are trained in a variety of therapeutic frameworks and it is common to combine strategies from different theoretical orientations. However, if school counselors do combine SFBC with other methodologies when working with a student, it may make it difficult to determine the effectiveness of SFBC. Furthermore, while the school counselor focus group expressed beliefs that SFBC was effective, they did not have or collect any data to support their beliefs.

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Strategies for Better Implementation of SFBC in Schools

In preparation to work with students on a yearly basis there are specific tasks that a school counselor must do such as review student data and plan interventions, counseling groups, and schedule meetings. Furthermore, the realm of educational counseling is not consistent due to the variations of student needs, community influences, and school district and administrative expectations on the counseling team. Also, there are unique and specific differences in the way a school counselor approaches each grade level and their students which also changes year-to-year. As school counselors begin to build their repertoire for each grade level: elementary; middle school; high school; and community college they can begin to develop a plan to successfully incorporate SFBC into their counseling practices, routine tasks, and interactions with students.

The reality of the lack of time with students or the sudden change of caseloads will always be an issue for school counselors. This will continue to make personalization and creating meaningful relationships with students a challenge. To develop a constructive relationship between student and counselor with the above issues illustrates the essence of what needs to be done in order to lay the groundwork that will allow the school counselor to implement SFBC with fidelity. The school counselors in this focus group shared the following tips and strategies they believed would assist other school counselors to use SFBC more effectively: be proactive, pay attention to your semantics, collaborate with other school counselors, be visible on campus, partner with teachers and administration, understand the culture and diversity of the community, train parents in SFBC practices, create templates to facilitate SFBC practices, and engage in continuous training and reflection.

Be Proactive vs. Reactive

School counselors can take either a reactive or proactive approach to student development and problem-solving. With a proactive approach, the probability for success becomes more evident and measurable. The focus group school counselors suggest that all school counselors take a proactive stance when reviewing the school calendar and plan SFBC activities in advance. For example, for almost all grade levels there is a point in the school year that tests must be taken, and there are always students who will have test anxiety and other problems involving testing. In this example, school counselors can be proactive by reviewing the case loads and identifying the students who are most vulnerable to anxiety or other issues that would cause poor performance, then planning SFBC groups for these students early into the school year. A reactive approach would be when the student is sent to the counselor for exhibiting disruptive behaviors during testing or being truant on test day. In these reactive situations, counselors have limited time to promote effective problem-solving and behavior change using SFBC strategies because they must "react" to the immediate behavior.

School counselors can also be proactive by identifying and prioritizing the students they will work with using SFBC. The focus group suggested school counselors begin using SFBC first with students who are able to solve their problem or change their behavior with minimal guidance. These students are occasionally referred to as the "tipping point" students. They are found in every caseload of every counselor at all grade levels. These students could be those who are close to receiving a passing grade, making the honor roll, or achieving a milestone goal. These students can go either way depending on the type of support and guidance they receive, and this is when the school counselor can be proactive and begin meeting with these students using SFBC. As school counselors become more proactive with

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their dealings with students they can then reach out to the educational community including parents, educators, and community members and involve all stakeholders in SFBC. By being proactive instead of reactive, school counselors have more time to implement SFBC more effectively, and the probability of success increases.

Be Careful With Semantics

In addition to paying close attention to the kind of questions school counselors ask, the way in which questions are phrased and the word choice of the school counselor must be carefully considered and align with SFBC tenets. Many of the school counselors interviewed stated that they have caught themselves using language that is leading or inadvertently telling students what to do to solve the problem. The way in which school counselors word sentences and respond to student questions impact student behaviors and the effectiveness of SFBC. Furthermore, listening to the student's language and helping change their responses is key to changing the perception of the student. One counselor made the analogy to the way a coach speaks to players, stating:

When a coach prepares a player to perform in a match or game they are not looking to hear, "I will try to win the point or game coach!" To a coach the words "will try" translate to a possible outcome, and that the action and performance of the player may not be their best effort! By changing the wording of the players to "I will win the point or game" you have now changed their mindset, and in turn, their efforts and actions. Their attitude has changed by their own words. Thinking positively encourages acting positively. (Counselor 6, personal communication, January 22, 2018)

Thus, when using SFBC to work with students on common problems such as improving attendance, grades, behavior, effort etc. school counselors begin to develop and change the paradigm of thinking and incorporating a sense of confidence with words. The words of the school counselor can encourage students engage in future-focused thinking and to think more of probable solutions rather than possible ones.

Collaborate With Other School Counselors

School counselors have varying degrees of experience, as well as different perspectives and SFBC strategies. Breaking from silos and working as a school counseling team will greatly improve SFBC practices. One counselor stated,

I wish I could tell my younger self to find a mentor or other school counselors bounce ideas off of when I was first starting out. Experienced counselors have lived through many seasons and know what to expect to some degree. The younger and newer counselors are still reacting and learning what to anticipate. Each grade level has their uniqueness and challenges that school counselors must learn and plan for. There are "emotional seasons" of the year that always cause a reaction the behavior of all students, staff, administration and the local community. Listening to how another school counselors dealt with the challenges, how they implemented SFBC, what worked and what didn't will make it easier for us to plan and respond appropriately. (Counselor 3, personal communication, January 22, 2018)

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Be Visible on Campus

Being a visible presence is sometimes the first step in building a relationship and trust with students, which is a key feature of SFBC. School counselors have many opportunities to interact with students outside of the counseling office and prior to doing any counseling work with students. A school counselor described why being visible is so important to creating the foundation for SFBC with the following:

Before counselors were expected to stay in their office but there is a vital need to be everywhere possible to be seen by students and staff. Attending events can be an extension of office sessions, and is in most cases, nonverbal. For many students, just the sight of their counselor often reinforces conversation and commitment. A greeting with a smile, wave, or warm expression can be the foundation for positivity and motivation throughout the school day. (Counselor 6, personal communication, January 22, 2018)

Partner With Teachers and Administration

The application of SFBC should not be exclusive to school counselors. All school personnel should be well versed in SFBC and use it as a problem-solving framework when working with students. To do this effectively, school counselors must partner with teachers and administrators to adopt SFBC practices schoolwide. This, however, may be challenging in some schools. One counselor provided the following summary of the relationship between school counselors, teachers, and administration:

In many cases school counselors are excluded from meetings that pertain to pedagogy in the classroom. More counselors today have not been teachers which creates an even larger gap of understanding of what happens in the classroom and the types of problems that commonly develop. Administrators tend to avoid the counseling office only until they need them and, in some cases, do not keep them informed into the management activities on site, thus leaving the counselors in a reactive mode and lost. By creating a collaborative bridge with the teaching staff and sharing with them SFBC strategies, school counselors will get insight to teaching style, expectations, and relations with the students, while teachers learn about a new dialog to have with students. (Counselor 1, personal communication, January 22, 2018)

Counselors must express interest in becoming part of the school leadership team and participating in leadership meets to foster collaboration and share insights and training on using a solution-focused approach to address many of the problems they continually address. The end result will benefit the entire school community because school counselors will have many individuals on the school campus to assist with SFBC, and they will become more confident and efficient.

Understand the Culture and Diversity of the Community

Counselors today are dealing with more diverse issues than ever before and understanding the expectations of the community is a challenge as they are all in flux. Each community has its unique features. Cultural expressions and the translation of cultural norms is a challenge that is now a nationwide issue. The technology of today and how quickly information travels puts education and educators under a microscope where they are being judged daily. These are all reasons for school counselors to spend time within the community and learn about the lives and culture of the community. Furthermore, school

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counselors must recognize that students may belong to several communities, each with its own unique group dynamics and culture. Finally, when learning about each student's and school community's culture, school counselors should attempt to make observations that are free of biases and preconceived notions based on stereotypes. These actions will help school counselors determine the needs of the community and student, and develop collaborative relationships needed to implement SFBC effectively and to promote positive change for all stakeholders.

Train Parents on SFBC

In addition to the community, parents are a key factor in student development and success. Parents model and teach students problem-solving skills so when using SFBC techniques with students in school, school counselors should include parents in the SFBC process to continue those techniques at home. Just as school counselors mold the delivery of services using well thought out questions and SFBC strategies, parents should be trained to use solution-focused questioning and strategies with their children. If the questions and practices are consistent in their delivery, with the parents and the local community, it becomes part of the new culture and then there begins a commonality of expression and expectations. Both school and community are using the same expressions and there is better understanding of where the benchmarks are being set and the expectations of growth is now universal. There will be a shared sense of pride and excitement for their efforts.

Create Templates for SFBC

School counselors can create rubrics or templates to assess and further develop SFBC practices. Figure 1 presents a sample template that one school counselor in the focus group created to use before the start of the school year to assist with planning and implementing SFBC. This template can serve as a training and collaboration tool which could be used with teachers, staff, administration, and parents to plan and implement SFBC effectively. If buy-in is possible, such a template could be used at various schools and all levels to assist with the development of solution-focused strategies that will be inclusive of all stakeholders.

This sample template is divided in two areas of concentration, *Behavior* and *Academic*, around the SFBC goal labeled *Future Focus*. The flow of questions is developed around the school counselor's seasonal or school responsibilities which each individual school counselor should develop collaboratively. The questions are also specific to the counselor's own community, culture, and school needs. This is only one example of what the flow chart would look like. The *Behavior* section drives the questions to Future Focus in this case School Year, Registration, Start of School, and Fall Activities. The questions take into account the semantics of what the goal is to make the responses surface. The questions want to highlight the self-disclosure of strengths and abilities. a vision of the future, and the awareness that the counselor is there for support and guidance. On the *Academics* side of the chart the questions are developed the same but with a bit more emphasis on responsibility and previous knowledge by the student.

A concise and deliberate approach to incorporating SFBC into the school year will enhance the probability of effective implementation of SFBC and provide a personalized and collaborative relationship between school counselors and all stakeholders. By developing and sharing concrete examples of how to use SFBC, other stakeholders can build competency with SFBC strategies and, in turn, increase the use of SFBC as an explicit approach to problem-solving.

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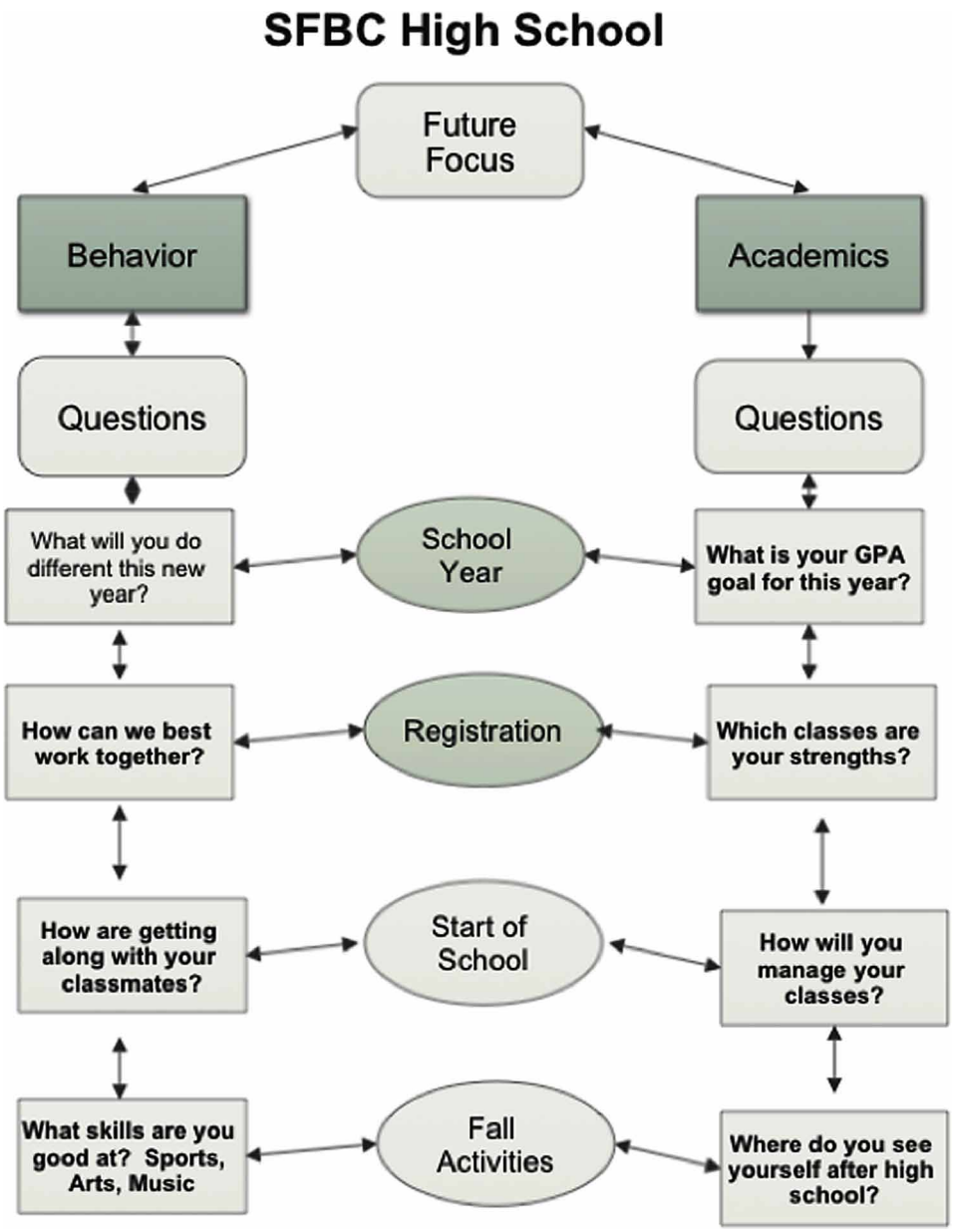
Figure 1. A sample SFBC template



Continuous Training and Reflection

Ultimately, the key to becoming an effective solution-focused school counselor is to be well-prepared, collaborative, and reflective. If the above suggestions are followed and put into a well-organized plan, the likelihood of successfully implementing Solution-Focused Brief Counseling and generating positive outcomes is now accomplished with higher probability. SFBC is a process which requires continuous professional development and reflection to ensure consistency and improvement of SFBC strategies. As demonstrated from the sample focus group, school counselors use many strategies and approaches

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when counseling students and working on problem-solving. These blended methodologies are acceptable practices when they are based on student needs and effective. However, school counselors must reflect on their practices to ensure they are not using traditional problem-solving approaches inadvertently or to save time because these actions may impact effectiveness of SFBC and student outcomes.

SOLUTIONS AND RECOMMENDATIONS

It's a kind of fun to do the impossible. – Walt Disney

The aim of this research was to interview practicing school counselors about how they combine theory with practice and use SFBC in schools. The insights garnered from the focus group suggest school counselors commonly use multiple methods in their approaches to counseling students and may have some misconceptions about SFBC and how to implement it with fidelity. Many school counselors continue to struggle with implementing SFBC strategies and counseling best practices given some of the realities of the school setting. Due to limited resources, time constraints, and a demanding performance-driven culture, school counselors may have difficulties using SFBC effectively with students. Some school counselors may be inadequately trained in SFBC because many counselor preparation programs continue to emphasize theoretical frameworks of therapy such as psychoanalytic and Adlerian which are not applicable in many school counseling situations (Sklare, 2014). All of the school counselors interviewed felt they would benefit from continuous professional development on SFBC and additional research to assess the alignment of school counselor practices with the SFBC framework and determine the effectiveness of SFBC.

This research serves as an important reminder that there is no singular, definitive solution or one particular approach to reaching a solution that is effective for all. While SFBC may be an effective counseling approach to problem-solving, it may not be adequate for all situations. Taking a personalized approach is needed. When selecting a SFBC approach to problem-solving with a student, school counselors have to carefully consider the key features of SFBC, advantages and disadvantages, and determine if they are able to implement it with fidelity. The school counseling focus group interviewed appeared to use a combination of several counseling methodologies when working with students rather than purely one framework. While using blended theoretical approaches is sometimes necessary in practice, careful examination should be performed by? the counselor –in the selection of the psychotherapeutic strategies to ensure that theoretical integrity to the given approach was maintained, and whether or how the approach(es) used affected the end result.

Some practitioners feel that one of the benefits of SFBC is that it combines nicely with other therapeutic models (Murphy, 2013). NASP (National Association of School Psychologists) also supports this belief and state, "SFBT is a flexible model that can be integrated with other counseling approaches or used to supplement other therapies that students receive in or outside of school." In clinical settings counselors often use multiple methods when working with their clients. Murphy (2016) argues solution-focused techniques are "valued-added techniques [that] adds value to whatever it is combined with" (p. 270). Similarly, school counselors blending SFBC with other approaches to counseling and problem-solving may be the new norm. A skilled solution-focused school counselor should be able to effectively combine models to create an individualized approach based on each student's unique needs. However, even counselors proficient in SFBC techniques can have known or unknown perceptual biases or over

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generalizations affect their practices (Thomas, 2007). For example, one school counselor described a situation where she was working with a high school student who she felt was unmotivated to change his behavior and could not identify any future goals, strengths, or actions to address his problem. The student was labeled as "lazy" and "unmotivated" and this generalization and potential counselor bias resulted in the counselor opting to include other strategies to improve motivation rather than SFBC techniques of looking for exceptions (times when the student was motivated). When the counselor was asked if she felt that approach worked for the student, she stated that she was uncertain and that she did not know if the student was able to sustain any positive emotions that may have resulted in the counseling session because there was a lack of monitoring. It is evident that while SFBC techniques may be positive and add value to the overall counseling process, research into mixed-methods SFBC approach is needed to determine the degree of effectiveness and impact on student outcomes.

Determining effectiveness of SFBC or any counseling framework in schools becomes difficult when there is a divergence from the theoretical design and a mixture of approaches used in practice. This may result in a lack of fidelity to the implementation of a SFBT and also a lack of fidelity for the other methodologies used. To mitigate concerns, school counselors must receive ongoing training in SFBC and the other methodologies they are integrating to ensure implementation fidelity.

The focus group interviews indicated that there may be some misconceptions about the key features of SFBC. It was unclear from the interviews if school counselors were intentionally selecting particular strategies or if they were unaware of all of the elements of SFBC. Some school counselors perceive solution-focused brief counseling as something that occurs for a short period of time such as their academic planning meetings or their counseling discussions in groups. However, while brevity is a feature of SFBC, it is not the main component. Other counselors appeared to associate SFBC with staying focused on the positive and student strengths rather than deficits. While this too is a feature of SFBC, it is not the primary element. Remaining future-focused, illustrating exceptions, and highlighting student abilities to solve problems through a collaborative student-counselor relationship are also key factors of SFBC.

FUTURE RESEARCH

Determining effectiveness of the SFBC in schools becomes difficult when there is a divergence from the theoretical design and a mixture of approaches utilized in practice. While school counselors stated that they used SFBC, some of their examples reveal that the features of SFBC were applied along with other strategies, and there appeared to be a lack of fidelity to the implementation of a purely SFBC approach. Furthermore, school counselors did not collect or maintain data regarding their counseling strategies or effectiveness. The data collected was limited to number, type, and purpose of meeting. Additional research is greatly needed to evaluate SFBC effectiveness in schools.

CONCLUSION

Students face multiple risk factors that can affect their cognitive, social, and emotional development in schools. Each student's unique needs demand that school counselors use a variety of therapeutic strategies to help students problem-solve and develop. Because children face many difficulties and barriers in schools given how American homes and societal values have changed (Berns, 2010, as cited in Henderson

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& Thompson, 2016), teaching children how to be resilient, cope, and problem-solve effectively is now a critical skill that teachers and school counselors must impart. As school counseling theory and practice continue to evolve as the discipline responds to the changing needs of students, and new methodologies, such as Solution-Focused Brief Counseling, are being developed and implemented. This chapter presented a brief overview of Solution-Focused Brief Counseling (SFBC) from the literature, how it evolved, its tenets, and the application in schools. A focus group of practicing public school counselors shared their experiences on how they use SFBC in schools and their strategies for using SFBC more effective in schools.

The SFBC framework is derived from the assumption that students can successfully solve problems without a deep analysis of the problem. In fact, the theory posits that students are capable of finding solutions on their own, and even when it is not initially evident, there are fragments of the desired solutions being implemented and times when the problem is not present. Solution-focused school counselors guide students to identifying their strengths, exceptions or times when the problem is absent, making small changes, setting goals, and focusing on desired future outcomes. By remaining oriented on positive outcomes and celebrating small success, school counselors help students become motivated to problem-solve and find that they are able to obtain positive results in a fewer sessions.

Though there may be agreement among school counselors that SFBC is an effective alternative approach to traditional problem solving and means to facilitate student development of problem-solving skills, additional research is needed. Currently, there is little empirical research on the use and effectiveness of SFBC in schools. The growing popularity of SFBC in schools presents an opportunity to further research the application and effectiveness of SFBC. Interviews with practicing school counselors presented in this chapter illustrate that school counselors use multiple counseling approaches including SFBC which may create challenges to determine the effectiveness of SFBC. While it is uncertain if the blending of strategies may be due to student need or lack of school counselor training, the school counselors felt that when school counselors ensure safeguards for fidelity are in place, combining methodologies may compliment or enrich the SFBC process.

The counselors' comments and literature on SFBC in schools noted several other barriers to implementing SFBC in schools such as time, problem-focused thinking, the lack of a team approach, school conditions, and school counselor training. The school counselors in the focus group provided several strategies to assist school counselors in promoting and applying SFBC, which include: being proactive and planning ahead, paying close attention to semantics, collaborating with other school counselors, being visible on campus, partnering with teachers and administration, learning the culture and diversity of the community, training parents in SFBC practices, creating templates to facilitate SFBC practices, and engaging in continuous training and reflection.

Integrating the work of school counselors, teachers, administrators, and parents to create a team approach using SFBC to guide student development and problem solving is a current need. Further research and outreach by school counselors might focus on sharing the benefits of SFBC and providing yearly training on SFBC practices.

In summary, when implemented correctly, SFBC has the potential to be an effective tool to teach students how to think differently about solving problems. SFBC can be used to transform problem-focused thinking and traditional approaches to problem-solving that are the normative behaviors in schools such as focusing on the problem, lecturing students about what actions to take, or administering punitive measures. School counselors must continue to develop their competencies and self-efficacy with SFBC

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techniques and work to promote a solution-focus way of thinking with all stakeholders. The tips and strategies shared in this chapter are a starting point for incorporating a solution-focused framework into school practices and interactions with students.

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KEY TERMS AND DEFINITIONS

Adlerian: Pertains to the theory and practice of Alfred Adler, whose school of psychotherapy is called individual psychology.

Miracle Question: The miracle question or "problem is gone" question is a method of questioning that a coach, therapist, or counselor can utilize to invite the client to envision and describe in detail how the future will be different when the problem is no longer present.

Paradigm Shift: Is a term to describe a change in basic assumptions within the ruling theory of science.

Pedagogy: Is the academic discipline that deals with the theory and practice of teaching and how these influence student learning.

Scaling Questions: Solution-focused counsellors use "scaling questions" to construct understandings of clients' concerns and solutions to them.

Semantics: Is the study of meaning in language. It can be applied to entire texts or to single words. For example, "destination" and "last stop" technically mean the same thing, but students of semantics analyze their subtle shades of meaning.

Silos: A system, process, department, etc. that operates in isolation from others.

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Solution-Focused (Brief) Therapy (SFBT): Is a goal-directed collaborative approach to psychotherapeutic change that is conducted through direct observation of clients' responses to a series of precisely constructed questions.

Template: A preset format for a document or file, used so that the format does not have to be recreated each time it is used.

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Chapter 8
AR Using NUI Based Physical Therapy Rehabilitation Framework with Mobile Decision Support System:
A Global Solution for Remote Assistance

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ABSTRACT

This article describes how physical therapy rehabilitation promotes functional ability of the disabled people to improve quality of life using Range of Motion exercises. The conventional rehabilitation seems to be effective; however, the efficiency of the treatment sessions is not guaranteed resulting in longer recovery period. Thus, there is a need of self-motivating and engaging training solution to support rehabilitation and enhance continuous assessment of disabled patients. The proposed framework is "AR-NUI-REHAB-MDSS," augmented reality (AR) using natural user interface (NUI) based physical therapy rehabilitation with personalized exercise rendering and monitoring system for patients and mobile decision support system (MDSS) for therapists leading to a global solution for remote assistance. NUI allows human computer interaction intuitively through human body gestures. AR provides an entertaining environment for treatments with less-assistance. MDSS enables therapist to customize treatment plans at dynamic environments. Upper limb is considered as its functional recovery is significant and more challenging.

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INTRODUCTION

The improvement in quality of life (QOL) for the people with disabilities due to functional impairment in any part of the human body is obtainable through physical therapy rehabilitation. It is a medical field expertise that deals with examination, evaluation, and re-mediates impairments to promote mobility and functional ability (Khalid, Sarwar, Sarwar & Sarwar, 2015). These disabilities can be physical or psychosomatic ailment due to various facts like accidents, congenital or birth disorders or aging concern (Fathima, Shankar, & Thajudeen, 2016). The improvement and restoration of movement and functional ability is achieved through performing regular and repetitive physical therapy exercises. Physical therapy treatment is a kind of Range of Motion (ROM) exercises that can be offered to any people regardless of the age based on the pain, injury or disability with the aid of Physiotherapist. Engaging in training using ROM exercises supports the patient to emend joint functionality concerning ease off swelling, stiffness and pain (Bhatia, Bejarano, & Novo, 2013). The main aim of this rehabilitation therapy is assisting individual personals to restore ability to perform their basic tasks and physical activities independently and accomplish the maximum level of freedom in all level such as physically, emotionally, socially, and spiritually in order to maintain QOL in the society (Murphy, Shea, Cooney, Shiel, & Hodgins, 2006, pp. 14-15). This can be obtained by doing certain prescribed physiotherapy exercises regularly and repeatedly and will be more effective in the early intervention of disability.

Upper limbs (hands) are the most significant part of the human body to perform any physical actions like grasping, holding, and manipulating objects that involves complex coordination of muscle activity engaging every part of a hand from shoulder to fingers (Feys et al., 1998; Alonso et al., 2014). The disabilities of upper limb can happen due to post-stroke, post-traumatic, paralysis, aging, etc. (Fathima et al., 2016). Several studies from various agencies reported that the functionality of one-third of the human body is affected by occupationally impaired upper limb (Ojeda, Moreno, Ramırez, & Rodrıguez, 2014). Achieving the functional recovery of hands is rarely possible by few days of treatment in hospitals or by undertaking oral medicines. In most of the cases, there is a need for continuous physiotherapy treatment in order to make them functionally enable; independent and improve QOL, even after their discharge from hospital (Fathima et al., 2016). The lack of impulsive stimulation during functional activities leads to the reduction in probability of retrieving the upper limb fully functional. By nature, non-affected side is exclusively used by the patient to perform upper limb activities (Kwakkel, Kollen, Grond, & Prevo, 2003). Findings from research studies indicate that the paretic arm remains without function when measured after 6 months post stroke, whereas the complete functional recovery is demonstrated only 5% to 20% (Feys et al., 1998). Thus, it is more challenging to rehabilitate upper limbs.

As the upper extremity functional recovery is quite complex, the training of moderate exercises has to be maintained appropriately. The proper rehabilitation training is very crucial to be performed by those who have impaired limbs and it is not easy to restore normal daily function (McNeill, Pokluda, Mcdonough, & Crosbie, 2004). There are many therapeutic rehabilitation approaches currently available but the notable concern is that though conventional therapy is effective, there is a lack of efficiency in the treatment sessions due to unavailability of facilities and therapists, about 60% of the day the patients were alone, in some cases only about 13% of the day patients are engaged in activity (Bernhardt, Dewey, Thrift, & Donnan, 2004), also enduring some traditional therapies continuously make patients to lose their interest and lag motivation to continue their exercises regularly, leading to longer recovery period. It is been proven that performing two to three hours of arm training a day for six weeks when started within one or two months after stroke improved motor recovery (Lawrence et al., 2001). Thus, it neces-

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sitates finding innovative ways of self-motivating and engaging training solution to enhance functional recovery of upper limb rehabilitation with minimal or remote support from therapist.

The ideal solution is to use engineering technology involving advanced computing techniques to propose a novel framework as the supplementary treatment process to conventional rehabilitation and to enable continuous onsite or remote assessment of disabled patients. While maintaining the quality treatment, the overhead cost incurred in healthcare rehabilitation can be reduced by the application of strategic information systems planning with the proper means of information sharing and quality reporting (Hung et al., 2016). Physical rehabilitation integrated with extremely interactive and immersive computing technologies and information system has the prospects to offer efficient treatment sessions that mutually benefits both patients and therapists.

This paper emphasizes on various interactive computing technologies like NUI, GR, AR and MDSS that can be adopted into the health care domain especially in the field of physical therapy rehabilitation. The importance of upper limb rehabilitation is discussed along with the literature review of NUI and AR based rehabilitation frameworks followed by the comparative study of pros and cons of different gesture technologies and limitations of the existing techniques. Finally, a novel framework "AR-NUI-REHAB-MDSS" is proposed with the explanation of essential components, the implication of appropriate technologies for the framework implementation and design methodologies with an experimental training scenario. It also highlights the beneficiaries of the system, its future scope and concludes with the significance of the proposed framework as a global solution for remote assistance.

COMPUTING TECHNOLOGIES FOR HEALTH CARE REHABILITATION

The major computing interfaces and technologies involved in the proposed framework to support rehabilitation are

- Natural User Interface (NUI)
- Gesture Recognition (GR)
- Augmented Reality (AR)
- Mobile Decision Support Systems (MDSS)

Natural User Interface (NUI)

NUI is an expansion and specialized form of Graphical User Interface (GUI) that lets the human computer interaction (HCI) through actions of common human behaviour intuitively. The natural way of interaction with systems and technologies is provided to the NUI users by human touch, senses, gestures, speech and thoughts. It can be implemented in various ways depending upon the user requirements and the purpose. NUI interaction is supported using intermediary sensing devices that are either visible or invisible. NUI has presented a new era that allows computing devices to be used in unmarked areas of applications like medical rehabilitation which had been complex previously (O'hara, Harper, Mentis, Sellen, & Taylor, 2012).

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Gesture Recognition (GR)

The most natural means to interface with a computer or any system by human is through gestures and is integral to HCI. It is considered as interaction techniques that deliver a creative and the natural methods of communication between people and computing system. Any form of the body movement creates the gesture. Gesture recognition technology makes use of sensors like cameras, computer vision and mathematical algorithms for accurate interpretation of sign language and gesture motion (Karray, Alemzadeh, Saleh, & Arab, 2008). They build a strong association between machines and human in a rich manner than traditional text user interfaces, which involves major use of mouse and keyboard. Glove based systems, Stereo and Depth aware cameras, Controller based gestures are the well-known gesture based input devices. NUI using gesture interfaces have vast advantage in various fields like engineering, entertainment, health care and education (Jain, Lund, & Wixon, 2011).

Augmented Reality (AR)

Augmented Reality (AR) is an advancement of Virtual Reality (VR) that offers an integration of real world environment with virtual objects that are augmented by sensory inputs like graphics, voice, video or gestures generated by computers using NUI devices that can be viewed directly or indirectly by the user. AR technology makes use of motion sensors, computer or machine vision or special kind of markers to enable gesture recognition and to capture and interact with virtual objects in which the game sequences are processed digitally. Using AR, one can create more realistic and interesting exercise training scenarios which adopt a concrete object into the framework and facilitate patients to touch, play and interact with the virtual and real environment with the level of transparency (Alamri, Cha, & Saddik, 2010). AR technology provides patients with natural and an entertaining environment for treatment sessions with less assistance (Merians et al., 2002). It significantly increases training period by self-motivating patients' through feedback and improves engagement in training which ultimately leads to faster recovery.

Mobile Decision Support Systems (MDSS)

The advancement in mobile computing, smart communication and information technology offers an exciting prospective for a new innovative cluster of decision support systems (DSS) named as Mobile Decision Support Systems (MDSS) (Haghighi, 2013). MDSS offers access to up-to-date information and data of the information system on mobile devices and provides a provision for decision makers to make complex and critical decisions in their business anytime and anywhere at dynamic environment. This technology can be integrated in the rehabilitation framework to support therapists for continuous remote assessment of patients.

LITERATURE SURVEY

Movement impairments fundamentally requires rigorous treatments, hands on training using appropriate physical and occupational therapy for quite a few or more weeks to recover from the injury and get back to normal functionality. Unfortunately, the affected patients are receiving less therapy due to lack of facilities and financial pressure leading to return home earlier from health care centres with incomplete

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treatment (Rathore, Hinn, Cooper, Tyroler, & Rosamond, 2002). The significant aim of Rehabilitation Engineering (RE) is the development of technology that facilitates individuals to carry out their intensive movement trainings without the expense of presence of therapist all the time but provided with their support remotely or onsite based on the requirement (Ong, Shen, Zhang, & Nee, 2011). In the field of rehabilitation applications, the introduction of the prototyped serious games using NUI is very attractive and intuitive (Rego, Moreira, & Reis, 2011).

The upper limb rehabilitation training sessions for functional recovery needs supervision of therapist on a regular and frequent basis. The frequency and duration of training period depends on the injury's severity. The development of Augmented Reality based rehabilitation training system intends to reduce the reliance on supervised therapy and motivates self-training with minimal support. The techniques of physical therapy that are currently in use are replicated as games in an augmented environment in which patient interact with virtual objects naturally. The gaming exercises are developed using marker based augmented reality technology. Usage of a gaming platform offers increased motivation to the patients, as well as an affordable rehabilitation solution. The games can be used with or without use of some assistive devices like hand held roller ball device, which changes the focus of exercise and tries to engage the patient in their training movements (Leon, Bhatt, & Al-Jumaily, 2014).

Spatial AR system designed facilitates patients with stroke to perform hand movement training exercises at health care centre or at home with less intervention of physical therapist or health care providers. The patient gains better control over AR environment in such a way that he or she feels realistic and engages in treatment session in a more intuitive way (Hondori, Khademi, Dodakian, Cramer, & Lopes, 2013). The psychological feeling of the patient is better while using the Strokeback system and speed of the rehabilitation gets improved because of the suitable leap motion controller games under Unity 3D that gives a successful technical system test and demonstrate the correct exercise and accurate scoring of the patients by animating avatars. Leap motion controller is used to capture the movements of the upper limbs which are an engaging way for the patients and is a fun in practicing therapy (Hondori et al., 2012; Tao et al., 2007). A new generation of the video game that promotes the physical activity and effect the energy expenditure (EE) is the Exergame. The researchers have brought the different Exergames which are full of the entertainment with physical activities and different types of video games. The benefits of the exergaming impact a lot on the human health and fitness (White, Schofield, & Kilding, 2011).

Interactive and intelligent rehabilitation gaming system named RehabMe makes use of Microsoft© Kinect for Xbox 360 that strives to retain patients' interest in doing their exercises. It is embedded with an assessment module using which exercise regimens are measured both quantitatively and qualitatively. The growing needs of home-based rehabilitation is facilitated using this system by enabling patients to realize an enjoyable and challenging interactive experience (Andika, Tantra, & Wai, 2012).

The medical rehabilitation for the patients suffering from shoulder injuries was proposed, that uses Hidden Markov Models (HMM) for recognition and applies a histogram-based comparison for computing the accuracy score. Microsoft Kinect for Xbox 360 sensor is used to obtain 3D coordinates of human joints. From the captured skeletal coordinates, significant features are extracted which are then quantized into 16 intermediate upper-body poses using which the temporal patterns are modelled by training an HMM for each exercise. As the patient performs his/her exercise, the system recognizes variation in the exercises promptly and accuracy score is assigned for each exercise being carried out. It also supports the patient by tracking of daily exercise routine, providing suggestions for improvements and supports therapist or medical experts by maintaining records to access whenever required (Uttarwar, Mishra, 2015).

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AR-based REHABilitation is a new approach based on AR technologies that is designed to improve the stroke patient's involvement in their treatment process. The approach takes advantage of Virtual Reality technologies and presents a natural-force interaction with the concept of tangible-object adopted into the daily environment. It also includes measurements for patient assessment. The assessment parameters are compactness of task, task completion time and hand movement speed and these are recorded by means of capturing the patient hand gestures and activities while interacting with the tangible object (Alamri et al., 2010).

COMPARISON OF EXISTING REHABILITATION FRAMEWORK

Wearable Sensors, Leap Motion Controller, Nintindo Wii, Microsoft Kinect are examples of NUI devices with gesture recognition (GR) capabilities that are useful to develop AR based applications. The comparative study of existing rehabilitation frameworks using different gesture technologies with its pros and cons are discussed in Table 1 which offers a feasibility analysis for the real-time implementation of the proposed framework using Microsoft Kinect (V2) for Xbox one.

Table 1. Comparison of existing rehabilitation framework with different gesture technologies

Technology	Pros	Cons
Wearable Sensors Wireless Sensor Network for body motion processing (Kwang, Goh, & Dong et al., 2008)	Encourage the healthy habit while wearing the wearable sensors as it has property of the fitness apps that helps to change the behavior. It's a personal technical device that helps to track the problem of the patients by wireless mode with a monitor that is inbuilt in the sensor.	Sensor technology that tracks the daily activities may not be completely accurate. It is moreover wearable sensors, which has to be fit into the user's body that makes disruption while performing exercise.
Leap Motion Controller Stroke Back System (Hondori et al., 2012; Tao et al., 2007)	A gesture is based on motion sensing interface. Easy to install and connects on Mac and windows. Number of apps with cheap rates or free of cost is available.	Hand position cannot be registered in a proper way and the gestures are of no standards so it's difficult to use in the productivity task of real time exercising.
Nintindo Wii Exergames (Leatherdale et al., 2010; Diest et al., 2014)	A work out is a fun as Wii version is simple and easy for a quick workout and could be performed whenever the user has time.	As the tracking of the game is quite frustrating so while creating the workout schedule, there is no Motivational part like other fitness games. It does not have information on the complete workout for the upper limbs and others.
Microsoft Kinect for Xbox Rehabme (Andika, Tantra, & Wai, 2012)	It is with a powerful hardware interface that is intuitive. There is a USB support and could be carried on live in any interface devices like TV, laptop, or Mobile which supports marker less skeletal and gesture tracking feature with good accuracy and with negligible delay time.	Backward compatibility is limited.

LIMITATIONS OF EXISTING TECHNIQUES

The framework using wearable sensors might cause disruptions while performing exercise, so there is a need of marker-less motion tracking NUI. Leap Motion Controller is a small NUI device used to capture only the hand gestures and it might be complex to use it in the real-time exercise development.

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Nintendo Wii cannot help to capture information on the complete workout of the upper limbs. Though the existing frameworks propose solution for rehabilitation, there is always a scope for improvement in the level of motivational and transparency part of the exercise development. It is quite tricky to develop activities of daily living (ADL) exercise training scenarios for upper limbs that involves actions like touch, reach, grasp, hold, eat etc., as it requires marker-less body gesture capturing, face recognition, speech recognition and skeletal tracking for efficient exercise design.

Microsoft Kinect is a device introduced by Microsoft under the banner of Xbox gaming device which is quite innovative technology with a combination of the software, cameras and microphones that capture every movement of a human body and turns it into a fun based video game controller. It is a very much successful NUI device that integrates the skeleton tracking feature that establishes the skeleton joints position through a depth image data. Although it had a great impact in the gaming industries, its vast applications were revealed which later led to the invention of many innovative ideas using kinect's gesture and skeleton tracking feature in the field of rehabilitation (Mobini, Behzadipour, & Foumani, 2014). Microsoft Kinect for Xbox One (V2) is the subsequent version of Microsoft Kinect for Xbox 360 (V1). Kinect V1 was restricted due to its low-resolution output. Kinect V2 has a high-resolution capability camera that is much more precise in term of skeleton motion tracking, resolution, face recognition and many other features than that of Kinect V1. The feature comparison of Microsoft© Kinect for Xbox 360 (V1) with Microsoft Kinect for Xbox One (V2) is given in Table 2.

Table 2. Feature Comparison of Kinect V1 and Kinect V2

Features	Kinect (V1)	Kinect(V2)
Full skeletons tracked	upto 2	upto 6
Horizontal field of view	57 degrees	60 degrees
Vertical field view	43 degrees	60 degrees
Minimum depth distance	40 cm near mode	50 cm
Quality - color camera	640x480 @30 fps	1920x1080 @ 30 fps
Quality - Depth camera	320x240	512x424
Skeleton joint defined	20 joints	26 joints

Moreover, Patient assessment system built-in with the existing frameworks does not incorporate mobile decision support system to help therapist anywhere and anytime to provide remote assistance for the patients.

AR-NUI-REHAB-MDSS Framework

By taking the limitations of existing AR based rehabilitation systems into consideration, this paper proposes a novel "AR-NUI-REHAB-MDSS Framework", that is Augmented Reality(AR) using Natural User Interface(NUI) based physical therapy rehabilitation framework with personalized exercise rendering and monitoring system with the aim of functional recovery of upper limb for the affected patients to enhance the training on Activities of Daily Living (ADL) and Mobile Decision Support System (MDSS) for therapists. See Figure 1.

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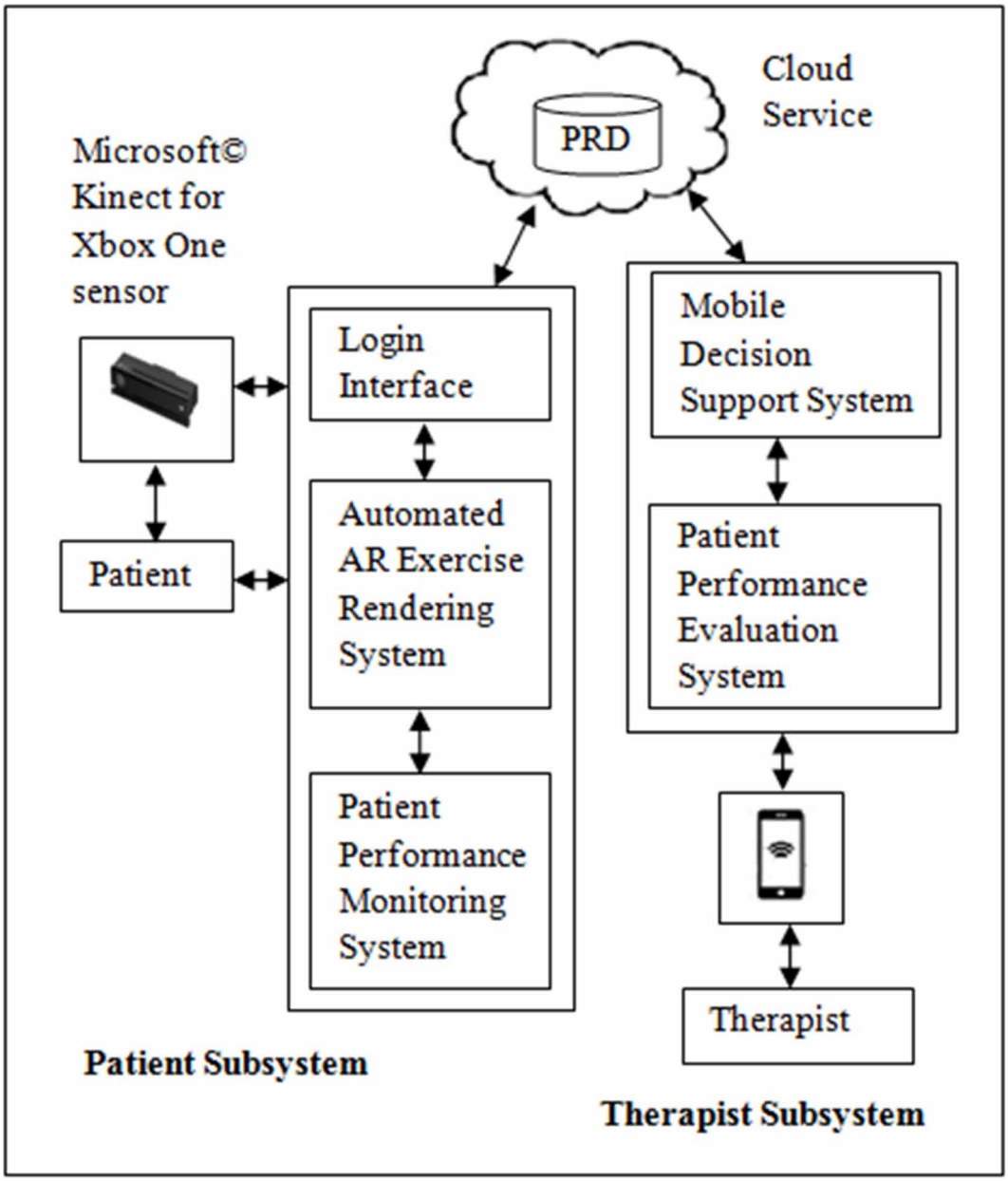
The proposed framework is basically divided into two subsystems called the patient subsystem and the therapist subsystem. The patient subsystem consists of a login interface, automated augmented reality exercise rendering system with an interface to NUI supporting device such as Microsoft Kinect (V2) for Xbox One, a marker less motion sensing device for human gesture tracking to perform exercise training, and patient performance monitoring system. The therapist subsystem comprised of patient performance evaluation system with customized data analytic techniques for hand gesture data analysis and mobile decision support system module with an interface to the mobile device through which the therapist can access the information system and monitor the patient's performance.

Figure 1. AR-NUI-REHAB-MDSS Framework



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FRAMEWORK COMPONENTS

Patient Rehabilitation Database (PRD)

The patient rehabilitation database stores the patient information like patient personal data, medical history, fitness condition, personalized exercise training/treatment plan, exercise monitoring and performance analysis data and therapist information. In the future, therapist or rehabilitation experts can make use of this PRD to evaluate the success of the patient versus effectiveness of the rehabilitation process. As the data generated by the application is expected to be large due to the storage of human gestures for each training session, the framework proposes to store the database on the cloud storage server for an affordable large data storage and ease of data access for further analysis and mobile applications.

Patient Login Interface

Every patient is given a login interface in order to securely access the patient subsystem. As the patient successfully login, the patient can view his/her relevant health information and can perform AR based exercise as per the personalized treatment plan.

Augmented Reality (AR) based Exercise development

AR Exercises can be designed for rehabilitating upper limb functional movements such as reach, touch, hold, release, grip and other manipulations of the objects. It allows using real world 3D objects of different shapes and size relevant for training. Microsoft Kinect for Xbox One sensor device is used as an NUI for developing AR Exercises with Gesture Recognition (GR) and to interact with the system in order to train the patient. The Microsoft© Kinect Sensor and its associated Software Development Kit (SDK) offered access and control to its powerful prevailing sensors has brought a new way of NUI for gaming environment and can be utilized especially in many research purposes. The Kinect has robust 3-Dimensional (3D) sensors for gesture and face recognition and it can be used to develop an effective rehabilitation training system (Muneshwara, Swetha, & Anil, 2014). Upper limb rehabilitation is performed using set of Range of Motion (ROM) training (Gates, Walters, Cowley, Wilken, & Resnik, 2016). Using Kinect based Augmented Reality, ROM exercises for shoulder flexion / abduction, elbow flexion /extension, hand grip and release can be designed and developed in the fun based environment.

AR based exercise training design and development for rehabilitation should consider the most basic and challenging properties listed in the Table 3.

Augmented Reality (AR) Exercise Rendering System

This involves creating an interactive and automated AR based exercise rendering system for patients. The treatment plan of a patient consists of customized list of exercises to be carried out along with the order of undertaking, training time period and count of repetitions fixed with each exercise. When the patient login to the system, the exercises are automatically rendered in the precise order for the specified period of time.

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Table 3. Properties of AR based Exercise design and development

Properties	Description
Simplicity	Exercises should be easily understandable by all kind of patients and their supporters.
Appropriate	The exercises should be appropriately designed to offer the anticipated training for the affected part of the body without any side effects.
Ease of use	Training sessions should be easy to perform with less effort and minimum (or) no support / assistance.
Accuracy	The sensing device interface should be properly calibrated and programmed to capture the patients' hand gestures accurately and respond to training session as expected with negligible delay.
Transparency	Patient should undertake the exercise training without the feel of treatment session.
Interesting / Motivating / Engaging	Exercise design should be interesting enough so as to motivate the patients to engage in the training with self-interest and perform the sessions repeatedly and regularly.
Personalization	Exercise parameters should be customizable based on the patient preference and health condition.

Exercise Monitoring System

While the patient performing an exercise, all the activities related to user's intuitive behavior is identified and captured by the sensing device which help to interact with system. The performance of the patient based on exercise score and ROM co-ordinate angle of hand gestures with respect to shoulder, elbow and wrist are monitored and stored in the PRD for each session. These data can be later used for patient performance analysis.

Patient Performance Evaluation System

The system evaluates the performance of the patient from the monitored data that is stored in the PRD using appropriate data analytic tools and techniques to produce a performance report in daily/weekly basis or whenever required.

Therapist Mobile Decision Support system

The therapist can access the patient information through mobile application secured with login interface. The therapist can be able to monitor the patient performance, view the training reports and can change the treatment plan for the patient accordingly through the mobile app at the dynamic environment and can provide remote assistance.

Technologies for Proposed Framework Implementation

Kinect V2 has the capability to detect all the valuable biometric data that include the facial expressions, limb weight, voice recognition and other gesture expressions. It has the fidelity to track all the fingers, the stretching and shrinking of the upper limbs of the body with high accuracy when compared to Kinect V1. Unity 3D game engine is a software development tool kit that provisions the development of simple to complex 2D and 3D games and supports excellent integration with Microsoft© Kinect (Ashley, 2015). The proposed system aims to develop exercises for the upper limb ROM training as AR game

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Table 4. Proposed Framework - Implementation Technology

Requirement	Implementation Technology
Human Gesture Capturing and Motion Sensing NUI Device	Microsoft Kinect for Xbox One and its SDK
AR based Exercise Development	Unity 3D Game Engine Software
Patient Rehabilitation Database (PRD)	SQLite and suitable Cloud Storage using Infrastructure as Service (IAas)
Patient performance evaluation system involves hand gesture data analytics	Any appropriate existing data mining tool (or) customized new data mining algorithm
Mobile Decision Support System (MDSS)	Android Studio and SDK tools

play environment using Unity 3D and Kinect. The list of requirements and suitable technologies for the implementation of the proposed AR-NUI-REHAB-MDSS framework is given in Table 4.

FRAMEWORK METHODOLOGY

Patient Subsystem

The workflow of patient subsystem is illustrated in Figure 2. As the patient logins to the system, he/she will be able to view notifications or review comments from the therapist. The patient can start the treatment session to perform exercise and the system loads the list of AR exercise training scenarios according to patient's personalized treatment plan from PRD. The system then automatically renders the AR exercise scenario one by one in the specific order as per the treatment plan. At the beginning of every exercise, the training score is initialized to zero (0) and timer is set to scheduled time. While the patient performs the exercise using Microsoft Kinect NUI device, the timer runs and audio-visual feedback will be given so as to motivate patients to involve in training effectively. To improve the engagement of the patient, training score is updated with respect to hit and miss activity of each scenario. The patient's activity is monitored and ROM angles of hand gestures with respect to shoulder, elbow, and wrist are captured by Microsoft Kinect and recorded at appropriate time frame. The necessary information regarding a particular training scenario that is required for patient performance evaluation is stored in PRD at the end of each scenario. This process of treatment session continues until the patient carry out all exercises in the treatment plan.

Therapist Subsystem

The workflow of therapist subsystem is illustrated in Figure 3. The therapist can login into rehabilitation MDSS through mobile interface. The therapist is given options to manage and monitor patients. The therapist can manage patients by view, add or update the patient profile, create patient personalized treatment plan by adding or removing AR exercises to the treatment plan. The personalization is achieved through setting or updating the exercise order, exercise parameters like count, time, hit or miss scores, instructions, scene parameters etc. based on patient profile. If the therapist wishes to monitor patient, he can review patient evaluation by generating patient performance report whenever required. The patient

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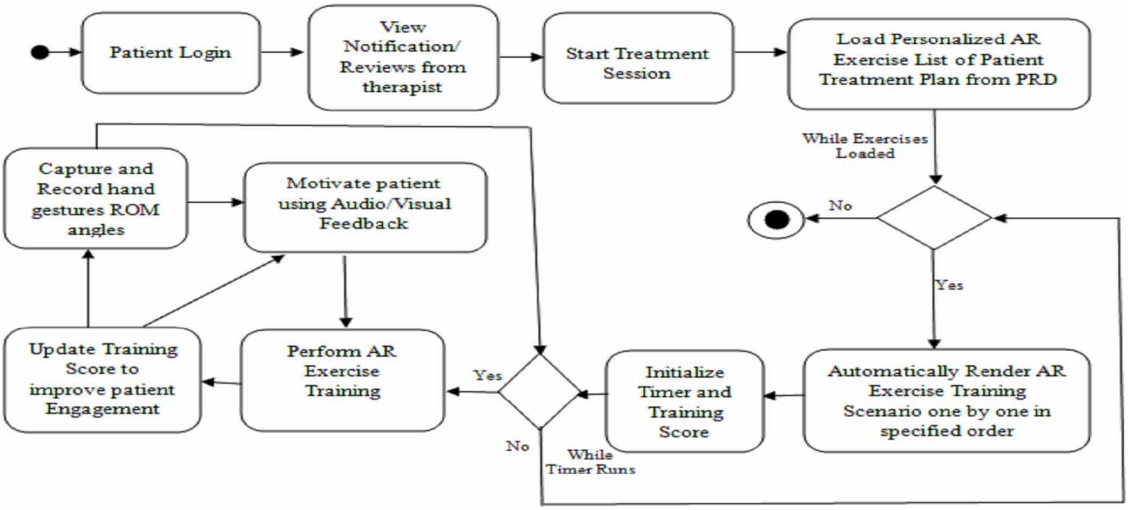
Figure 2. Workflow of Patient Subsystem



performance is analyzed and report is generated using appropriate data analytic process considering rehabilitation criteria. The therapist can change treatment plan based on patient performance and can send notifications or review comments to the patient.

Use Case Design

The use case diagram of the proposed AR-NUI-REHAB-MDSS framework is shown in Figure 4 that illustrates the overall design of the system.

Figure 3. Workflow of Therapist Subsystem

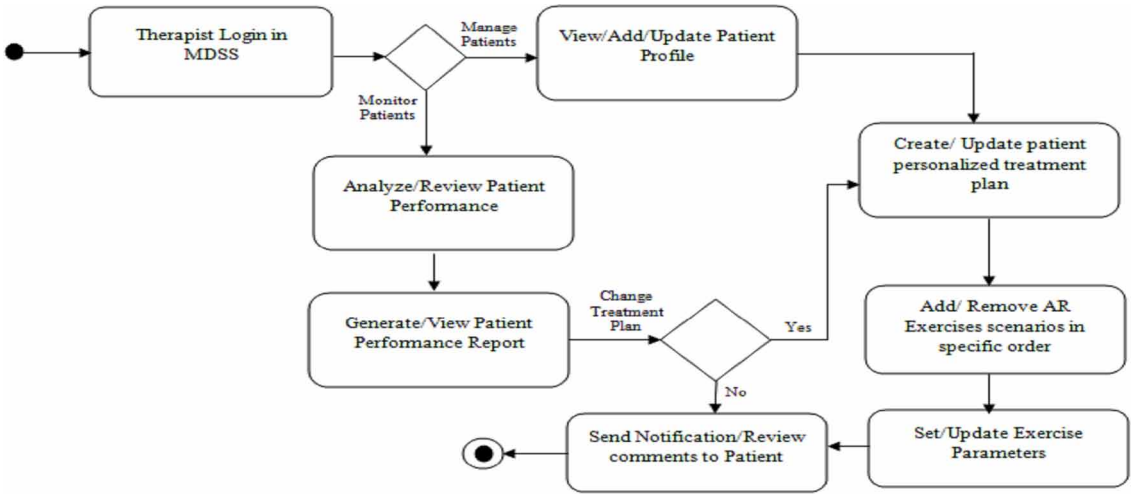


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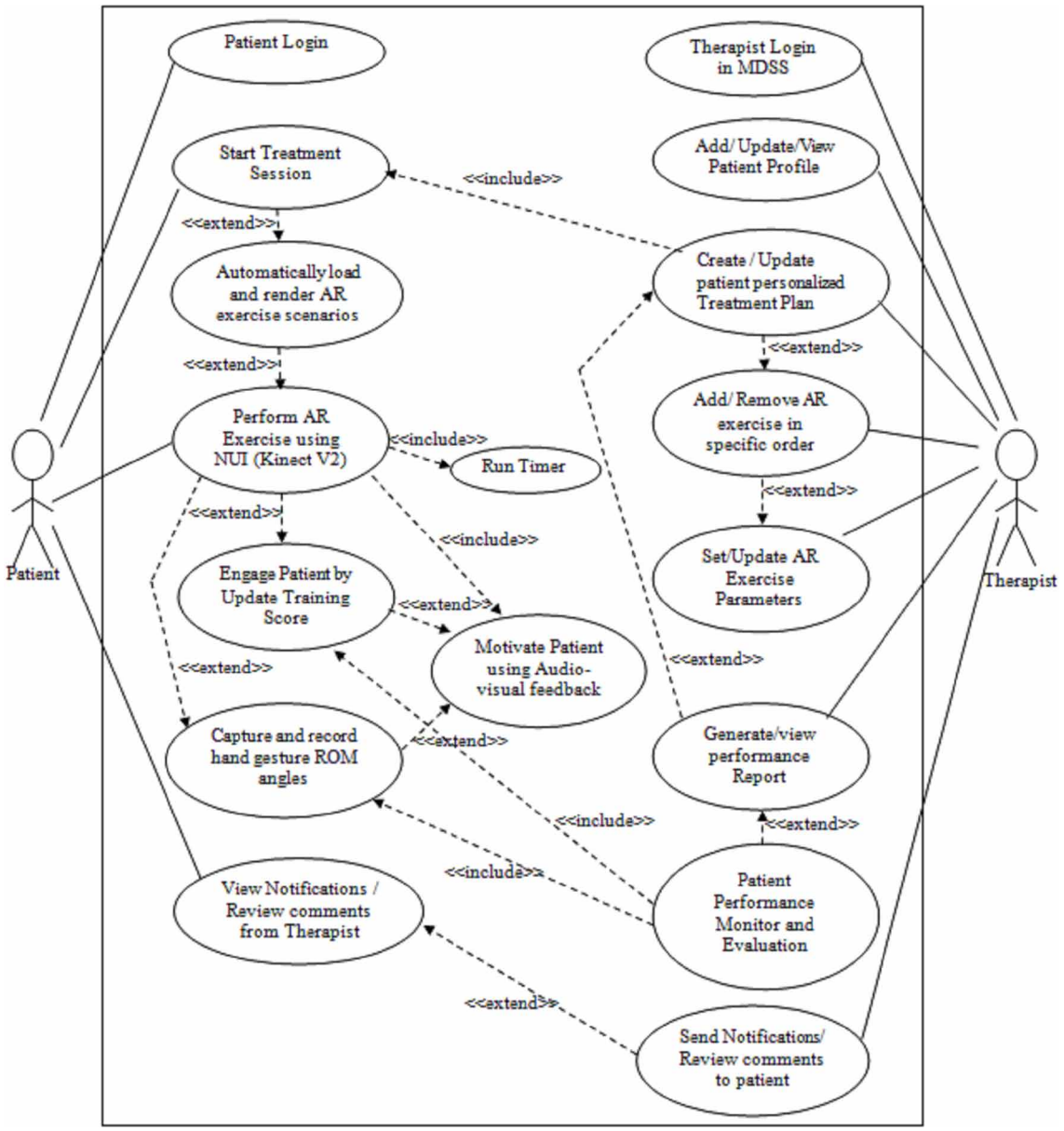
Figure 4. Use case design of AR-NUI-REHAB-MDSS Framework



Experimental Training Scenario

The experimental ADL exercise training scenario is specifically designed to improve the eating behavior of the patient with impaired upper limbs. It is implemented using Unity3D Gaming Engine software for AR exercise development and Microsoft Kinect V2, a motion sensing NUI device to interact naturally with the training scene. In this training, a virtual scene is rendered with a basket of fruits like bananas and oranges placed on the table in front of the patient. The patient is made to interact with the virtual objects in the AR environment designed with audio visual feedback to motivate and engage patients in

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training with less assistance. The AR environment in this case refers to blending of virtual objects into real interactive scene captured using Microsoft Kinect's background camera. The training involves the movement of patient's hand towards the fruits, pick and hold a fruit at a time, move the hand towards the mouth and then release the fruit near his/her mouth. The fruit get disappears only if it is perfectly released near the mouth and Microsoft© Kinect's face tracking feature supports to achieve this task. For each correct eat action, the training score is updated and the ROM angles of hand gestures are captured. ROM hand trainings like shoulder medial rotation, hand grip, hand release, elbow flexion, and elbow extension can be given using this training scenario. The design of eating activity training scenario is shown in Figure 5.

Figure 5. Design of Eating Activity Training Scenario

BENEFICIARIES OF PROPOSED FRAMEWORK

The list of beneficiaries and benefits offered by the proposed AR-NUI-REHAB-MDSS system are given in Table 5.

FUTURE SCOPE

The implementation of the framework components has been initiated with the development of AR based exercises using Microsoft Kinect for Xbox one and unity 3D to enhance the activities of daily living (ADL) for the disabled people which involves the creation of fun based motivational gaming User Interface (UI) design and maximize the effectiveness of treatment sessions for upper limb rehabilitation. Though the study in this paper concentrates mainly on upper limb rehabilitation, the framework could be extended to any kind of physical rehabilitation involving different parts of body as Kinect device supports skeletal and gesture tracking of the whole human body. Moreover, patient's training interface

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Table 5. Beneficiaries and benefits of AR-NUI-REHAB-MDSS

Beneficiaries	Benefits
Physiotherapist / Rehabilitation Expertise	Number of patients treated by the physiotherapist is limited by the amount of time taken for a treatment session. The framework enables therapist to handle more number of patients as it facilitates remote monitoring to keep track of patient performance, change treatment plans and can provide remote assistance from dynamic environment.
Patient	The system aims to motivate the people of all ages to engage in the training sessions effectively and can create a positive impact and enjoyable experience, which may lead to improvement in results and speedup recovery. Moreover, on an affordable circumstance, one time setup of the training environment can be done at home that makes the psychological feelings of the patient better when compared to any care centre or hospital.
Physiotherapy clinics and hospitals	AR-NUI-REHAB-MDSS framework setup at clinics or hospitals will offer an added advantage of using new emerging technologies as a supplement to traditional therapy which ensures better treatment, faster recovery, promotes more patient visit and adds value to the service as well as business.
Society / Community	It helps to build a technology enabled healthier society / community with the provision to reduce the disability rate.

could be any type of smart devices like desktop PC, laptop, television, mobiles or tablets that supports Kinect based AR environment. The PRD created from this implementation can act as the rehabilitation dataset for further analysis to improve automation process. There is a wide scope of research opportunities in this area of study for the proper implementation and deployment of computerized rehabilitation training platform following the medical standards as a global solution with therapist's remote assistance.

CONCLUSION

This paper proposed a novel framework of adopting the new emerging engineering computing technologies into the health care system in order to support and enhance upper limb physical therapy rehabilitation. As discussed, using AR therapy with simple assistive NUI devices like Microsoft Kinect exhibits to be an affordable option to substitute other form of therapies using robotics which is quite expensive, and also it can be easily integrated with conventional physiotherapy (Hondori, Khademi, & Lopes, 2012). At the same time, it promotes self-engaging and self-motivating training sessions for patients to carry out exercises in fun based environment with less assistance. In addition, the proposed framework emphasizes developing Mobile Decision Support System (MDSS) that enables therapist to perform remote patient monitoring and assistance. The integration of engineering computing technology into conventional therapy will definitely benefit both patients and therapists which will ensure better treatment and improved functional recovery.

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Chapter 9
Scientific Creativity in Psychology:
A Cognitive-Conative Approach

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ABSTRACT

The present research investigates the cognitive and conative profile underlying scientific creativity in psychology. An innovative creativity test including both divergent and convergent thinking was used. Intelligence and personality were also measured. The sample consisted of 121 social science students. Intelligence played a major role for scientific creativity in psychology. With regard to personality, openness and negative agreeableness favored additionally scientific creativity in psychology. In future research, the profile of scientific creativity could be compared with profiles of artistic creativity and everyday creativity.

INTRODUCTION

Batey and Furnham (2006) distinguish between three major domains of creative expression: artistic, scientific and everyday creativity. Although for a long period of time creativity was considered in a domain-general way, presently, creativity is progressively considered to be specific to the respective

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domain. Both approaches are not necessarily mutually exclusive. According to Lubart, Mouchiroud, Tordjman, and Zenasni (2003), the differential approach to creativity reconciles the domain-general and the domain-specific approach; it assumes that there are both domain-general and domain-specific features for creativity. Whereas according to Batey and Furnham (2006) some cognitive and personality characteristics (e.g. fluid and crystallized intelligence, openness) are supposed to have a domain general importance for creativity, according to Lubart and Sternberg (1995) other features (e.g., knowledge, risk taking) are thought to be more domain-specific. The present chapter aims to investigate the differential approach of creativity, with a specific focus on scientific creativity in psychology. The cognitive attributes and the personality characteristics that make up the profile of the scientific creator in the domain of psychology are explored.

BACKGROUND

Scientific Creativity

Although creativity intervenes in many life domains, according to Kaufman and Baer (2006), it is particularly relevant to the arts and sciences. What makes the science discipline so interesting to explore is that it uses a universal language that transcends the different sub-disciplines. Hence, according to them the role of acquired knowledge is secondary for scientific creation.

For Feist (1998), the definition of a scientist includes science students, natural scientists, social scientists, biologists, engineers, inventors and mathematicians. In the 1950s the first serious investigation of the personality profile of eminent scientists in comparison to non-scientists or their less creative peers was conducted (Roe, 1953; Cattell & Drevdahl, 1955; Terman, 1955). However, according to Feist (1993), it is only in the late 1970s and early 1980s that the psychology of science emerged. Feist and Gorman (1998) consider that the importance of this research discipline lies in a fruitful establishment of selection criteria for science students and young researchers. Presently, the personality of scientists is an already well-established area of investigation, using both psychometric tests and biographical analyses (Piirto, 1998).

Gardner (1983) was also interested in the nature of scientific creativity. According to Gardner (1983, p. 138), mathematical creativity refers to the ability to be "absolutely rigorous and perennially skeptical: no fact can be accepted unless it has proven rigorously by steps that are derived from universally accepted principles". In contrast to this approach, Einstein highlights the intuitive nature of scientific inquiry "to these elementary laws there leads no logical path, but only intuition" (as cited in Holton, 1971-1972, p. 97). In both the scientific and the artistic domains, according to Simonton (2004), chance dominates over logic in the creative process.

Creativity in Psychologists

For Simonton (2013), four different perspectives can be adopted in the analysis of creativity in psychologists. First, creative psychologists can be considered as simply showing one form of expression of high achievement in general, of people who managed to "make history" (Simonton, 1994). Second, creative psychologists can be analyzed together with eminent achievers of various disciplines (Gardner, 1993; Simonton, 1999). Third, creative psychologists can be perceived as belonging to a subgroup of

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scientific achievers, like physicists, biologists or social scientists (Simonton, 1988). Fourth and last, creative psychologists can be perceived as a category on their own, distinguishing themselves from all other kinds of scientists, creators and achievers (Simonton, 2002). In the present research the third perspective is taken, according to which psychologists and more generally social scientists are perceived as a subgroup of scientists.

According to Auguste Comte (1855), scientific disciplines can be hierarchically organized from more objective and rational to more subjective and intuitive ones. This puts natural sciences on the top of the hierarchy, followed by social sciences and finally the arts. The lower the domains are on the hierarchy, the more emphasis they put on creativity, according to Simonton (2009). This organization was validated empirically by Simonton (2004) according to several criteria. In this respect, Simonton (2013) argues that psychology is one of the most creative scientific disciplines. According to Simonton (2009), dispositional traits as well as developmental conditions intervene differently in this hierarchy of disciplines. Research confirmed that the personality profile of a "hard" scientist is not necessarily the same as the one of a "soft" scientist. Social scientists (psychologists and anthropologists) in comparison to natural scientists (physicists and chemists) turned out to be more introverted (Chambers, 1964) and more emotional and rebellious (Roe, 1953). It follows according to Simonton (2009) that social scientists can be considered to be on the edge between natural scientists and artists. Still, especially with regard to mental health (Simonton, 1999), according to Simonton (2013), creative psychologists are more comparable to creative scientists than to creative artists. Simonton (2013) considers that the domain of psychology can be further subdivided into the scientific and the humanistic perspective and that the more humanistic oriented psychologists have a profile that is more comparable to the one of artists. Finally, Simonton (2009) argues that the dispositional traits and developmental conditions also determine the degree of success (creativity) in the respective disciplines. In this regard, his domain-regressive hypothesis assumes that the most creative scientists have the personality profile of scientists from fields that are lower in the hierarchy. This means that creative natural scientists rather display the personality profile of a social scientist. In the same line, a creative social scientist has a personality profile that comes closer to one of an artist.

Simonton (2013) made three major conclusions about the creative profile of outstanding psychologists, by directly relating them to eminent achievers from other scientific disciplines, to which they are highly similar. First, creative psychologists have high intelligence, motivation and expertise. Second, they show high productivity, a creative cognitive style and a rather introverted and independent personality. Third, in contrast to eminent artists, eminent psychologists share their relative emotional stability with creative scientists from other disciplines. They have a high probability to be first-born children, who grew up in stable and educated families. Finally, they tend to have had rather successful school careers.

Cognitive Profile of Creative Scientists

According to Feist and Gorman (1998), the psychology of science is divided into four major sub- disciplines: developmental approach, cognitive approach, personality approach, and social approach. As stated above, the present paper will elaborate on the cognitive and personality approach.

In the *cognitive approach*, Simonton (2002) found that early productivity is an essential condition of later success and recognition in a scientific career, in general and in the domain of psychology. The most creative researchers start publishing before attaining their PhD. A higher productivity rate enhances the chances to produce high quality papers. This is what Simonton (1985) calls the "constant-probability-

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of-success model". According to Simonton (2003), the enthusiasm going along with higher productivity prevents researchers from retiring. They just keep on publishing until illness or death sets a final stop to their career.

Batey and Furnham (2006) highlighted the primary role of intelligence for scientific creativity. Even if they consider intelligence as a domain-general feature for creativity, they conceive its influence to be even more pronounced in the scientific domain, regarding both fluid and crystallized intelligence. Regarding eminent psychologists, they share their comparatively high intelligence with eminent achievers from other disciplines (Simonton, 1994). It follows that a positive relationship between intelligence (logical reasoning and verbal fluidity) and scientific creativity in psychology is expected.

Personality Profile of Creative Scientists

The *personality approach* deals with: (1) establishing differences between scientists and non-scientists, (2) comparing more and less outstanding scientists, (3) comparing the personality profile of scientists from different theoretical orientations, and finally (4) predicting scientific behavior by personality. With regard to the first two points, the personality psychology of arts and sciences is usually divided into the between-group and within-group perspectives. Whereas the *between-group* perspective deals with the distinguishing features of artists and scientists from non-artists and nonscientists, the *within-group* perspective accounts for the differences between more and less creative professionals within one domain. Seeing that according to Feist (1998) non-creative artists have little chance to succeed, the intragroup variability is much smaller in arts than in sciences. In the personality approach, according to Feist and Gorman (1998), a fairly consistent profile of the scientific personality emerged from a long period of empirical research. This holds true for the comparison of scientists to non-scientists (between-group perspective) as well as for the comparison of more and less creative scientists (within-group perspective).

The Big Five model (Costa & McCrae, 1985, 1989, 1992), which gained popularity in the 80's and 90's, assumes the presence of five major personality factors: Neuroticism (N), Extraversion (E), Openness to new experiences (O), Agreeableness (A) and Conscientiousness (C). In the Big Five approach, Feist's (1998) meta-analysis revealed that scientists as compared to non-scientists are more open, more extraverted (confident-dominant) and more conscientious. Creative scientists as compared to less creative ones are more open, extraverted and less conscientious (higher expression of needs and higher psychopathic deviance subcomponents). The distinction in extraversion between more and less creative scientists applied only to the confidence-dominance subcomponent and not to the sociability component. In the Big Three personality model, Eysenck (1990) assumes the presence of three higher-order personality factors: Extraversion versus Introversion (E), Emotional stability versus Neuroticism, and Psychoticism versus Impulse control (P). In the Big Three approach, Feist (1998) found scientists as compared to non-scientists to be more extraverted and higher on psychoticism. Summarizing the Big Five and Big Three approach, Batey and Furnham (2006) consider that the profile of the scientific creator is characterized by low neuroticism (high ego-strength), low extraversion (high introversion), high openness, high conscientiousness and moderately high psychoticism (see Table 1).

Taken together, in the *between-group* perspective, as compared to non-scientists, scientists turned out to be (1) more conscientious, (2) more dominant, achievement oriented and driven, (3) more independent, introverted, and less sociable, and (4) more emotionally stable and impulse controlled (Feist & Gorman, 1998). Similarly, in the *within-group* perspective, eminent scientists in comparison to less eminent scientists were (1) more dominant, arrogant, self-confident, or hostile (social traits), (2) more

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Table 1. Representation of typical profiles for creativity in different domains (Batey & Furnham, 2006, p. 409).

Trait	Artistic Creativity	Scientific Creativity	Everyday Creativity
Intelligence			
Fluid	+	+ + +	+
Crystallized	+ +	+ + +	+
Personality			
N	+ + +	- -	-
E	- -	-	+ +
O	+ + +	+ + +	+ +
A	- -	-	+
C	- -	+ + +	+
P	+ + +	+ +	+

Note. N = neuroticism; E = extraversion; O = openness to experience; A = agreeableness; C = conscientiousness; P = psychoticism. Positive and negative signs indicate the strength and the direction between the variables and range from - - - to + + +.

autonomous, independent, or introverted (social traits), (3) more driven, ambitious, or achievement oriented (nonsocial traits), and (4) more open and flexible in thought or behavior (nonsocial traits) (Feist, 1999; Feist & Gorman, 1998). Hence, according to Feist (1999), the distinction between more and less creative scientists lies in social as well as nonsocial traits. In the present research, the within-group perspective is adopted.

The higher *conscientiousness* of scientists as compared to non-scientists (Feist, 1998; Feist & Gorman, 1998) as well as the stated importance of conscientiousness for scientific creativity (Batey & Furnham, 2006; see Table 1) makes sense when considering the highly structured and systematized nature of scientific inquiry. However, in comparison to less creative scientists, creative scientists were found to be less conscientious (Feist, 1998). Hence, the actual influence of conscientiousness on scientific creativity is somehow ambiguous. Considering this fact, no assumption is presently made on the direction of the relationship between conscientiousness and scientific creativity in psychology.

Presently, the dominant, arrogant, self-confident, or hostile attitude of eminent scientists (Feist, 1999; Feist & Gorman, 1998) is referred to as *psychoticism* and *low agreeability*. Indeed, Eysenck (1993, 1995) describes individuals high on psychoticism as aggressive, cold, egocentric, impersonal, impulsive, antisocial, non-empathic and tough minded. Eysenck considers psychoticism as a normally distributed personality trait, which according to Batey and Furnham (2006) (see Table 1) intervenes significantly in scientific creativity just like low agreeableness. Even though, scientists in general tend to be more asocial and individualistic than the general population, these traits are even more pronounced in the scientific elite (Feist & Gorman, 1998). According to Simonton (2004), these behaviors can be related to their social and professional marginality. Not only do creative scientists often come from multicultural family backgrounds but they are also skilled in more than one scientific discipline. This indicates that switching between disciplines is not necessarily counterproductive. Simonton considers that the outside perspective permitted by marginality allows creative scientists to have some kind of naïve objectivity which simplifies the innovative combination of disseminated elements. Even though eminent psychologists were found to be more emotionally stable than eminent artists (Ludwig, 1995; Simonton, 2002), they

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show still some tendencies towards psychopathology (Rushton, 1990). It follows that the influence of psychoticism and negative agreeability is hypothetically extended to scientific creativity in psychology.

The higher emotional stability and impulse control of scientists as compared to non-scientists (Feist & Gorman, 1998) is presently referred to as *ego-strength*. Indeed, according to Eysenck (1995) ego-strength is best conceptualized as emotional stability, which is the opposite on the neuroticism scale. Neuroticism, again, is assumed to have a negative impact on scientific creativity by Batey and Furnham (2006) (see Table 1). Presently, higher ego-strength is also considered to determine the driven, ambitious and achievement oriented behavior of the more creative scientists in comparison to the less creative ones (Feist, 1999; Feist & Gorman, 1998). According to Simonton (2013), creative psychologists share their comparably higher emotional stability with creative scientists. In this sense, a positive relationship between ego-strength and scientific creativity in psychology is expected.

In the present research, the autonomy, independence, introversion and low sociability of creative scientists (Feist, 1999; Feist & Gorman, 1998) are considered as *autonomy-related* personality features in reference to Oztunc (2011). Also creative psychologists embody a rather independent personality according to Simonton (2013). It follows that a positive relationship between autonomy and scientific creativity in psychology is expected.

Introversion and low sociability directly relate as well to Big Five *extraversion*, whose influence on scientific creativity is somewhat ambiguous. According to Batey and Furnham (2006) (see Table 1) extraversion plays a negative role in scientific creativity. However, especially when it comes to comparing scientists to non-scientists and more creative scientists to less creative scientists, results are incoherent. Whereas in Feist (1999) and Feist and Gorman (1998), introversion distinguished scientists from non-scientists and more creative scientists from less ones, in Feist (1998) scientists as compared to non-scientists and more creative as compared to less creative scientists distinguished themselves through comparatively higher extraversion. This latter finding however only referred to the confidence dimension (confident-dominant) and not to the sociability dimension. The relationship between extraversion and scientific creativity seems to vary according to the considered dimension (confidence/sociability). Regarding psychologists, the results are probably even more clear. Even if creative psychologists can be considered as introverted, they are still more extroverted than scientists from other disciplines (Cattell, 1963) and they lead more active and less conventional social lives, in regard to leisure activities and romantic relationships (Roe, 1953). Despite some ambiguities concerning the relationship between extraversion/introversion and scientific creativity, with reference to Simonton (2013), a positive association is expected between introversion and scientific creativity in psychology.

Openness and flexibility in thought and behavior of creative scientists (Feist, 1999; Feist & Gorman, 1998) are presently referred to as Big Five *openness to new experiences*. According to Batey and Furnham (2006) (see Table 1), openness has a domain transcendent importance for creativity. This anticipated domain general importance is extended to the subdomain of social sciences. Consequently, a positive correlation between openness and scientific creativity in psychology is expected.

Measurement of Scientific Creativity

Scientific creativity can be analysed as the ability to generate hypotheses, design experiments and proof of evidence. Before tests were available, scientific creativity of eminent scientists was sometimes measured through the number and importance of their publications. Today, specific tests are being developed for scientific creativity, but this remains rare. An example is the Creative Scientific Ability Test

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(C-SAT) for 6 to 8 graders. The C-SAT consists of three dimensions of skills: general-creativity skills, science-related skills and skills in scientific sub-disciplines (Sak, 2010; Sak &Ayas, 2013). Presently, the Evaluation of Potential Creativity EPoC (Lubart, Besançon, & Barbot, 2011) is one of the few tests available for the assessment of scientific creativity in students and adolescents. This test specifies two aspects of the creative thinking process that are simultaneously assessed: divergent exploratory thinking (invention of multiple responses to one stimulus) and convergent integrative thinking (development of one single most creative response).

RESEARCH AIMS AND HYPOTHESES

The cognitive attributes and personality characteristics that are important for scientific creativity in psychology are the focus of the present research. Former studies investigated especially illustrious psychologists who were selected according to objective scientific outcomes (productivity and/or eminence) (Rushton, 1990; Simonton, 1988, 1994, 1999, 2002). The present study aims to extend these results to the typical social science student. As former scientific creativity tests focused solely on natural sciences, the development of a specific test for scientific creativity in psychology enlarges their domain of applicability to the social sciences. This test is a[2]n innovation in the sense that both divergent and convergent creative thinking are measured in the domain of scientific psychology. This allows investigating the creative profile in social science students, who do not yet have some kind of productivity rate. The above literature review leads to the following hypotheses.

1. *Intelligence* is expected to be a positive predictor of scientific creativity in psychology.
2. *Ego strength* is expected to be a positive predictor of scientific creativity in psychology.
3. *Introversion* is expected to be a positive predictor of scientific creativity in psychology.
4. *Openness* is expected to be a positive predictor of scientific creativity in psychology.
5. *Agreeableness* is expected to be a negative predictor of scientific creativity in psychology.
6. *Psychoticism* is expected to be a positive predictor of scientific creativity in psychology.
7. *Autonomy* is expected to be a positive predictor of scientific creativity in psychology.

METHODS

Participants

The sample of social science students included 121 participants (95 women, 24 men, $M_{Age} = 21.94$, $SD = 2.22$, age range: 19-32). The condition of participation was to be a student/graduate student in a social science discipline as well as mastering the German language. The majority were psychology students (87.6%), followed by students in education (7.4%) and students from various other social science disciplines (4.9%). The sample only included 4.13% postgraduate students (who had already acquired a Master's degree). Participants' mother tongue was German (47.1%), followed by Luxembourgish (34.7%), "Other" (13.2%) and French (5%).

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Materials

In the present research a specific test for the measurement of scientific creativity in the domain of psychology was developed.

The development of the test for *scientific creativity* in psychology was strongly inspired by the EPoC (Lubart et al., 2011). Momentarily, the EPoC is applicable to three creative domains: verbal, graphic and scientific. The present test potentially enlarges its applicability to the sub-domain of social sciences and more specifically to psychology. Considering that divergent thinking alone is insufficient to measure creativity, convergent-integrative thinking is additionally taken into account. Divergent thinking was assessed by the invention of a maximum number of original and appropriate hypotheses regarding the link between "music style and personality". Convergent thinking was assessed by the invention of an ingenious psychological experiment to test one of the formerly-generated hypotheses. The rating of convergent thinking was inspired by the Consensual Assessment Technique (CAT) (Amabile, 1982, 1983). The experiments were rated by 3 independent expert judges on a 7-point Likert scale. There was no absolute criterion for the judgment; the proposed experiments were simply rated against each other. The order of presentation varied for each judge. Inter-rater reliability was.76 (Cronbach Alpha). The rating of convergent thinking was further subdivided into originality and usefulness (adaptation), with reference to the consensual creativity definition. The experiment did not only need to be original but also adapted to methodological requirements. It needed to satisfy methodological and ethical standards and to be empirically realizable.

In order to assess its convergent validity, general creative potential was measured by the Test for Creative Thinking-Drawing Production (TCT-DP) (Urban & Jellen, 1995). The TCT-DP was scored according to three different evaluation techniques that are outlined below. Lubart, Jacquet, Pacteau, and Caroff (2010) consider the *TCT-DP* as an essentially convergent-integrative measure of creative potential. According to Urban (2005), this constraint production task which is inspired by the "Gestalt" approach can be considered as culture fair. It was normed and validated in various countries and it is applicable to a variety of age and ability groups.

The traditional scoring method includes 14 criteria: continuations; completion; new elements; connections with a line; connections with a theme; boundary breaking -fragment-dependent; boundary breaking-fragment-independent; perspective; humor and affectivity; four kinds of unconventionality and speed. According to Urban (2005), these sub-scores taken separately do not meaningfully represent creativity because the "Gestalt" emerges from a synergy of individual elements. An inter-rater reliability of $\alpha = .98$ (Cronbach Alpha) was established for this scoring method in the present investigation. With reference to Lubart et al. (2010), the traditional scoring method of the TCT-DP is represented by two factor scores: the originality factor OF and the adaptation factor AF. The AF includes the number of new items added to the composition, contacts and thematic connections established between the initial graphic elements, use of unconventional, non-stereotyped content or graphic forms, creation of a humoristic or emotional atmosphere and the use of three-dimensional drawing techniques. The OF comprises the number of graphic elements used among the initial elements proposed as well as their meaningful use and the use of the element outside the frame.

In the present research, a second originality score was considered: Statistical Originality SO. It represents the statistical percentage of a given idea within the reference sample. According to Lubart et al. (2010), this score is very similar to the originality score calculated in divergent thinking tests. Thus, this adds a divergent thinking score to the overall convergent-integrative TCT-DP measure.

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Finally, the third evaluation technique was inspired by the Consensual Assessment Technique (CAT) from Amabile (1982, 1983). With reference to Lubart et al. (2010), two suitable expert judges were asked to rate independently the creativity degree of the manufactured products on a 7-point scale, without receiving a prior definition of creativity. The random order of the presented drawings varied for every judge. The present inter-rater reliability (Cronbach Alpha) was $\alpha = .89$.

Intelligence was assessed in terms of logical reasoning and verbal fluency. Both scores were significantly correlated ($r = .27$, $p < .01$) and were added to yield an intelligence sum score. *Reasoning capacity* was assessed by the test of Evaluation of Logical Reasoning (B53) (Bonnardel, 1971). Inductive reasoning and spatial aptitudes are evaluated by means of non-verbal items, in which the test taker is requested to discover the logic behind a series of figures. Inductive reasoning is crucial for tasks of classification, learning, problem solving and creation. The internal consistency (Cronbach Alpha) in the present sample was $\alpha = .86$. *Verbal fluency* was assessed by the "Verbal Creativity Test" (Verbaler Kreativitätstest, VKT) from Schoppe (1975). In this test the initial letters of a word are provided. Participants have 90 seconds to find as many alternatives as possible to complement the initial letters. As two different word-beginnings are provided, the test takes 180 seconds to complete. This test was administered in German, as this was the mother tongue of the majority of participants. All invented words are acceptable as long as they are included in the German dictionary. They can either start in upper case or lower case letters and they can also include names. Foreign words are allowed as long as they have been adopted into the German language. Verbal fluency tests have at times been perceived as hybrid measures of fluid and crystallized intelligence (Lindenberger & Baltes, 1997; Salthouse, 1993).

Big Five personality was assessed through the BFI-10 (Rammstedt & John, 2007), a 10-item short version of the NEO-FFI. These 10 short statements are responded to on a five point Likert scale (1 = "disagree strongly" to 5 = "agree strongly"). There are respectively two items per Big Five dimension, which were chosen according to different criteria: (1) they meaningfully represent the opposites of every dimension, (2) they both grasp key aspects of every dimension, without being repetitive, (3) the chosen German and English items are identical, and finally (4) the item choice is based on the statistical criteria of item analyses and factor analyses. According to the authors, convergent validity as well as reliability of the scale is good (mean $\alpha = .75$).

In addition to the BFI-10, the entire dimension of *Openness to new experiences*, which includes 48 items, was assessed by the NEO-FFI (Costa & McCrae, 1992). The Openness dimension includes six different facets, which represent different spheres of experience towards which the participant can be more or less open. People high on openness are more curious towards inner and outer experiences, which become more vivid and enrich their lives. They have more intense emotions, more ingenious ideas, more unconventional values and they are more likely to question authority. Presently, the scale showed an internal consistency of $\alpha = .84$.

Autonomy was assessed by two different measurement tools, which showed a highly significant one-tailed inter-correlation ($r = .25$, $p < .01$) and were thus combined in form of a sum score. The "Trier Personality Inventory" (Trierer Persönlichkeitsfragebogen, TPF) is a 120-item questionnaire from Becker (1989). It grasps the two most important aspects of mental health and behavioural control, underlying a systemic model of personality. This model is based on theories, systemic reviews (Becker & Minsel, 1986), and factor analytic studies (Becker, 1995, 2000). Mental health is defined as the capacity to deal with external and internal psychological distress (Becker, 1989). The TPF is applicable in clinical settings and normed for adults between 18 and 80. An alpha coefficient of .78 was found in the present sample. The second autonomy scale was originally developed by Ibarra and Andrews (1993) and later adapted

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by Dewett (2006). This scale captures the degree of management control in the working environment. The five-point Likert scale ranges from 1 (strongly disagree) to 5 (strongly agree). A Cronbach alpha coefficient of .74 was observed in the present sample.

Ego-strength was assessed by the Minnesota Multiphasic Personality Inventory (MMPI-2) (Hathaway & McKinley, 1996, 2000) through the subscale Ego-strength (Es). According to the authors, The Es-scale is a measure of adaptability, resilience, personal resources and effective life management. It stands as an indicator of general mental health, expressed by the capacity to deal with critical life situations and solve problems. People high on Es are spontaneous, have good contact to reality, a feeling of personal success and of physical health. In the present research, the scale had an internal consistency of $\alpha = .66$.

Psychoticism was assessed by the short form of the Eysenck Personality Questionnaire- Revised (EPQ-R) (H. J. Eysenck & Eysenck, 1992). It captures three major personality dimensions: Extraversion vs. Introversion, Neuroticism or "Emotionality", and Psychoticism or "Tough Mindedness". The term "Tough Mindedness" is preferred over Psychoticism, just to exclude any psychiatric assimilation. These people tend generally to be cruel, inhumane, socially indifferent, hostile, aggressive, insular, glacial, intolerant and non-considerate of danger. They tend to create distress in other people's lives through their lack of empathy, their condescending attitude and their troublemaking behavior. In the present research, the scale had an internal consistency of $\alpha = .60$.

Procedure

Data was collected by psychology students at the University of Luxembourg. The testing was individual or semi-collective. The tests and questionnaires took approximately one and a half hour to complete. First, the creativity test (TCT-DP) was administered, followed by the intelligence tests (Reasoning B53 and VCT), the scientific creativity test and the personality questionnaires (autonomy, Big Five, ego-strength and psychoticism). All participants were volunteers and were compensated for their participation with a little gadget and with the possibility to obtain feedback on their results.

RESULTS

Descriptive Statistics

Correlations and Regressions

Hypotheses will now be reconsidered separately:

1. *Intelligence* is expected to be a positive predictor of scientific creativity in psychology.
   This hypothesis was supported. Intelligence was a positive predictor of scientific creativity in psychology ($\beta = .18$, $p < .05$), especially convergent thinking ($\beta = .20$, $p < .05$) and originality ($\beta = .23$, $p < .05$).

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Table 2. Means and standard deviations for personality and cognitive creativity variables

Variables	*M*	*SD*	*Min*	*Max*
Scientific Creativity	13.91	3.79	3	26
Divergent Creativity	4.42	2.20	0	12
Convergent Creativity	9.49	2.63	2	16
Originality	10.02	2.94	1	16
Adaptation	8.86	2.67	2	16
Intelligence	44.43	9.71	15	63
Autonomy	62.00	6.50	35	79
Openness	169.00	15.99	124	199
Extraversion	7.01	1.72	2	10
Agreeableness	6.26	1.67	2	9
Conscientiousness	6.71	1.65	2	10
Neuroticism	6.11	1.84	3	10
Psychoticism	2.97	1.84	0	8
Ego-strength	34.25	4.95	23	46

Note. Scientific Creativity: Sum score of divergent and convergent creativity in the domain of psychology; Divergent Creativity: Number of creative hypotheses invented; Convergent creativity: Rated creativity of the invented psychological experiment (Originality and Adaptation); Originality: Innovative aspect of the invented experiment; Adaptation: Meaningfulness of the invented experiment.

Table 3. Correlation matrix of personality and cognitive variables with scientific creativity in psychology

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Scientific Creativity	1	.74**	.83**	.70**	.63**	.18*	.07	.12	.06	-.16*	.00	-.03	.05	.08
2. Divergent Creativity		1	.15	.09	.15	.07	-.10	.07	-.03	-.22**	.05	-.02	.02	-.02
3. Convergent Creativity			1	.83**	.76**	.20*	.10	.10	.12	-.05	-.04	-.03	.05	.13
4. Originality				1	.64**	.23**	.03	.07	.02	-.07	-.01	.05	-.05	.09
5. Adaptation					1	.16*	.18*	.19*	.16*	-.01	.08	-.06	.02	-.01
6. Intelligence						1	.16*	.14	-.07	.04	.12	-.10	-.10	.09
7. Autonomy							1	.07	.28**	.02	.18*	-.35**	.02	.36**
8. Openness								1	.20*	.31**	.03	-.10	.16*	-.06
9. Extraversion									1	.30**	.06	-.32**	.21*	.21*
10. Agreeableness										1	.07	-.17*	.05	.04
11. Conscientiousness											1	.04	-.36**	.03
12. Neuroticism												1	-.20*	-.30**
13. Psychoticism													1	-.10
14. Ego-strength														1

Note. * $p < .05$ level; ** $p < .01$ level.

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2. *Ego strength* is expected to be a positive predictor of scientific creativity in psychology.
This hypothesis was not supported. Ego-strength was not a positive predictor of scientific creativity in psychology in either form of its measurement (see Table 3 and 5).

3. *Introversion* is expected to be a positive predictor of scientific creativity in psychology.
This hypothesis was not supported. Introversion was not a positive predictor of scientific creativity in psychology (see Table 3 and 5). There was even one positive correlation between scientific creativity (adaptation) and extraversion ($r = .16$, $p < .05$), which did not remain significant in multiple regressions.

4. *Openness* is expected to be a positive predictor of scientific creativity in psychology.
This hypothesis was supported. Openness was a significant predictor of scientific creativity in psychology, in form of adaptation ($\beta = .19$, $p < .05$).

5. *Agreeableness* is expected to be a negative predictor of scientific creativity in psychology.
This hypothesis was supported. Agreeableness was a negative predictor of scientific creativity in psychology, as measured through divergent thinking ($\beta = -.22$, $p < .05$).

6. *Psychoticism* is expected to be a positive predictor of scientific creativity in psychology.
This hypothesis was not supported. For scientific creativity in psychology psychoticism played no apparent role (see Table 3 and 5).

7. *Autonomy* is expected to be a positive predictor of scientific creativity in psychology.
This hypothesis was partially supported. Autonomy was not a significant predictor of scientific creativity in psychology in multiple regressions (see Table 5) but there was a positive correlation between autonomy and scientific creativity in psychology (adaptation) ($r = .18$, $p < .05$).

Table 4. Correlation matrix of different creativity variables

Variables	1	2	3	4	5	6	7	8	9
1. TCT-DP	1	.95**	.38**	.72**	.64**	.16	.11	.20*	.13
2. OF		1	.33**	.45**	.70**	.18	.08	.21**	.13
3. SO			1	.33**	.37**	.00	.03	.09	.04
4. AF				1	.26**	.05	.12	.11	.08
5. CAT					1	.18	.09	.08	.11
6. Divergent Psychological Creativity						1	.15	.09	.15
7. Convergent Psychological Creativity							1	.45**	.55**
8. Originality								1	.19*
9. Adaptation									1

Note. * $p < .05$ level; ** $p < .01$ level; TCT-DP: Test for Creative Thinking-Drawing Production; OF: Originality factor (sub score of TCT-DP); SO: Statistical originality; AF: Adaptation factor (sub score of TCT-DP); CAT: Consensual assessment technique.

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Table 5. Predictors of scientific creativity in psychology

Predictor	ΔR^2	β
Scientific Creativity Sum Score		
Model 1	.03	
Intelligence		.18*
Divergent Creativity		
Model 1	.04	
Agreeableness		-.22*
Convergent Creativity		
Model 1	.03	
Intelligence		.20*
Originality		
Model 1	.04	
Intelligence		.23*
Adaptation		
Model 1	.03	
Openness		.19*
n	120	

Note. * $p < .05$ level; ** $p < .01$ level.

CONCLUSION

Concerning the convergent validity of the test developed to measure scientific creativity in psychology, correlations with drawing creativity scores (TCT-DP) were consecutively positive, even if they were rather low (see Table 4). It was especially the originality component of the invented psychological experiment (convergent thinking) that correlated with various scores of the TCT-DP. Indeed, the lower association with divergent scientific creativity could related to the fact that the TCT-DP is a convergent-integrative creativity test. Results would eventually be different by comparing divergent scientific thinking to a common divergent-focused thinking test. At this point it is important to highlight that even though the TCT-DP is a test about visual rendering it addresses global imaginary thinking processes that intervene in general creativity. In this sense more significant positive associations could have been expected. On the other hand, the positive association of scientific creativity task scores with different personality traits that are theoretically expected to be related to scientific creativity (openness and negative agreeableness), argue again in favor of its construct validity.

Intelligence (logical reasoning and verbal fluency) turned out to be the most important predictor of scientific creativity in psychology (see Table 5). This finding is not surprising and reconfirms the theoretical literature review of Batey and Furnham (2006) (see Table 1), according to which fluid and crystallized intelligence are essential for scientific creativity. It can be argued in reference to Mednick (1962) that for making creative research contributions, it is essential to have a large knowledge base stored in long term memory (crystallized intelligence), which needs to be used in an efficient and innovative way. This is where fluid intelligence intervenes. In the present case, intelligence was particularly

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relevant for convergent thinking and originality. Indeed, for a long time, intelligence was assessed through convergent thinking tasks whereas creativity was essentially assessed through divergent thinking tasks, which according to Runco, Dow and Smith (2006) led to an overestimation of their difference. In this sense, the stronger relation between intelligence and convergent creative thinking is understandable. Also, the relationship between intelligence and originality is comprehensible if one considers that originality ("successful novelty") was at times considered as the core of the definition of intelligence (e.g., Gardner & Sternberg, 1994; Gregory, 1981; Spearman, 1927; Sternberg, 1985). Empirically, among the divergent thinking scores, originality was again found to have the strongest relationship with intelligence (Benedek, Franz, Heene, & Neubauer, 2012). However, according to the theory of successful intelligence (Sternberg, 2005), which includes the importance of flexible adaptation to changing situations, one could have expected a positive relationship to adaptation as well.

The present results revealed that openness was related to the adaptation of the psychological experiment to methodological constraints (see Table 5). This further corroborates the assumption that personality influences differently both aspects of creativity, which are originality and adaptation. However, the influence of openness on creativity does not seem to be necessarily predominant for the innovative aspect of a production, as hypothesized by Kwang et al. (2005). This is somewhat surprising because openness is considered as a basic exploratory tendency. Together with extraversion it belongs to the "Plasticity" dimension from De Young, Peterson, and Higgins (2002), which is closely linked to low latent inhibition (Peterson & Carson, 2000; Peterson, Smith, & Carson, 2002). In this sense, one could have expected openness to be more important for making original research contributions rather than adapted ones. However, depending on task demands, the role of openness seems to vary. Eventually, the higher cognitive flexibility that goes along with Plasticity may have enhanced the reactiveness to task constraints (adaptation). In any case, the importance of openness for scientific creativity confirmed further the domain general importance of openness for creativity. This supports not only the literature review of Batey and Furnham (2006) but also Feist's meta-analysis (1998) on the role of personality (openness) in different forms of creativity and more specifically in scientific creativity (Feist, 1999; Feist & Gorman, 1998).

Another personality trait that was relevant to scientific creativity was low agreeableness (see Table 5). It was important for generating a high number of creative hypotheses concerning the link between music style and personality. This means that creative social science students in this case were not particularly socially welcoming. This outcome seems intuitively plausible. It confirms the theoretical literature review of Batey and Furnham (2006) (see Table 1) and the empirically established low sociability or hostility of scientists in comparison to non-scientists and of creative scientists in comparison to less creative ones (Feist, 1999; Feist & Gorman, 1998). This outcome is also consistent with Feist's (1993) model, in which observer-rated hostility and an arrogant working style predicted scientific eminence. Presently, this result can be interpreted in the sense that less agreeable people can more easily overcome social barriers, which would normally hinder the invention of more unusual experiments. Indeed, disagreeable people would probably be more willing to put participants in unethical experimental conditions in order to test uncommon hypotheses. It is true that some kind of experimental designs can push the limit of moral considerations. Less agreeable people might also think less in stereotypes because in the end the link between music and personality is quite stereotype loaded.

Taken together, the creative social science student is characterized by intelligence and openness but nevertheless is somewhat disagreeable. Considering the fact that none of the above hypotheses was clearly contradicted, it can be concluded that the profile of creative social science students is coherent with the

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one of outstanding psychologists (Simonton, 2002, 2013) and that the creative profile in social sciences stays in line with the creative profile in "hard" sciences (see Table 1). However, the established profile distinguished itself slightly from the expected one, in the sense that ego-strength, introversion, psychoticism and autonomy were less involved in the scientific creative process than expected. One explanation for these discrepant results could be that the present sample did not include outstanding psychologists in contrast to former research (Simonton, 2002, 2013).

However, the meta-analysis from Feist (1998) did also include students from the social sciences (i.e., psychology) and revealed higher psychoticism on the EPQ in scientists versus non-scientists as well as higher Achievement via Independence on the California Personality Inventory (CPI) in scientists versus non-scientists and in creative scientists versus less creative scientists. The present results can seem surprising if one considers the fact that theoretically speaking the lack of empathy which accompanies psychopathological tendencies could be fruitful for inventing outlying hypotheses and unusual circumstances to test them. In the same vein, one could have imagined that autonomy and the related independence intervene in the capacity to invent creative hypotheses and research ideas in psychology. It is nevertheless understandable that the aggressiveness, hostility and ego-centricity, along with high psychoticism, are even more pronounced in creative professional psychologists (especially researchers) than in creative social science students. One could argue that exactly those specific features help creative psychologists to reach the status of eminence. The same assumption could be made about the various autonomy-related personality features and ego-strength. In outstanding psychologists, pronounced emotional stability (ego-strength) seems unavoidable in order to counterbalance the lack of impulse control (psychoticism). Indeed, it was especially found in eminent creators that both tendencies (psychoticism and ego-strength) occurred (Eysenck, 1995; Post, 1994). This unusual combination of traits did not, however, extend to creative social science students.

Regarding the fact that previous results concerning introversion/extraversion in scientists/psychologists were ambiguous, the present finding is not particularly surprising. One could conclude that the introversion/extraversion dimension does not play such a prominent role for scientific creativity. Apparently, it is possible to be a creative natural or social scientist without having the tendency to regularly withdraw from social situations. It could be argued that especially in the science discipline a healthy amount of interaction among researchers/professionals is fruitful for creative scientific contributions. This could be referred to the necessary perspective taking emphasized in constructivist theories (Järvelä & Häkkinen, 2002).

IMPLICATIONS FOR HIGHER EDUCATION FOR CREATIVE PSYCHOLOGISTS

"Without great solitude, no serious work is possible" (Picasso as cited in Cain, 2013).

Many scholars in the domain of creativity and education have developed ideas for fostering creativity in schools. Approaches vary from political and organizational ones to suggestions for changing curricula, and teacher training. Cropley (2015) for example outlines detailed strategies for designing engineering curricula. He explains that there is however another hurdle to overcome. There is a movement from generic to general learning. The constructivist approach of contextualized or generalized learning has replaced generic or decontextualized learning. Only decontextualized learning however allows the deduction of principles and applying problem-solving rules in other contexts. The learning of generic skills needed for creativity is therefore at risk. Results are students with 'pseudo expertise' according

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to Sternberg (2003), using routinely procedural knowledge but not adaptive expertise. Sternberg (2015) states also that we are still far away from our goals, because it is the experts themselves of various fields who should first integrate and accept the knowledge on teaching for creativity, which is the hardest to achieve. Interestingly, few approaches actually describe the students themselves, other than viewing them as learning objects, and their role in the changes needed. Overall it seems that there are yet many difficulties to overcome at all levels of higher education, before creativity is an evident ingredient. According to Sternberg (2015), a university-wide belief is needed. All leaders and adults that make up the university should be convinced of a needed change and the collaboration of all parties is the aim.

Today, collaboration is also identified as an important skill for the 21st century. According to the Partnership for 21st Century Learning (P21, 2010), it is important to prepare students among other skills to become good communicators and collaborators as well as creative problem solvers. Sawyer states this as well (2012, p. 212): "today more than ever, the most important forms of creativity are" for example "big science experiments" with "cooperative activities of complex networks of skilled individuals."

The collaboration and creativity skills needed for the working world put creative collaboration in higher education at the forefront as well. This again fosters the socio-cultural research that emphasizes the collaborative character of creativity. Within this theory, individual creativity is sometimes described as outdated.

There are however contradictory results as to whether collaboration in science is at all beneficial for creativity. The results vary also with the approach taken. Gorman, Gorman, Latta, and Cunningham (1984) found with experimental methods that interacting scientists did as well on tests as the best individual of the group. Taggar (2002) found that a group with high-creativity team members depended on having high "team creativity-relevant processes". If this was not the case, the effect of the high-creativity members was neutralized.

From a socio-cultural approach, collaboration is by definition beneficial because creative achievements are seen as collaborative by nature. Within this approach, interactions of students are often analyzed. Miell and Littleton (2004) describe, for example, how collaboration enhances identity development through interpersonal connection, reflection, flexibility and motivation.

Again highlighting the possible disadvantages of collaboration, challenges have been researched in terms of personality clashes (Nolan, 1978), competition (Johnson & Johnson, 1989) and control issues (Pritzker & Runco, 1997). Feist (2006) comments that it is important that labor is divided amongst individuals with different skills. Sawyer, who views creativity as predominantly collaborative, nevertheless states (2012, p. 210): "creativity doesn't exist without the individual". According to Glaveanu (2014, p. 27): "…the cultural psychological approach is only one among other valid approaches to creativity and our task is to consider how to put these perspectives into dialogue". Clearly, an integration of the individual and socio-cultural approaches is needed.

The focus on individual personality in this study confirmed earlier findings that creative scientists exhibit openness. This personality trait can be seen as positive for collaborative learning.

Interestingly however, some of the typical personality traits found in creative scientists do not seem the most suited for collaborative study or work. For example, disagreeableness, also found in this study as significantly related to creativity, means that very creative individuals are sometimes unfriendly, suspicious, skeptical, and more likely to compete than to cooperate.

According to Feist (2006) creative scientists are also rather dominant and Eysenck (1993, 1995) cites psychoticism as another personality trait. Batey and Furnham (2006) find creative scientists to be – amongst other traits – independent. The creative scientist seems made to work naturally on their own

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according to these findings. This is sometimes confirmed by quotes from eminent creative personalities. Physicist Albert Einstein (as cited in Calaprice, 2011) for example said that "the monotony and solitude of a quiet life stimulates the creative mind." However, scientists are also sometimes known to collaborate closely. Research by Mc Donalds, Miell and Morgan (2000) maybe clarifies this. They found that friends working together create better results than non-friends. So working together with friends might be even more important for creative scientists to overcome personality difficulties.

Another issue for which this study adds to our knowledge concerns teaching. Research shows that although teachers state that they value creative students (Feldhusen & Treffinger, 1975), in reality teachers sometimes discourage or show that they dislike students who display creative characteristics such as originality and desire for novelty (Cropley, 2001). Objective information about creative students might enhance understanding and acceptance of students by teachers. Teachers are empowered to make more knowledge-based decisions concerning creative work in classrooms.

Hennessey (2015) stresses the importance of intrinsic motivation in education. From a sociocultural perspective also Miell and Littleton (2004) explain how intrinsic motivation is strengthened through collaboration. The importance of intrinsic motivation may guide us to where a change towards creative scientific education could be initiated. Students might themselves become informed and empowered concerning creative personalities. It might be that an understanding of creative personalities encourages a creative attitude. Especially for high creative students, self-knowledge and acceptance of their personalities might fuel individual intrinsic motivation for creative thinking, indirectly benefiting collaborative work, and vice versa. For example, knowing that to be open helps to be creative might foster this attitude in students.

In summary, the demand for cooperative and at the same time innovative skills for the 21st century might be unattainable if one considers that solitude is also needed for creativity. According to the findings of this study, very creative people should also favor individual time. Hence, individual as well as collaborative scientific creativity should become part of higher education.

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KEY TERMS AND DEFINITIONS

Agreeableness: "The quality of one's interpersonal orientation along a continuum from compassion to antagonism in thoughts, feelings and actions" (Costa & McCrae, 1985, p. 2).

Intelligence: "The ability to achieve one's goals in life, within one's sociocultural context" (Sternberg, 2005, p. 189).

Intrinsic Motivation: "Intrinsic task motivation is passion: the motivation to undertake a task or solve a problem because it is interesting, involving, personally challenging, or satisfying – rather than undertaking it out of the extrinsic motivation arising from contracted-for rewards, surveillance, competition, evaluation, or requirements to do something in a certain way" (Amabile, 2012, p. 3).

Openness: Sensitivity towards fantasy, feelings, aesthetics, ideas, actions and values (McCrae, 1987).

Scientific Creativity: The capacity to have novel-original and useful-adaptive ideas in the domain of natural and social sciences (Feist, 1998).

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Chapter 10
The Role of Critical Theory in the Development of Multicultural Psychology and Counseling

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ABSTRACT

The discipline of psychology has historically been based upon Western, Eurocentric perspectives on human behavior. Critical theory has played a central role in pushing psychology out from its insularity and perceived objectivity. This chapter examines the role of critical pedagogist Paolo Freire and liberation psychologist Ignacio Martín-Baró in the shaping of a multicultural perspective within psychology that has revolutionized the way that psychologists understand and treat mental health conditions. Freire and Martín-Baró gave voice to the marginalized and disenfranchised and pushed psychologists to engage in their own conscientization of their history and complicitness in perpetuating oppression. Implications of their work are examined in light of their contributions to theoretical underpinnings, clinical diagnosis, and treatment approaches.

INTRODUCTION

A cursory review of human history is littered with examples of oppression and the resultant cycles of suffering and conflict. A significant, though minimally researched, consequence of oppressive cycles is harm to mental health. In this chapter, I examine the detrimental impact of oppression on mental health and the instrumental role of critical theory in the development of what is known as the "fourth force" and the "fifth force" in applied psychology, multiculturalism and social justice, respectively. These forces ushered in a new psychological era of understanding human behavior and mental health out from its historically individualistic focus to a more systemically and culturally-inclusive perspective that emi-

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nently placed culture and sociopolitical oppression at the heart of mental health for persons of color, and championed advocacy and social action as a means toward improved mental health.

Especially influential in the development of a multicultural and social justice perspective within psychology was the sociopolitical contexts of Latin America in the twentieth century, the genesis of the work of critical pedagogist, Paolo Freire, and liberation psychologist, Ignacio Martín-Baró. Their work centrally placed the role of oppression as the backbone in conceptualizing mental health treatment by setting the foundational stage to challenge hegemonic bases of the traditional theories and schools of psychological thought; Eurocentric views of human behavior, the origins of modern psychology, were being perceived as ineffective and potentially harmful to patients of color. Critical psychologists' main argument against dominant views of Western psychology was that mental health cannot be simply viewed through a strictly individually-based condition, and that improved mental health in patients of color, in particular, must include a recognition of systemic and institutional biases that perpetuate oppressed mindsets that manifest in psychological phenomena such as internalized racism and stereotype threat. Furthermore, critical psychologists argued that improved mental health and emotional healing are inextricably linked to engaging in social action that confronts systemic injustice. This was a revolutionary paradigm shift as it upended traditional psychological perspectives of understanding human behavior, which heavily preferred both study and treatment of mental health decontextualized from the social world. Freire's conscientization was vital in ushering in the multicultural movement because the nature of his educational process involved components that mirrored the psychotherapy process: an internal transformation of the mind that fundamentally changes and alters a person's behavior and course of life. Conscientization provided a useful tool that bolstered Martín-Baró's spirited arguments against Western psychology through an unexpected pathway: to free psychologists' hegemonic views (i.e., the oppressors) by means of participatory research in understanding and validating the perpsectives of those oppressed. Martín-Baró forced an introspection within Western psychology that has upended generations of thinking on the foundations of mental health, and his work is the disciplinary bridge that has helped connect critical theory to the multicultural and social justice movement in psychology.

Oppression

Oppression is the systematic mistreatment, exploitation, and lowering in status of a group (or groups) by another group (or groups) (Charlton, 1998). It occurs when a group holds power over others in society by maintaining control of social institutions, and society's laws, rules, and norms. The dominant group subordinates the oppressed group via both "political, external, and corporal means and also through imbuing internalized, psychological devaluation of self" (Prilleltensky & Gonick, 1996, p. 30). Oppression functions at multiple levels of interactions including intrapersonal (e.g., internationalized racism), interpersonal (e.g., abuse and threats), social (e.g., dehumanizing of a group), state (e.g., institutional racism, structural inequalities), and international (e.g., exploitation of impoverished nations, world order agendas) (Holmes, Facemire, & DeFonseca, 2016). While oppression is often thought of in terms of race and culture, it also includes situations involving sex, sexual orientation, socioeconomic status, religion, and age.

The origins of oppression can be traced back about 12,000 years ago at a crucial juncture of human survival and ingenuity (Deutsch, 2006; Harvey, 1999). Humans have historically been hunters and gatherers for their survival, and life revolved around the main priority of finding and obtaining food. Individual roles within a group were all related to the pursuit of food and nourishment. However, as the

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human population grew, humans needed different and better ways of obtaining food – it was increasingly difficult to efficiently move larger groups of people. This need resulted in the development of agriculture and animal husbandry (Deutsch, 2006). These two technological advancements allowed for the accumulation of food surplus, which revolutionized the concept of time for civilization. Daily efforts at obtaining food, which had been the dominant and most time-consuming activity for survival, were no longer necessary. However, the ability to store and gain surpluses of food resulted in two consequences: 1) differentiation within specific groups and 2) warfare between different groups (Gil, 1998).

The surplus of food meant that not everyone in a group needed to be involved with the obtainment or production of food. Therefore, new roles in groups emerged that were non-food production related. Whereas group roles and heirachies were rather flat prior to agriculture and animal husbandry, because each individual was needed for food attainment, these two technological developments allowed for the development of social heirarchies and the differentiation of importance and power; members of groups were valued differently. Those who were more effective at creating food surplus were more likely perceived as more valuable whereas those who struggled with it were perceived as less valued or capable, and they subsequently became dependent on those who were more successful. Social dominance allowed for specific individuals to exert control over others, and those who were not as effective at food production either developed skills or abilities that were valued (outside of food production) or they could not develop valued abilities and were perceived as undeserving of certain privileges or were outrightly disregarded. Outside the group, conflict began as different groups began jockeying for power and resources, and stronger groups would conquer the weaker groups, resulting in more levels of inequality and hierarchy, within and between groups. Oppression can be understood as the result of competition and attainment of resources.

Oppression and Mental Health

The World Health Organization estimates that 1 out of every 4 people in the world will experience a mental health concern at least once in their lifetime, and that 40% of all worldwide diseases are psychiatric in nature (Kastrup & Ramos, 2007). Mental health issues are disproportionately observed in low-income countries where the general population is more likely to experience wider levels of power differentials and where access to any type of resources is limited (Seponski, Lewis, & Megginson, 2014). To combat worldwide mental health concerns, members of the Grand Challenges in Global Mental Health consortium through the National Institutes of Mental Health identified four themes related to addressing global mental health. One of the themes, "understand environmental influences on risk and resilience for mental, neurological, and substance use disorders", was borne out of the recognition of the effects of poverty and war, both interrelated to oppression, on mental health (Collins, Patel, Joestl, March, Insel, & Daar, 2011). The importance of this theme should not be understated: the recognition that situational and contextual factors play a vital role in mental health had not always been recognized. In fact, ignorance related to the power of these external forces has played a role in victim-blaming (Ivey & Collins, 2003), which causes further trauma and decreases the likelihood of treatment-seeking or even treatment access.

The recognition that transnational oppression impacts mental health can be traced back to the French psychiatrist, Frantz Fanon in the 1960s, who posited that social events such as colonialism and genocide had direct impact on individual mental health (Fanon, 1961, 1964; Kira, Alawneh, Aboumediene, Lewandowski, & Laddis, 2014). However, given the individualistic medical model foundations of psychology at that time, examining the relationships between sociopolitical situations, such as displacement

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and conflict, with mental health has not been adequately examined; psychology simply did not have the lens, or interest, in which to understand external forces on internal experiences. The medical model of mental health assumes that all illness and pathology are rooted in physical and organic causes (Laing, 1971). For example, depression in this model is understood as a neurological condition in which either the balance of certain neurotransmitters is disrupted or suboptimal (e.g., serotonin imbalance) or there is the presence of deficits/damage to certain brain areas that regulate mood (e.g., the limbic system). Therefore, any mental health concerns in the medical model assumes dysfunction or deficits within the individual. While this view is technically correct (i.e., something is likely "wrong" in the individual), it vastly misses the larger picture, mainly, any knowledge into the cause or origins of the physical ailments.

The medical model perspective within psychology has been influential in the development of the stress-coping paradigm of mental health treatment (Lazarus, 1966; Lazarus & Folkman, 1984), a dominant perspective that represents a more remedial perspective on treatment (i.e., ways to cope). This model recognizes that in the presence of any sort of stress, the path toward healing is healthy ways of coping, mainly through an individualistic cognitive appraisal of the stressor. While it recognizes causality between stress and the need for effective ways to cope, the model has historically ignored how stress is formed or transmitted. Instead, the focus is on individual ways of best managing symptoms including interventions such as deep breathing, exercise, positive visual imagery, and thought replacement. While this may provide temporary relief, it is ineffective when the cause of stress continues to be prevalent (Folkman, 2010). The stress-coping paradigm is akin to treating a splinter. While patients may obtain partial relief from medications, ointments, and meditative practices, their ability to fully heal is limited without the actual acknowledgement and removal of the splinter. Within psychological treatment, the lack of acknowledgement and removal of societal "splinters" results in, at best, temporal relief. The cause of the mental health symptoms is still present.

Evidence for Conceptualizing Oppression as Psychological Trauma

Posttraumatic Stress Disorder (PTSD) is a psychological condition consisting of a body of symptomology that results from experiencing or witnessing a traumatic event (American Psychiatric Association, 2013). Symptomology can vary from person to person but generally consists of intense and disturbing thoughts and feelings that persists long after the traumatic event has ended. A diagnosis of PTSD requires the presence of symptomology within each of the seven sets of criterion. The individualistic medical model perspective has had a significant impact on the diagnostic conceptualization of post-traumatic stress disorder as evidence in Criterion A, which sets the definition for trauma (Holmes, Facemire, & DaFonseca, 2016). Criterion A is diagnostically met when one of four options for experiencing trauma is met: 1) direct exposure, 2) witnessing the trauma (live), 3) indirectly, by learning that a close relative or friend was exposed, or 4) indirect exposure to aversive events, usually in the course of professional duty (such as first responders working a scene of an accident).

Based on Criterion A, the current clinical definition and diagnostic criteria for PTSD has been criticized (Kira, 2001; Kira, Smith, Lewandowski, & Templin, 2010) on three levels. First, the criteria's focus on specific traumas limits the full understanding of trauma dynamics and influences. The criteria's narrow definition is physically-focused and requires "individual exposure to actual or threatened death, serious injury, or sexual violence" (APA, 2014). Second, by definition, the diagnostic criteria are past-focused and usually in regards to a single event, which precludes any clinical recognition or treatment for those undergoing current trauma (i.e., these situations do not "exist" as trauma). Third, the individual focus

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of treatment ignores systemic issues, which can result in victim-blaming as well as hopelessness resulting from the belief that the system cannot change. The strongest criticisms of the current definition and diagnostic criteria of trauma is that it separates trauma from culture, oppression, and racial stressors (Gilfus, 1999; Miller 2009). Individual-level understanding of trauma that ignores group-level origins is insufficient (Kira, Ashby, Lewandowski, Alawneh, Mohanesh, & Odenat, 2013). Ignoring systemic issues in defining trauma and its diagnosis has significant ramification for treatment. If patients of color do not meet the narrow criteria (especially Criteria A), they cannot receive the diagnosis, which means that any treatment services are not deemed a medical necessity, and insurance will not pay for services that are not medically diagnosable. Gilfus (1999) stated, "if we decontextualize trauma from culture and oppression, we miss potential sources of inquiry" (p. 1244). Therapy and attempts at improving mental health without understanding potential oppressive and sociopolitical contexts are insufficient.

A small but growing body of research is demonstrating a link between oppression-related trauma and mental health outcomes (Alesssi, Martin, Gyamerah, & Meyer, 2013; Holmes, Facemire, & DaFronseca, 2016; Pieterse, Carter, Evans, & Walters, 2010), with particular emphasis on subclinical criterion. Insidious trauma is defined as lower-level harmful events that occur throughout a lifetime and is inextricably linked to identity (Brown, 2013; Watson, DeBlaere, Langrehr, Zelaya, & Flores, 2016). Insidious trauma is directed at marginalized identities by those in positions of power and dominance and is manifested through phenomena such as racism, discrimination, and objectification (Root, 1992, 2001). Therefore, insidious trauma can also be understood as identity-based traumas that are experienced due to one's phenotypical or genotypical membership within certain groups. These types of trauma do not meet diagnostic criteria A; however, there is evidence that these experiences have a detrimental impact on mental health.

Overall, people of color and marginalized groups tend to experience PTSD at higher rates compared to their white counterparts (Carter, 2007; Holmes, Facemire, & DaFronseca, 2016). For example, race-related stressors within Asian American Vietnam veterans explained 20% of the variance in PTSD symptoms while controlling for variance explained by combat exposure (Loo et al., 2001). Experiences of racial/ethnic discrimination were related to PTSD within a sample of Mexican American adolescents symptoms 6 months and one year after incident exposure (Cheng & Mallinckrodt, 2015; Flores, Tschann, Dimas, Pasch, & de Groat, 2010). Discrimination uniquely explain trauma-related variance for African American college students, and both racial climate and discrimination uniquely explained trauma-related variance in Asian/Asian American college students (Pieterse et al., 2010). Hate crime victimization and heterosexist hate crimes predicted unique trauma variances up to 24% (Banderman & Szymanski, 2014; Szymanski & Balsam, 2011).

In research on gender and women, women are more likely than men to experience trauma symptoms (13% to 6.2%) despite the fact that they are less likely to report the type of symptoms as currently clinically conceptualized (Breslau, Kessler, Chilcoat, Schultz, Davis, & Andreski, 1998). The extent to which women experienced sexism in their lifetime and in the past year predicted 11% and 18%, respectively, of variance in PTSD symptoms (Berg, 2006). Sadly, 100% of the sample of 382 women in this study reported experiencing some sort of sexist behavior. Gender discrimination in refugee women predicted suicidality, psychosis/dissociation, depression/anxiety (Kira, Smith, Lewandowski, & Templin, 2010).

Research shows a strong correlation between various forms of oppression-related trauma experiences and symptoms of PTSD, even though these experiences do not meet the formal diagnostic definition of trauma. These oppression-related trauma experiences can be grouped into three distinct categories.

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Internalization Processes

This is a process of assuming negative messages and beliefs, and experiencing the subsequent emotions about an aspect of one's self-identity, which can include factors such as race/ethnicity, sexual orientation, or gender identity (Holmes, Facemire, & DaFonseca, 2016). A specific example is sexual objectification, which occurs when women learn to value their worth based upon being sexual objects due to consistent external messages as well as unwanted attention and advances from others (Frederickson & Roberts, 1997). Objectification has been linked to disordered eating (Tiggeman & Williams, 2012; Tylka & Hill, 2004) and depression (Jones & Griffiths, 2015). Another form of internalization is stereotype threat, which occurs when individual are or feel they are at risk of conforming to stereotypes about their social group membership (Shih, Pittensky, & Ho, 2011). Stereotype threat has been linked to academic underachievement in African American college students (Steele & Aronson, 1995), underachievement in women chess players (Maass, D'Ettole, & Cadinu, 2008), and depression in children of color (Greene, Tullet, & Pahl, 2006).

Microaggressions

Microaggressions are subtle, non-direct forms of racial bias directed toward individuals of marginalized groups that are often unintended but are posited to occur at an unconscious level (Sue et al., 2007). These behaviors are interpersonal in nature and are often covert and implicit rather than overt and explicit, as opposed to racist behaviors, which are overt and intentional. Oftentimes, the perpetrator is not aware of oppressive nature of their microaggressive statements, though they are noticed by the individual to whom it was directed. Exposure to microaggressions is significantly correlated with depression and negative affect across all populations of color (Nadal, Griffin, Wong, Hamit, & Rasmus, 2014; Rivera, Forquer, & Rangel, 2010; Sue, Capodilupo, & Holder, 2008), and common difficulties include distress and uncertainty related to how to respond in these situations.

Sociopolitical Conflict

People groups are often displaced in the context of state-level oppression resulting from war and conflict (Mowafi, 2011). While the literature on refugee mental health is scant, a common ailment is somatization (Okasha, 2003; Choueiry & Khawaja, 2006) especially among those whose cultures stigmatize mental health. A Lebanese World Health Organization (WHO) Mental Health Survey revealed that 17% of displaced adult respondents reported at least 1 DSM disorder. Similarly, the 2009 Iraq Mental Health Survey revealed that 17% of adults suffered a mental disorder with significant portion of documented cases starting with the 2003 Iraq war (WHO, 2009). A WHO World Mental Health Study on war-related revealed trauma that being displaced resulted in a 37.7% risk of a DSM disorder compared to other traumas.

The preponderance of data showing a relationship between oppression-related trauma and mental health has forced psychology to affirm its impact. The journey to this point, though, needed a boost from the outside. Psychology, like any other discipline, is not immuned to sanctifying its original philosophies. Founding theorists and researchers are often deified, and challenging disciplinary foundations can be wrought with professional and reputational consequences. The worldwide sociopolitical movements of the 1960s and 70s helped to shepherd a time of critical psychology that changed the trajectory of the discipline.

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Toward a Critical and Multicultural Psychology

Psychology has criticized itself for celebrating diversity but ignoring injustice and inequality (Fox, Prilleltensky, & Austin, 2009; Martin-Baro, 1994). It has historically focused on self-determinism and well-being with little-to-no attention paid to social justice and democratic participation (Fox, 2003; Fox & Prilleltensky, 1997). It has audaciously assumed that psychological interventions have enough power to overcome systematic inequality such as employment discrimination or health disparities. The result is the tendency to blame patients when the interventions do not work or if patients continue to report significant symptoms.

In the late 1960s, George Albee, a prevention-focused psychologist, stated that psychotherapeutic approaches, rooted in the medical model, generally ignored the emotional consequences of living in an unjust world. (Smith, Chambers, & Bratini, 2009). He would later assert that many mental health conditions are actually better understood in light of factors associated with oppression, such as poverty, racism, and other forms of prejudice (Albee, 1996). Other psychologists at the time were beginning to question and challenge some of the basic tenets of psychological philosophy (Albee, 1982; Ivey, 1971, 1973; Sue & Sue, 2016). Many of these tenets were tied to the dominant culture from which they were derived (i.e., Western European, White American) and were not frequently questioned. Especially unnerving to the psychotherapy community was the notion that clinicians, trained in dominant, Western-based perspectives of mental health, were unwittingly engaging in oppressive practices with their patients of color (Ivey, 1973). There were very few psychologists of color during this time period, and examining a patient of color's cultural background and experience was not a part of clinical practice. The realization that therapists could potentially transmit society's oppressive values due to lack of cultural knowledge began to concern a good number of psychologists, and the notion that *cultural blindness* passively perpetuated the notion that race and culture were insignificant factors began to reach a level of urgency (Sue, 1978). American psychologists were experiencing a "crisis of confidence" (Pander, 1997) triggered by the sociopolitical situation in the U.S. as well as around the world. Psychologists challenged themselves to consider how their own assumptions, biases, and general blindness to issues of race and class may contribute to oppression and mental health (Fox, 2003). Critical theory provided a needed avenue to help understand the hegemony of psychological philosophy.

Critical Theory

Broadly speaking, critical theory provides the foundation for social inquiry aimed at reducing domination (i.e., oppression) and increasing freedom for all. Critical theory is contrasted with traditional theory in that it acts as a "liberating…influence" to free all human beings and "emancipation from slavery" (Horkheimer, 1972, p. 246). Traditional theory is perceived as the dominant, hegemonic way of thinking of behaving, which is constructed by and developed from the perspective of the dominant culture. Thus, traditional theory works in service of only part of the population within any society. Critical theory challenges traditional theory by following through three criteria: explanatory, practical, and normative, meaning that it must explain the ills of current society, identify the means with which to change it, and provide norms and guidelines in which to achieve change in order to develop a society that is open to all people, not just those in dominance positions (Bohman, 1991; Horkheimer, 1993). Critical theorists identified both explicit and implicit rules and norms. Explicit rules are public and consciously known and manifests through overt displays such as laws and institutional structures. Implicit rules are implied

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and not necessarily conscious such as internal bias of preferences. The goal, therefore, of critical theory is to challenge the traditional, dominant way of thinking in the way that it oppresses others, and work towards a way for all humans to obtain freedom. With roots in German philosophy and Marxist thought, it has provided a broad basis for social movements throughout the world.

For psychologists, critical theory is attractive because its appeal lies in two interrelated functions: 1) the challenging of hegemonic assumptions, beliefs, and ways of being, and 2) the natural progression toward changing them. As an action-oriented theory, it provides avenues to apply its tenets. While critical theory has generally been discussed and studied in the broad realm of social groups and dynamics, it has served as a vital conduit for individual transformations within psychotherapeutic settings. At its heart, critical theory aims to make change at a societal level, and in order to do so, an internal process of change must also occur. This internal process is of particular importance to psychologists as it helps provide a framework for mental health treatment. Critical theorists emphasize the need to examine oppression, abuse of power, exploitation, and institutional and systemic bias as the basis for inequality in learning; understanding social environmental factors reveals the intersection between individual social roles and societal norms. Multicultural psychology was heavily influenced by liberation theorists in Latin America (Duran, Firehammer, & Gonzalez, 2008) because they provided a concept that aligned with psychological thought and they directly and unapologetically confronted the hegemony of Western psychology.

Paolo Freire's Critical Pedagogy

Freire, influential critical pedagogist, was born middle class in Brazil. However, due to some challenges in his family, he spent a significant amount of time in poverty. These experiences greatly shaped him where he learned that it was difficult to engage in study and learning if one is hungry. These experiences also helped him understand the plight of the poor, and the impact of poverty and oppression on their future chances at life. Though trained in law, he spent his career teaching in secondary schools and working with the poor in Brazil. Freire (1972) viewed education as a primary means for social change, and he believed that education is inherently political to be used as either tools of oppression or freedom. Three aspects of his work are particularly salient to the development of multicultural psychology.

Banking Model of Education

Freire described this as a model where the teacher fills the student with knowledge, as one would fill an empty vessel. He challenged this notion and described it through the lens of oppression, where the person in power is transmitting oppressive, dominant knowledge into the passive learner. He argued that because traditional education is based on the worldview of the oppressors (i.e., the dominant ideology), learning through this modality reinforces a colonialist mindset, where the dominant ideology is poured into the oppressed – they are learning through the perspective of the oppressor, which continues the cycle of oppression (i.e., a sort of self-oppression). To Freire, individuals need to take an active role in their learning, recognizing how their experiences are directly tied to the dominant ideology-influenced and -reinforced social context, and then work toward their individual and collective liberation. The goal is to develop critical awareness (i.e., conscientization), which paves the road for action. Taking action to fight oppression allows for individuals to discover learning that is relevant and appropriate to their own life situations (i.e., discover agency).

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This approach acknowledges that learning is not "neutral" (Belanger, 2003, p. 81) but contextually and individually laden with subjective bias. Freire borrowed from John Dewey, influential educational psychologist, who stated "the belief that all genuine education comes about through experience does not mean that all experiences are genuinely or equally educative…any experience is mis-educative that has the effect of arresting or distorting the growth of further experience" (1938, p. 25). Mis-educative experiences (i.e., actual problematic content learning or negative learning experiences) must first be identified. Exposure and engagement with mis-educative experiences results in a disempowering false reality; they are oppressive, and their examination, through critical reflection, is a necessary part of learning. Emancipatory learning "frees people from personal, institutional, or environmental forces that prevent them from seeing new directions, from gaining control of their lives, their society and their world" (Apps, 1985, p. 151). Because knowledge can be socially constructed (Haggis, 2003), individuals are encouraged to understand contributing hegemonic social factors, and ultimately work toward dismantling them.

The passive transmission of knowledge is actually an insidious medium to keep people oppressed by teaching values and norms detrimental to oppressed population because it perpetuates a *culture of silence*. The banking model pre-assumes hierarchy and reinforces the passive role of those in disadvantaged and marginalized social positions, and this culture keep people oppressed through their silence and developmental stagnation and instills both a negative self-image as well as sense of hopelessness. Freire realized that peasants' lethargy and ignorance were a result of being politically, socially, and economically dominated, and this type of domination breeds helplessness and social and political silence.

Conscientization

Also known as critical consciousness, conscientization aims to "intervene in reality in order to change it" (Freire, 1972). Social change cannot occur until people become aware of the systemic realities of injustice and oppression. Because many of the people Freire worked with were either illiterate or limited in their reading and writing abilities, he taught reading by helping his learners first access their own experiences through identifying themes in their stories (Ivey & Collins, 2003). He encouraged the use of all modalities in the construction of their stories and helped the learners with identifying key words that encapsulated their experiences and the contexts surrounding them. Once thematic words were discovered, he encouraged his learners to reflect upon their meaning and significance given the context of their experiences. This process, starting from experience and then reflecting upon them, served the basis of his pedagogical approach.

The reflective portion of this approach has particular strength because it allows learners to connect emotions to their experiences and also see commonalities in their story with others. Learners derive meaning from this process, which propels momentum for critical action; a fuller understanding of their story, apart from the dominant narrative, propels them to want to change their situation for themselves and others – this is the heart of critical theory. For Freire's peasants, they found common language and emotions behind their difficult experiences, and were able to identify the sources and causes of them. Once this knowledge was gained (i.e., conscientization had been achieved), they were no longer able to live in ignorance because doing so would be complicit in their own malady.

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Ignacio Martín-Baró's Liberation Psychology

Martín-Baró was a Spanish-born, El Salvador psychologist and priest, who was eventually killed by the Salvadorian government for his work. He pursued Jesuit priesthood training in his early years, and was attracted to and studied psychology after his religious training. He was a daily observer of the issues related to power and oppression in El Salvador and began to push his colleagues to go beyond simply understanding oppression to actually addressing and changing it by actively engaging with the sociopolitics of the time.

Known for his intellectual prowess and passion, Martín-Baró had a "love-hate relationship" (Portillo, 2012, p. 82) with the United States. Because of his education and career (he was trained at the University of Chicago), he was intimately knowledgeable about American culture, interests, and affairs. Due to his unique position having deep understanding of both Latin American and North American perspective, philosophies, culture, and values, he was distrustful of American perspectives, even psychology. Much of his work criticized American psychology and attempted to break away from it. He was especially dissatisfied with how American psychologists held involvement with sociopolitics at a distance as he partially attributed inequalities and the perpetuation of injustice as stemming from their dispassion and uninvolvement (Martín-Baró, 1994).

Martín-Baró epitomized Freire's critical pedagogy and directly applied it to the field of psychology. Specifically, he honed in on Freire's conscientization and, in what can only be understood as a theoretical reversal, applied it not to the oppressed, as originally conceptualized by Freire, but instead applied it to who he thought was perpetuating oppression, psychologists themselves. Martín-Baró was outwardly frustrated at psychologists' passive recognition of oppression but the lack of action and change in the field to address it. He called for the critical examination of sociopolitical realities that shaped Western psychology. Two aspects of Martín-Baró's work are especially salient to multicultural psychology and counseling, and have served as important ideas in the liberation of psychology.

Conscientization of the Oppressor

Perhaps the best way to encapsulate Martín-Baró's foundational belief about the hegemony of Western psychology comes from multiracial activist and feminist, Audre Lorde, "The master's tools will never dismantle the master's house" (1984). He influenced a generation of psychologists to critique the foundations of the discipline, especially in rethinking psychologists' roles beyond academic or counseling walls into the sociopolitical realm (Fox, Prilleltensky, & Austin, 2011). A consistent question asked by Martín-Baró (1994) is for whom does psychology work?

The critical questions that psychology must formulate with regard to its activity and it follows, with regard to the role it is carrying out in society, should not be centered on where the work is done, but rather on by whom; nor whould it be looking at how something is done, so much as for whose benefit. (p. 45)

His statement confronts Western psychology and begs a disciplinary question of whether we are working for *the master*. It forces a level of both individual and disciplinary introspection that challenges "sacred cows" within psychology. Martín-Baró desired a disciplinary critical consciousness and he posited several structures within psychology that needed to be transformed.

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Clinical View of Oppression

Martín-Baró viewed oppression in all its forms as a primary "pathogen" (Smith, Chambers, & Bratini, 2009, p. 160) in mental health conditions. The plight of the poor and oppressed is a direct result of oppressive beliefs and practices stemming from sociopolitical structures that perpetuate dominance. His work elevated oppression as an instrument of depression, stress, and anxiety, and has been influential in reconceptualizing trauma to be more inclusive of non-physical causes, such as race-based trauma (Bryant-Davis, 2007; Carter, 2007). This perspective continues to shape clinical understanding of PTSD and its diagnostic criteria, and has moved it out from the medical model into the sociopolitical realm.

Knowledge Is Subjective

One of Martín-Baró's greatest frustrations was his perception of sociopolitical inaction in psychologists, which he believed stemmed from psychologists being unaware of the sociopolitical structures that support certain types of knowledge. He pushed psychologists to examine power differentials and how power shapes knowledge and its value and transmission (Jiménez-Domínguez, 2009). He argued that psychological theories are actually the beliefs and values of those in dominant, oppressor positions.

Participatory Research

In the same way that Freire developed a process of teaching poor peasants to read that focused on beginning with voicing experiences and observations, Martín-Baró also developed a means for conscientization within psychologists. He stressed that to understand the presence of multiple perspectives, psychologists needed to understand the perspective of the oppressed (1986), which simultaneously reveals the ideology of the oppressor. To Martín-Baró, Western psychology was too involved with methods and metrics to quantify phenomena (i.e., instruments of research) rather than understanding the research participants themselves, which often include constructs and experiences that inherently difficult to quantify (Portillo, 2012). He felt that the tools traditionally used in psychological research was not only insufficient, it perpetuated oppression by ignoring experiences felt only by the oppressed.

Participatory research methods were the main mechanism for conscientization for psychologists. He used this method to compile reflections and experiences of those oppressed in El Salvador and compared them to the views and claims of political authorities (Martín-Baró, 1994). Highlighting these differences and understanding the vast differences in perspectives forced a process of reflection in which individuals cannot claim ignorance. "It is not the calling of the psychologist to intervene in the socioeconomic mechanisms that cement the structure of injustice, it *is* within the psychologist's purview to intervene in the subjective processes that sustain those structures of injustice and make them viable" (1994, p. 45). Participatory research methods not only brought about conscientization in psychologists, the oppressed, and the oppressors, it helped give credence to solving mental health issues at the collective and societal level.

Emergence of Multicultural Psychology and Social Justice

The work of Freire and Martín-Baró set the stage for a conceptual evolution within psychology. The discipline had gained momentum in challenging hegemonic views of the origins of psychology. In 1991, the

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momentum culminated in the announcement within the psychological world introducing multiculturalism as the *fourth force* (Pedersen, 1991) in the discipline. *Forces* in psychology are significant movements and paradigm shifts. The three previous forces are psychodynamic, behaviorism, and humanistic. These three forces represented significantly different views on human psychology and behavior, and were often developed in opposition to one another. These schools of thought tended to focus on their unique differences in understanding and treating individual psychopathology.

The first force, psychodynamic, were theories were based upon Freud's psychoanalytic approach, and predominantly focused on unconscious processes that governed behavior and emotions. It was deeply individualistic, and mental health treatment was predicated upon the individual's ability to resolve unconscious conflicts. The second force, behaviorism, was led by John Watson and B.F. Skinner, both of whom rejected the notion of Freud's unconscious mind because it was not testable, and in their efforts to solidify psychology as an objective science (a core hegemonic belief), they developed their approach to focus on only observable behavior. Behaviorism did focus on environmental factors but emphasized treatment in terms of individual learning processes, such as conditioning and reinforcements. They paid little to no attention on the importance of emotions or thought processes, and they were simply interested in shaping outcome behavior. Carl Rogers noted the lack of intimacy and coldness related to a purely scientific and hierarchical approach to emotional distress, and helped psychology understand the significance of a nurturing and caring relationship between therapist and patient in the healing process. This third force, humanistic, focused on the importance of relationships in human behavior and mental health treatment. Relational connection was posited to be essential to mental health, and this third force propelled psychology to recognize the concept of "self-in-relation", which is the belief that personality and individuality are functions of the social environment. While each of these three forces acknowledged the role of the social environment (e.g., psychodynamic theorists focused on the influence of early parental relationships and attachments, behaviorists focused on stimulus-reaction and learned behavior within social relationships, humanist focused on moment-to-moment social interactions), these were typically ancillary information that informed individual approaches to mental health.

Multiculturalism was the first force to acknowledged the importance of cultural and sociopolitical dynamics in mental health, which rapidly moved the discipline out of the confines of the 'counseling office' into the actual world in which patients live. While there is safety and security within the confines of a counseling office, ultimately patients are members of society; their emotional health is inextricably linked to their social environment. According to Pedersen (1991), multiculturalism,

Combines the extremes of universalism and relativism by explaining behavior both in terms of culturally-learned perspectives that are unique to a particular culture and in the search for common-ground universals that are shared across cultures.

It acknowledges the primary role of cultural patterns and thoughts that were already present prior to our births; we inherit these "rules of the game" (p. 6) through socialization. By the time we are mature enough to realize that people play by different rules, we may have already internalized either our rules' superiority or inferiority.

The multicultural movement allowed for four developments that better fostered mental health. First, it broadened the definition of culture beyond race/ethnicity to include sexual orientation, religion, age, sex/gender identity. It recognizes that the overarching influence of culture on all people, not just those in

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the minority or deemed "exotic". Therefore, this definition of culture includes those within the dominant culture, with a set of normative rules and practices.

Second, the multicultural perspective allowed patients to "get out of their head" by helping patients understand external factors that may influence mental health. It provided a more holistic picture of well-being and gave voice to phenomena like oppression and prejudice.

Third, it acknowledged the continuous need for a 'critical psychology' where traditional models of psychology, birthed out of Western thinking, are challenged in terms of their utility and effectiveness for diverse patients. For example, traditional Freudian psychoanalysis is both time and resource intensive, which limits its access to the privileged few. Critically examining this treatment modality allows for the creation of other modalities that are more accessible to larger groups of individuals. For example, the development of briefer treatments imbedded in the context of the community is a far cry from psychoanalysis where the norm was meeting 4-5 hours/week for years.

The influence of Freire and Martín-Baró continues within psychology as some consider that the discipline is seeing the emergence of the fifth force in psychology, social justice. While multicultural counseling tended to focus on the understanding of systemic and institutional forces on emotional well-being, especially for persons of color, social justice seeks to help patients take action in order to address societal ills that leads to oppression. This fifth force incorporates social and civic action as primary interventions for emotional healing and growth, moving beyond individual coping as a main means of healing. The social justice movement is a natural progression from multiculturalism because it helps patients take action to remedy oppression and harmful systems. In fact, Prilleltensky and Prilleltensky state that, "multicultural competence without social justice is insufficient" (2003, p. 274). The social justice scholarship in psychology is in its nascent beginnings; however, Freire's and Martín-Baró's fingerprints are evident in its discourse.

Examining Freire's and Martin-Baro's Influence to Psychology

Foundationally, psychological counseling is a healing practice (Frank & Frank, 1991; Wampold, 2001) and integral to counseling is the notion of helping. Defined by Hill (2014) as assisting others to make positive life changes through examining feelings and gaining insight, helping provides the "ingredients" (Ahn & Wampold, 2001, p. 251) to assist individuals, and it includes facilitative functions, which Hill list as helping patients to gain insight, to deal with existential concerns, to learn adaptive skills, to make decisions, to experience a healthy relationship, and to function on their own by providing feedback, support, and relief to them. The work of Freire and Martín-Baró has helped psychologists critically examine other modes of mental health treatment.

Passive Transmission of Oppressive Beliefs

In 1978, Derald Wing Sue, influential multicultural psychologist, wrote an article, "Eliminating Cultural Oppression in Counseling: Toward a General Theory". In this article, he described four perspectives of change, and posited that dominant, Western-based philosophies reside in the internal locus of control and responsibility domain of psychology. This view posits that individuals have complete control and must take individual responsibility for their wellbeing, without any recognition of external factors, such as oppression. Sue opined that this perspective becomes culturally oppressive when blindly imposed on culturally different others. This is an especially harmful phenomenon when psychologists passively

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transmit this perspective into their patients, leaving them feeling hopeless and disenfranchised. Some in psychology have even suggested that dominant, Western-based treatments should be classified as potentially harmful (Wendt, Gone, & Nagata, 2015), with Sue suggesting that some are "handmaidens" (2015, p. 366) of the status quo and serve as instruments of oppression. These types of discussions have traditionally been rare in the psychological research, and the notion that treatment could be ethnocentric was relatively unheard of until recent times (Moodley & West, 2005; Sue, Ivey, & Pedersen, 1996). One of the strongest symbols of oppression in psychological treatment is the definition and diagnosis of PTSD. Freire's critical pedagogy allowed psychologists to see first-hand how sociocultural factors influence conceptualizations of mental health, and how neglecting these factors contributed, at the very least, to the lack of treatment options for patients of color.

Freire's banking concept of education is evident in the psychological discourse on the cultural bias and ethnocentricism of psychological theory and mental health treatment. One of the most significant debates within mental health treatment is between what is known as empirically-supported treatments, the current gold-standard based upon Western philosophies of objective quantifiable testing, and multicultural counseling, which takes the Freirian and Martín-Baróian perspective that empirically-supported treatments are oppressive in nature due to their foundational principles rooted in Western perspectives (Sue, 2013, 2015; Wendt, Gone, & Nagata, 2015). Multicultural psychology and counseling is a movement that challenges the dominant approaches to mental health treatment, and it especially seeks to avoid the culture of clinical silence in the field.

Liberation discourse involved taking a crucial eye to the process of colonialization that have had a deep impact on the identity of Original Peoples; as a result, a new narrative of healing will emerge. The mental health profession has been instrumental in fostering the colonial ideation of Native Peoples all over the world…by turning a critical eye on our professional activities of healing, we liberate ourselves, as well. (Duran, 2006, p. 1).

Conscientization and Corrective Emotional Experiences

Corrective emotional experiences in mental health treatment occur when a patient comes to understand or emotionally experience an event or relationship in a different or unexpected way (Castonguay & Hill, 2012). These are experiences, usually within the context of a therapy relationship, where patients express or disclose shameful parts of themselves and receive support and affirmation from their therapist. These experiences, especially for marginalized individuals, are extremely powerful and healing because they have historically faced denial or rejection of their experiences. To be affirmed for sharing stories of oppression, and having the horrors of those experiences validate is corrective because it resets how they psychologically and emotionally cope with them. Prior feelings of shame and disenfranchisement gives way to hope and motivated anger, which can serve as the basis for active social engagement.

Freire's conscientization process, especially his ability to help Brazilian peasants tell and understand their story, has been instrumental in multicultural psychology and counseling (Ivey, 2003). His process of helping peasants find their words, and then sharing them others was a form of validation. Then through mutual sharing, the peasants were collectively able to attach meaning to their words and experiences. Seeing others share similar meaning and experiences provides comfort as well as motivation to act for change. For many of the peasants, attaching meaning to their experiences with others is similar to a corrective emotional experience. It may have been the first time their internal experiences were validated.

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Conscientization and corrective emotional experiences can be considered "disorienting events" (Taylor, 2008) that propel individuals to further investigate and understand themselves. While they have experienced a lifetime of rejection of their experiences, having them validated forces a re-evaluation of them and can lead to a new and more fuller way of understanding them.

Multicultural Competencies

The crown jewel of the multicultural movement in psychology is the development of multicultural competencies, which are a set of guidelines that set forth attitudes/beliefs, knowledge, and skills for psychologists to learn and practice in three domains of mental health work, which include 1) awareness of own cultural values and biases, 2) patient's worldview, and 3) culturally appropriate intervention strategies (Ratts, Singh, Nassar-McMillan, Butler, & McCullough, 2016). The competencies provided a strong framework not only for clinical treatment but also education for graduate students. Since education is political, psychologists are making an important stand in elevating the study of multicultural competence and its value to society.

Martin-Baro's focus on the liberation of psychology has influenced psychologists to view multicultural psychology and counseling as a means to engage in the sociopolitical sphere to addresses racism and oppression (Cross, 1971; Helms, 1985; Ivey, 1995; Sue & Sue, 2013). The development of multicultural competencies is a direct testament to the importance of recognizing narrative and story of all individuals, and to not weight or privilege only the experiences of those in power. Ivey (1995; Ivey & Collins, 2003) advocates for a liberation focus in psychology that draws from constructivist philosophy where psychologists and patients work mutually to construct meaning. This problem-posing, egalitarian approach in which both parties work together, and no one person's opinion is superior, results in learning (i.e., education) for both patient and psychologist. The multicultural competencies implies that psychologists are not experts; therefore, psychologists taking a direct, transmission-based role is not only ineffective but a continuation of dominant perspectives.

Qualitative and Narrative Approaches to Research

Western-based research typically privileges quantifiable and empirically-based modes of inquiry. While this perspective is not inherently oppressive, it presupposes that the researcher is aware of all of possibilities in which to test hypotheses. It is a reflection of the teacher/psychologist-as-expert role that Freire dismissed and found to be instrumental in the passage of oppressive ideals. Research results in this perspective is only understood in light of assumptions of the researcher and the extent of their limited knowledge base. Martín-Baró understood Freire's concern about this objective distance and power differential with research, and advocated for more intimate and potentially raw experiences. His extensive use of participatory research methods gave credibility, value, and esteem to research approaches such qualitative methodologies and narrative approaches to data collection. The multicultural psychology and counseling research is filled with rich examples of qualitative studies that have provided a more nuanced, human, and comprehensive understanding of the experiences of people of color. The participatory research paradigm has somewhat become the de facto method for those studying socially-based phenomena and sophisticated research designs have been utilized that have contributed to our understanding of race, culture, sociopolitics, and mental health.

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Participatory research methods honor Martín-Baró's legacy by removing the hierarchy between research and participant by giving voice and credibility to participants' experiences. By accessing and understanding other voices, researchers themselves can elevate their importance as well as expose inherent biases and assumptions in researchers. In a sense, participatory methods 'level-the-playing field' by eliminating the top-down nature of empirical paradigms.

Social Action as a Means for Mental Health Treatment

The legacy of Martín-Baró's liberation psychology is still to be determined as psychology grapples with the notion of social justice as a paradigm shift. While the vast majority of psychologists value and understand the importance of social justice (Lewis, Ratts, Paladino, & Toporek, 2011; Vera & Speight, 2003), psychologists' specific role in it is currently being debated. Acceptance and incorporation of social justice as a core identity and function of psychology and counseling is not as universally accepted as recognizing diversity and multiculturalism (Baluch et al., 2004). Numerous scholars have advocated for a more proactive and prevention-based stance that addresses the systemic and institutional forces that contribute to oppression, which is a distinctly critical theory value. A current manifestation of the role of social justice within psychology is the social justice counseling paradigm (Lewis, Ratts, Paladino, & Toporek, 2011), which uses advocacy as a means to help the individual client through addressing problematic social, political, and economic factors (Ratts, 2009). This paradigm extends the responsibility of the therapist beyond the traditional "therapy room" to the halls of governmental institutions. Critical and liberation psychology is intimately connected to social justice (Ivey & Collins, 2003).

However, social justice is at the heart of multiculturalism in that the existence of institutionalized racism, sexism, and homophobia is what accounts for the inequitable experiences of people of color, women, gay, lesbian, and bisexual people (among others) in the United States. Moreover, discrimination and prejudice are intimately connected to quality-of-life issues for these groups of people. (Vera & Speight, 2003, p. 254)

Psychologists are slowly coming to terms with the true implications of Freire and Martín-Baró's work. While the concept of conscientization is generally accepted and lauded, many are recognizing what Martín-Baró advocated, which is the fact that conscientization is not an independent and isolated phenomenon. Social action is a logical continuation of psychological healing resulting from an internal desire to address the negative impact of dominant ideology. It becomes an outward expression of healing, and broadly involves working toward the liberation of others.

IN FINALITY

Change does not occur easily. Psychologists, for all their knowledge on human behavior and neuroscience, fully understand the notion that humans are creatures of habit. Psychologists are not immuned from this. Paolo Freire and Ignacio Martín-Baró are two of the most influential figures in helping propel psychology out from its insular position. By bringing a critical perspective and a liberation focus to the discipline, psychology and counseling are better positioned to be a source of help for those in mental and emotional distress. Their work legitimized the experiences of the marginalized and has helped birth a new

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set of models and strategies to help people in distress. They have also unknowingly spearheaded such changes as a reformulation of a clinical diagnosis of trauma, propelling psychologists front-and-center into sociopolitical policies debates such as the role of torture, police brutality, and sexual harassment, and helping psychological governing bodies take public positions on important social debates such as conversion therapy and sexual identity. The fact that the field of psychology issues public statements demonstrates the impact that critical theory, interpreted by these two scholars, has and will continue to shape psychology and counseling. It is likely that critical psychology will continue to examine long-standing perspectives such as mental health diagnoses and treatment approaches for evidence of hegemonic perspectives that interfere with well-being for all. While humbling for a discipline and profession, the close examination and critique is needed for the social good.

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Chapter 11
Multicultural Considerations in Play Therapy Caregiver Consultation

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ABSTRACT

The purpose of this chapter is to review the literature regarding parent consultation and to address special considerations when working across cultures and ethnicities. Understanding privacy expectations and how to meet the needs of families, without discouraging the caregivers or unintentionally breaking cultural guidelines, will be explored. This chapter is extremely important because mental health professionals must adhere to the diversity guidelines and ethical standards of practice in complex cases, with many involved caregivers at times. When consulting with caregivers from culturally diverse backgrounds, consultants need to consider the impact of culture on the caregiver, the child client, and on the consultation process.

MULTICULTURAL CONSIDERATIONS IN PLAY THERAPY CAREGIVER CONSULTATION

According to Colby and Ortman (2014) in a 2014 report of National Population Projections, more than half of the nation's children are expected to be from a minority race or ethnic group by the 2020 census. By 2060, 36 percent of children (people under 18) will be white, as compared to 52 percent today. The U.S. Census Bureau (2010) also states the Hispanic population increased by 15.2 million between 2000 and 2010, accounting for over half of the 27.3 million increase in the total population of the United States. Professionals who work with children and their caregivers must attempt to develop an understanding of various cultures and the roles of the caregivers and children within these cultures. Although there is an

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increasing diversity in referrals, demographic surveys indicate that white females continue to dominate the fields of play therapy and counseling.(Haslam & Harris, 2011; Kranz, Kottman, & Lund, 1998; Phillips & Landreth, 1995; Ryan, Gomory, & Lacasse, 2002).

It is challenging, if not impossible, to summarize the breadth of information necessary when considering the specific needs of every cultural subgroup the play therapist encounters in their role as a play therapy caregiver consultant (PTCC). However, competence in working with a variety of clients is essential and ethically mandated. In fact, according to the American Counseling Association (ACA) Code of Ethics, counselors are expected to be capable of working with diverse populations and must gain training and supervision when confronted with limitations in their scope of practice, especially when confronted with underrepresented or marginalized populations (American Counseling Association, 2014).

In an investigation of play therapists' self-reported multicultural competence, subjects indicated a need for specific multicultural education as well as ongoing supervision to maximize, "attitudes and beliefs, knowledge, skills, and action" (Penn & Post, 2012, p. 3). In this chapter, we attempt to provide useful guidelines for consideration when working with culturally diverse clients and their caregivers, without assuming that there is an exact answer or a "cookbook recipe approach" all too often used in multicultural or diversity-focused chapters. We present historical and up-to-date information on multicultural considerations for the PTCC, including practical implications for practice in engaging caregivers as a culturally competent play therapist. This information is based on and extensive literature review, research gained from clinical work, and current consultation with PTCCs in the field. It should be noted that the relative lack of research on both multicultural considerations in play therapy and caregiver consultation in general are significant limitations in the scope and breadth of this chapter.

Multicultural Competence

The Association for Multicultural Counseling and Development (AMCD) published Multicultural Competencies on their website, www.multiculturalcounseling.org, which outlines specific standards and serves as a resource for counselors to increase their cultural competence (Arredondo, P., Toporek, M. S., Brown, S., Jones, J., Locke, D. C., Sanchez, J. and Stadler, H., 1996). Additionally, the ACA published Multicultural and Social Justice Counseling Competencies that offer developmental domains the PTCC can utilize to become more culturally competent (www.counseling.org/knowledge-center/competencies). These guidelines outline self-awareness, other-awareness, and rapport in addition to specific interventions. Exploring and understanding the guidelines challenges the counselor to acknowledge the pursuit of social justice while embracing multicultural competencies as a lifelong endeavor (Ratts, Singh, Nassar-McMillan, Butler, & McCullough, 2015). Of particular relevance to PTCCs, is the recommendation to recognize similarities and differences both within and between cultural groups. Finally, as a guideline for understanding client worldview, the fact that culture influences communication styles for both the caregiver and the consultant. As such, the consultant must "acquire culturally responsive cross-cultural communication skills to interact with [caregivers]" (Ratts, Singh, Nassar-McMillan, Butler, & McCullough, 2015).

In addition to the ACA and the AMCD, The Association for Play Therapy also published best practice guidelines to assist PTCCs in providing the highest level of care for their clients (www.a4pt.org/?page=Research). Concepts such as boundaries of competence, non-discrimination, and sensitivity to individual vs. group differences are all areas where cultural competence is considered a necessary skill. Concerning issues of diversity and training, best practices specify:

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Play therapists actively participate in a process by which they strive to 1) become and remain aware of their own cultural backgrounds, influences, and biases including, but not limited to, religion, gender, sexual orientation, ethnicity, and race; 2) acquire and continuously seek knowledge about how cultural backgrounds, influences, and biases operate in the lives of their clients; and 3) demonstrate culturally responsive therapeutic skills. (p. 13)

Clearly, the ethically responsible PTCC must continually develop, practice, and maintain skills around cultural awareness and sensitivity.

The Importance of Play and Play Therapy

From ancient philosophy to modern scientific research, play is an integral component in learning and child development (Fisher, Hirsh-Pasek, Golinkoff & Gryfe, 2008). Play is a ubiquitous part of the lives of all children that holds no bounds. Landreth (2012) indicated that play is the "native language" of children, an innate and universal method of communication through which children converse in an open and direct way. In recent years there has been an increased consideration for physical health and nutrition through outdoor activities with national campaigns like the NFL's Play 60 and First Lady Michelle Obama's "Let's Move!". These contributions are necessary and essential elements of keeping children motivated to maintain their health through physical activity, but a focus on play as a component to mental and emotional health is missing.

In spite of the evidence of the positive developmental benefits of play, there has been a significant decline in the amount of time allotted for free and unstructured play in today's society. In one study, researchers examined filial play across cultures and found that parent subjects confirm a trend toward decreased outdoor play and increased sedentary indoor activities (Roopnarine & Davidson, 2015). Play is redefined as a trivial exercise that is a placeholder for nonacademic activities. The importance of play in the school setting has diminished as the demands of children's academic performance in school has significantly increased (Pellegrini, 2008; Pellegrini & Blatchford, 2002; Pellegrini & Holmes, 2006; Ramstetter, Murray, & Garner, 2010; Slater, Nicholson, Chriqui, Turner, & Chaloupka, 2012).

Caregiver's Concept of Play

The effectiveness of play therapy is a researched and reliable form of therapy when used with multiple populations, yet the phenomenon of play continues to be seen as an abstruse process (Ray, Bratton, Rhines, & Jones, 2001). Given that beliefs evolve in part through cultural and personal experiences, caregivers and experts may hold different beliefs about the nature of play itself (Fisher et al., 2008). The definition of play can vary across cultures, yet we use the term in a general sense. Examining other cultures' and populations' definition of play and specific play activities can yield positive feedback within the therapeutic alliance. Additionally, identifying the thematic perceptions of play in various cultures leads to a more informed approach when collaborating with caregivers. As caregivers begin to explore therapy as an option, it is imperative to understand the challenges faced by various populations that can affect their openness to play.

Caregivers' beliefs surrounding play and its purpose provide further implication to the function of play in the home. Understanding the use and typical nature of play in the home sheds light on how an introduction of play in a therapeutic setting will be received and understood. For caregivers from diverse

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backgrounds and experiences, the PTCC must be willing to acknowledge that his or her perspective may not be aligned with that of the caregiver, and time spent exploring perceptions of play and expectations for treatment should not be hurried.

Caregivers Concept of Play Therapy and Consultation

Despite efforts by the Association for Play Therapy to educate the public about play therapy, caregivers remain largely uniformed about the importance of play in counseling with children. Shale (2004) concluded that, although parents recognized the developmental value of play therapy and perceived it as helpful, they were unclear about *what* play therapy was. This is one of many areas where culturally sensitive caregiver consultation can fill the gap of missing information and increase caregivers' comfort with the process.

Unless skilled and qualified clinicians take the time to explain what play therapy is and how techniques will be employed with their children, caregivers may simply not know or understand what play therapy is and how it can be implemented in counseling with children, adolescents, and families. These and other factors may contribute to a sobering statistic reported by Lolan (2011), who found that only 35.9% of play therapists believe caregivers are willing to participate regularly in the therapeutic process. This statistic may increase when caregivers are culturally different from the consultant (Chang, Ritter, & Hays, 2005).

Caregiver perceptions of play therapy are colored by a number of factors, which contribute to the overall counseling experience (Crane, 2001). Caregivers' educational level, the circumstances that caused them to seek counseling, and whether or not participation is voluntary can all affect the counseling process. Previous experiences with counseling may also influence caregiver perceptions regarding the therapeutic process in general. Other important factors include the family's socioeconomic status in relation to the perceived "worth" of counseling. Finally, caregivers' thoughts about play and the value of play for children can have a direct impact on what they think about the therapeutic use of play as a tool for addressing their parental concerns (Brumfield & Christensen, 2011; Muhammad, 2009). After considering all of the above factors and their potential influence on the counseling experience, it becomes clear that the therapist's ability to explain play therapy and to engage with caregivers is of utmost importance.

Cultural Misrepresentation in Research

Direct accounts of caregiver attitudes regarding play are limited in the research. In a phenomenological study of African American parents' perceptions of play therapy, Brumfield and Christensen (2011) found "… African American parents' perceptions of play, counseling, and play therapy revealed information consistent with two main themes: (1) value of play, and (2) receptivity to counseling. Parents identified *developmental learning* and *release* as two of the main values surrounding play." It appears evident from their findings that African American parents' perceptions are consistent with the idea that play is central to childhood development and release. This implies that there is time delegated for this activity, since it is recognized as important.

Historically, however, researchers have published accounts without sensitivity to cultural differences. Bracey (2012) discussed the prominence of a deficit-based or ethnocentric perspective, the tendency to overgeneralize African American families, and the tendency to pathologize and misinterpret cultural norms as influencing parenting practices in the research history of this population (Boykin & Toms,

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1985; Cain & Combs-Orme, 2005; Carter-Black, 2003; Dodson, 1995; Gomes & Mabry, 1991). For example, researchers studying children from low-income African American families found that they engage in less significant amounts of pretend play in comparison to other groups. Additional researchers indicated that middle-income children in preschool and the early primary grades engage in more pretend play than low-income (often African American) children (e.g., Rosen, 1974; Smilansky, 1968; White, 1978). Further, while addressing the negative hypothesis regarding pretend play in this population, McLoyd (1985) stated the assumption that low-income children engage in less frequent, lower-quality pretend play or play that is characteristically unimaginative and desultory, and is widely accepted in the available literature (Lovinger, 1974; Murphy, 1972; Singer, 1973; Smilansky, 1968). It is crucial to note the disparaging research. With a staggering amount of focus on deficits rather than strength-based assumptions, combating these popular subgroup issues when addressing caregiver perception is of significant importance.

Play Therapy through a Culturally Sensitive Lens

It has become a putative notion that African American families do not seek counsel from mental health workers or agencies; however, there is limited exploration into this perceived phenomenon. Brumfield and Christensen (2011) noted specific factors that facilitated or encouraged African American parents to pursue counseling, which pertained to how reliable the referral source was, as well as the perceived support parents experience from their family, community, and society, in general. Similarly, in a study examining counseling with Hispanic families, Kossak (2005) suggested that Hispanic clients are more willing to consider and adhere to services when they have a sense of being understood and have developed trust in the counselor.

Bridges, de Arellano, Rheingold, Danielson, and Silcott (2010) have identified many reasons why members of the Hispanic population are less likely to receive mental health services, including: not understanding the value of the services to language barriers, limited financial resources, social consequences of accessing care, lack of culturally responsive practices, immigration status, and the use of alternative healers and methods to treat mental health concerns (Bornsheuer & Polonyi, 2010; Bridges et al., 2010; Costantino, Malgady, & Primavera, 2009; Garza, 2004; Garza & Watts, 2010). Careful consideration needs to be taken when discussing cultures' preferred methods of treatment in all populations, and the Hispanic population is no exception. Garza and Watts (2010) stated that, historically, Hispanics have eschewed unwanted attention and the social stigma that often accompany mental health treatment. Additionally, they found that Hispanic individuals typically prefer addressing problems within the boundaries of the family. It is a common cultural practice to seek help from the primary care physician for physical conditions, but is less common to address mental health issues as they arise. Cultural values that can incite Hispanic families to engage in therapy have been identified in a previous study that examined filial therapy and Hispanic values. Garza and Watts (2010) proposed four Hispanic values that, when interfaced with play therapy, help facilitate effective culturally responsive treatment: (1) the importance *offamilismo* (family), (2) *respeto* (respect), (3) *personalismo* (personal relationships), and (4) *confianza* (trust). PTCCs should keep these in mind when working to engage Hispanic families.

Caregivers can have a hard time understanding the benefits of play therapy; what it is, or how it can be helpful. They may find it difficult distinguishing play therapy from play at home or at school. To address this issue, the Association for Play Therapy (2015) clarifies the difference for potential clients and caregivers stating, "Play therapy differs from regular play in that the therapist helps children to address

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and resolve their own problems." Working with a child may not require a heavy concentration on cultural sensitivity during the act of play, but collaborating with parents without acknowledging the norms of that culture can impede the alliance. Hinman (2003) suggested that Hispanic parents may expect a problem-focused approach from the therapist and that any deviation from that will need clarification in order for the parent to have a better understanding of the therapeutic process. Explaining the function of play and play therapy in ways that families will understand and based on cultural correlations can increase their openness to the process of play therapy.

In addition to being agents of consent for clients who are minors, parents and primary caregivers play an integral part in the efficacy of play therapy and counseling with children and adolescents (Axline, 1993; Cates, Paone, Packman, & Margolis, 2006; Kottman, 2011; McGuire & McGuire, 2001; Post, Ceballos, & Penn, 2012; Timberlake & Cutler, 2001; VanFleet, Sywulak & Sniscak, 2010). The ability to *engage caregivers* in the process of play therapy from intake to termination is often daunting for the novice PTCC. Newly trained therapists may not feel adequately prepared for systemic work or may be otherwise intimidated by interactions outside of the individual work with the child (Cates et al., 2006; LeBlanc & Ritchie, 1999; Lolan, 2011; Post, 2014; Ray, Bratton, Rhine, & Jones, 2001, Steen, 2010).

Adding a diversity aspect to the PTCC relationship may further intimidate beginning therapists and delay the development of a therapeutic alliance with the caregivers. Fortunately, according to the literature, this reluctance is transient. Researchers found as many as 90% of play therapists are comfortable working alone with caregivers (Haslam & Harris, 2011). Play therapists acknowledge the value and importance of including caregivers (Cates et al., 2006; LeBlanc & Ritchie, 1999; Lolan, 2011; Post, 2014; Ray, Bratton, Rhine, & Jones, 2001, Steen, 2010) and even specifically cite parent consultation as a necessary aspect of treatment (Ray, 2011; Scotelkorb, Swan, & Ogawa, 2015). While educating caregivers on the process of play therapy, the PTCC must model open discussion and be patient with a variety of cultural norms in order to help facilitate their engagement.

Involving Caregivers

In non-dominant cultures, individuals frequently utilize internal and collaborative resources and supports such as church and family (Bethea-Whitfield, 2005; Boyd-Franklin, 2003; Dixon & Vaz, 2005; Harley, 2005). A consequence of these cultural factors is the perception of the PTCC as an outsider and an increased possibility that counseling only becomes an option when the situation becomes extreme—resulting in increased frustration for caregivers PTCCs need to be aware of this potential frustration so that caregiver needs can be adequately addressed. Further research found that parents from non-dominant cultures seek referrals from schoolteachers, school counselors, church leaders, and medical professionals (Brumfield & Christensen, 2011). Providing play therapy educational brochures or information sessions at parenting groups, churches, school meetings, or other events where caregivers congregate can increase awareness and decrease frustration. During consultation, clinicians can demonstrate understanding by acknowledging the feedback caregivers may have already received from other stakeholders and allowing room for diverse perspectives.

Ray (2011) identifies six play therapist attitudes that are essential in working with parents: (1) respect for the parent's role, (2) respect for the parents' knowledge of the child, (3) affection for the parent as a person, (4) patience, (5) clear focus on the child as the client, and (6) therapist as expert. With culturally diverse caregivers, it may be important to be more overt in the expression of respect for the caregiver's role and knowledge. The consultant should be careful to avoid blame or judgment, which are likely to

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result in defensiveness, mistrust, and ultimately caregiver disengagement. The consultant may need to empower clients to share their own stories if they've had prior experiences suggesting their perspective was unwanted or unwelcome. It may take more time in order to establish rapport with caregivers who are reluctant or uncertain about the process, and the competent consultant will respect this need for increased time. In order to facilitate caregiver empowerment, Holcomb-McCoy and Bryan (2010) recommend PTCCs recognize the inherent power differential that exists between consultants and caregivers, diminish their own role as experts, and include consultees as mutual experts in the process.

PTCCs should be intentional as they help caregivers brainstorm potential goals and action steps for themselves and their children, specifically addressing methods for countering any oppression or micro-aggressions they are currently experiencing. Further, caregivers should be encouraged to take responsibility for their own learning and to make connections in their own communities. Empowering caregivers in this way will increase their confidence and empower them to develop tactics that can meet their individual needs (Brumfeld & Christensen, 2011).

Children are very perceptive, and their affect is often influenced by their caregivers' verbal and non-verbal cues (Timberlake & Cutler, 2001). For this reason, ongoing caregiver consultation is essential. If caregivers are skeptical or concerned about counseling, then children may share such skepticism and concern. On the contrary, if caregivers are excited about and open to the process, then children are likely more engaged (Carmichael, 2006). Overall, it is safe to assume that most caregivers truly want what is best for their children and that they are willing to cooperate with the PTCC (Brumfield & Christensen, 2011; Crane, 2001; McGuire & McGuire, 2001; VanFleet et al., 2010; Wachtel, 1994). Involving the parents is essential.

Guidelines for Competent Practice

Culturally Specific Skills

PTCCs working with caregivers from non-dominant or underrepresented cultures must maintain an awareness of the client's need to trust that the clinician is qualified, and has experience working with diverse children and families. This reassurance is particularly necessary if the clinician does not resemble the client phenotypically. The ability of both parties to see eye to eye in order to develop the trusting relationship that is key in caregiver consultation. Despite the fact that PTCC may view cultural differences as the "problem" (Holcomb-McCoy & Bryan, 2010), most helping professionals acknowledge that the client as an expert on his or her own life and/or experiences. The PTCC can honor those experiences in many covert ways, particularly through the implementation of a few familiar basic helping skills and the core conditions (Steen, 2010).

There is support in the literature for the application of multicultural competence to play therapy and counseling children (Gil, 2005; Hinman, 2003; Jayne, Stulmaker, & Purswell, 2013; O'Connor, 2005; Penn & Post, 2012; Ritter & Chang, 2002). However, the PTCC's level of cultural awareness may interfere with their working relationships. PTCCs who are unable to understand traditional family interaction patterns in culturally diverse family and cross-cultural communication styles will be unable to adequately address caregiver concerns (Cain & Combs-Orme, 2005; Holcomb-McCoy & Bryan, 2010). The PTCC should be aware of any cultural differences in play behavior and parenting style in order to increase the perceived usefulness of feedback given to caregivers, improve interpretation and diagnosis, and avoid misunderstandings or errors in communication.

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Additionally, there is a great deal literature focused on the role of culture in the process of consultation. Frequently the PTCC conceptualization of an identified problem stems from cultural differences. For example, the culturally unaware therapist might determine that a child's problem is related to various demographic factors such as membership in a marginalized racial group, coming from a socioeconomically disadvantaged household, or parents' marital status (Holcomb-McCoy & Bryan, 2010; Ingraham, 2000, 2003; Tarver-Behring & Ingraham, 1998). In a qualitative study of low-income African American mothers, Kalyanpur and Rao (1991) identified three aspects of negative experiences with professionals; disrespect, focus on deficits, and discounting parenting style differences, which are likely related to preconceived notions based on these demographic factors.

The PTCC should also consider the overrepresentation of certain non-dominant or minority groups in special education populations and be sensitive to the academic needs of the child or adolescent client concurrent with any social, emotional, or behavioral needs that might be present. It should also be considered that some children may be the recipients of numerous multidisciplinary services, and caregivers may be overwhelmed with the well-intentioned support from a bevy of providers.

Franklin and Boyd-Franklin (1985) contend that traditional African values and beliefs have been transmitted from generation to generation and continue to influence African American parenting. Perceptions of play are intrinsically tied to the values and beliefs that influence parenting. Some parents embrace play as essential, whereas others are less impressed by the fact that play could be a contributing factor in childhood development (Roopnarine, Shin, Jung, & Hossain, 2003). The idea is not to convince those caregivers who believe the latter, but to have an understanding of how what they believe is affecting their child's development. Corresponding with all therapeutic approaches, it is imperative to have a comprehensive background of the caregivers, as this relationship directly affects the child. Although trans-generational influences undoubtedly affect parenting, environment, socioeconomic status, and personal experiences also have a significant impact. Examining those domains in correlation to play is complex, as a lack of research exists in this specific area; however, implications can be made based on existing research (Boykin & Toms, 1985; Cain & Combs-Orme, 2005; Carter-Black, 2003; Dodson, 1995; Gomes & Mabry, 1991).

Caregiver as Expert

Caregivers may feel powerless or question their parenting abilities when they have to seek outside help (Vernon & Clemente, 2005). This powerlessness can come across as anger or resentment for the children, other family members, the counselors, or the referring agencies (Timberlake & Cutler, 2001). Throughout their clinical experience, the authors have observed that often, when children are in crisis, so are their caregivers.

A caregiver consultation model to be used in conjunction with child-centered play therapy has been proposed that encompasses key components of the relational approach most frequently cited by PTCCs subscribing to a specific therapeutic orientation. The five components include: 1) forming and maintaining the caregiver–therapist relationship through demonstration of core relationship conditions, 2) demonstrating present awareness to listen and respond, 3) respecting caregivers as experts on their own children, 4) sharing relevant knowledge, and 6) teaching therapeutic skills (Schottelkorb et al., 2015).

Holcomb-McCoy and Bryan (2010) propose an advocacy and empowerment approach to caregiver consultation. They encourage consultants to recognize and acknowledge the almost daily challenges encountered by most families of color and those from lower socioeconomic backgrounds. The caregiver

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should be considered appropriately in the context of culturally diverse and historically oppressed backgrounds. The consultant should validate the strengths demonstrated for survival under these circumstances. This model suggests four components of caregiver consultation, including: 1) statement of the problem; 2) the consideration of cultural, familial, and political factors that are influencing the problem; 3) the development of critical consciousness; and 4) the use of problem-solving strategies (p. 265). Using these strategies should facilitate engagement with caregivers of diverse and oppressed backgrounds.

DISCUSSION

Models for Culturally Competent Engagement

We suggest the following general guidelines for culturally competent caregiver consultation: 1) explain the process clearly and thoroughly, allowing time for questions should they arise; 2) give caregivers a tour of your space, as well as culturally relevant audio-visual and/or reading materials. 3) determine a predictable and consistent schedule for consultation meetings (weekly, monthly, as needed); 4) consider your space: Do your decorations, magazines, waiting areas, and child therapy areas all paint a picture of inclusiveness; 5) typical attending skills used in counseling (active listening, showing empathy/understanding); 6) caregivers want resources and it is the job of PTCCs to provide them.

Many PTCCs find comfort in approaching work with caregivers from a theoretical standpoint similar to that used in therapy. In the first decade of this century emerged a prevalence of three models of caregiver consultation: conjoint behavioral consultation, Adlerian parent consultation, and values-based consultation (Bornsheuer & Polonyi, 2010; Holcomb-McCoy & Bryan, 2010). More recently, child/caregiver-centered approaches have been suggested (Schottelkorb et al., 2015). These strategies can be broken into two main categories: psychoeducational and relational.

Psychoeducational Approach to Play Therapy

In psychoeducational caregiver consultation, the primary goal is teaching caregivers, imparting information, or sharing ideas. These PTCCs typically ascribe to cognitive behavioral or behavioral theories, whereas those in the latter are more likely humanistic (i.e., person-centered, existential, gestalt).

The psychoeducational approach can be problematic if the consultant is insensitive to cultural factors. Holcomb-McCoy and Bryan (2010) specifically note the potential conflict between African American caregivers and certain behavior modification techniques. These behaviorally informed strategies may also overlook psychosocial factors such as cultural values, family dynamics, patterns of social interaction, and learned coping mechanisms. PTCCs must be careful to consider that Hispanic and Asian families traditionally involve extended family members, such as grandparents, in family and child-rearing decisions more than their European counterparts. Learned coping mechanisms are sometimes misunderstood as resistance, or even pathologized and diagnosed, rather than considered in the context of necessary adaptations to surviving in hostile environments. The overrepresentation of certain non-dominant cultures for various diagnoses (e.g., African American and Latin American children diagnosed with emotional and behavioral disorders) warrants caregiver consideration prior to assuming accuracy of past records. A behavioral approach may also miss the source of perceived maladaptive behaviors such as frustration, anger, or insecurity due to culturally related environmental factors.

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Relational Approach to Play Therapy

In relational approaches, the relationship between caregiver and consultant is the identified change agent, and information or interventions are not deemed sufficient (Holcomb-McCoy & Bryan, 2010). The relational approach assumes that a warm and caring relationship, wherein the PTCC demonstrates unconditional positive regard for the caregiver, will provide the atmosphere for growth and change in the caregiver and, by extension, in the child client. Unfortunately, the underpinnings of such humanistic approaches assume that each participant in the relationship (caregiver and PTCC) has the ability to elude prejudices, assumptions, and preconceived notions. Another typical core belief in humanistic approaches is the role of the caregiver, rather than the consultant, as expert. This may conflict with cultural beliefs that value deference to authority figures and see relationships as hierarchical (Holcomb-McCoy & Bryan, 2010). This may also be the case for some Asian caregivers to expect the PTCC to give direction and provide "coaching", rather than take a more egalitarian and/or supportive stance. Conscious and unconscious perceptions may cause African American clients to anticipate racial prejudice and discrimination from white therapists. These assumptions may be the cause of resistance or reluctance to share openly in consultation or even in early termination of the counseling and consultation relationship (Boyd-Franklin, 2003).

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KEY TERMS AND DEFINITIONS

Caregiver: Primary adult responsible for caretaking for the child or adolescent client. This term may refer to a biological, adoptive, or foster parent; a legal guardian; a grandparent or other family member; or any other person with whom the counselor, therapist, or clinician regularly consults regarding the child client's treatment.

Cultural Competence: Counselors who engage the lifelong process of developing cultural and diversity competence through trainings, readings, and advocating for social justice.

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Multicultural: Relating to any of the various components of an individual's or group's cultural identity. Including but not limited to race/ethnicity, gender, sexual/affectional orientation, age, religious affiliation, socioeconomic status, and disability status.

Play Therapist: Person who is training in play therapy and practices working with children and their families. This person understands that children communicate through play and use toys to express themselves.

Play Therapy Caregiver Consultant (PTCC): The competent play therapist must include the caregiver in the play therapy process via consistent consultations. These consultations allow an alliance to form, offer support and parenting assistance to the parent, and ultimately help adjust the system, as needed to a more functional form.

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Chapter 12
Following the Drum:
Motivation to Engage and Resist

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ABSTRACT

This chapter provides an overview of motivational theory from adult education, psychology and educational psychology, spanning nearly 60 years. The first half of the chapter focuses on the motivational theories in terms of their developmental genesis, while later sections examine the relationship between motivation and learning resistance and engagement. Final sections suggest conclusions regarding the importance of studying learning resistance as a construct over and beyond motivational theory and position learning resistance scholarship as a learner-centered, positive approach to adult learning.

INTRODUCTION

Taylor (2014) defines learning resistance as "a state in which a learner is not open to learning in a specific learning situation as demonstrated through either active rejection or passive disengagement" (p. 60). Defined this way, resistance has, as its more positive opposite, *engagement.* Learning engagement, or rather, engagement with the learning *situation* (though not necessarily acceptance of the learning *content*) is considered a "psychological process, specifically the attention, interest, investment and effort students expend in the work of learning (Marks, 2000, pp. 154-155). While resistance and engagement fit nicely together, conceptually speaking, motivation is less easily "snapped to grid" within the resistance-engagement continuum. Reeve (2015) defines motivation both in a technical manner as "those processes that give behavior its energy and direction" (p. 9), and also in a more colloquial sense by saying that motivational study is for understanding why people "do what they do" (p. 8). It would seem then, that motivation plays a role in both resistance and engagement. Taken together, the latter two definitions of motivation connect firmly with the former two of resistance and engagement and provide a simple yet compelling reason to examine motivational theories in the pursuit of a more complete understanding of learning resistance.

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Accordingly, the purpose of this chapter is two-fold. First, it will examine a somewhat extensive collection of motivational theories with the purpose of providing a somewhat linear accounting of mainstream motivational theory as it has progressed over the past six to seven decades. Over and beyond that, it will use this as a framework for exploring the nature of the relationship motivation has with learning resistance. The analysis provided in the latter sections of this chapter address these issues on the macro level. It is intended to add clarity to the construct of learning resistance so that it may more effectively be brought to bear on the highly practical task of fostering learner engagement in every-day learning contexts.

MAINSTREAM MOTIVATION

Motivation has been addressed in the literature to such an extent as to make it difficult to distill the information into some type of concise summary while still achieving accuracy and remaining thorough. Indeed, the suggestion has been made that such a large number of theories and constructs can appear to be "fragmented and diffuse" (Pintrich, 2003, p. 667; Murphey & Alexander, 2000) and could possibly hinder progress in the field (Pintrich, 2003). There are many ways to arrange a discussion of motivational theories, and in previous scholarship they have been arranged according to the psychological, theoretical framework from which they hail, such as behaviorist, cognitive, social cognitive, and socio-cultural (Perry, Turner, & Meyer, 2007); centered around how they have dealt with a specific aspect of motivation such as self-beliefs (Schunk & Zimmerman, 2007); focused on individual frameworks (Anderman & Wolters, 2007; Illeris, 2002); and a variety of other more or less effective approaches. While reviews of the literature have been largely cross-theoretical, ample literature exists on most all the individual theories of motivation. An effort has been made in this chapter to provide an overview of the most well-known and mainstream theories of motivation and should not be considered exhaustive.

It must be noted at the outset that in order to present the material in some sort of linear order for the ease of the reader, certain connections between concepts and constructs have been omitted. It seems that no matter how one arranges the material, many concepts can be linked back and related to different theories, and doing so with perfect attention to detail leads to a very difficult body of work to summarize. An example of such connections would be those that exist between locus of control, as used in attribution theories (Weiner, 1979, 1985; Weiner, Frieze, Kukla, Reed, Rest, & Rosenbaum, 1971) and social cognitive theories (Rotter, 1954; Bandura, 1986). A tremendous number of such relationships exist between many of the theories but for the purpose of clarity, only a limited number of cross-references will be provided and it will be left to the reader to spot such connections between constructs, terminology, and theories. A succinct and orderly global integration of motivational theory in a limited amount of space requires that such liberties be taken.

The Distinction and Role of Emotion in Motivation

Before looking directly at motivation it is important to delineate the related concepts of emotion and motivation. There has been a growing emphasis in the sciences on the role of emotion in cognition over the past ten years (Damasio, 2012; Immordino-Yang, 2011). Reeve (2015) defines emotion as "the synchronized brain-based systems that coordinate feeling, bodily response, purpose, and expression so to ready the individual to adapt successfully to life circumstances" (p. 342). He goes on to point out that emotion acts as (a) one source of motivation, and (b) a sort of formative assessment of how well one's

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motivation is serving one's goal of adaptability to life events. He further identifies four parts of these "systems" as *Feelings, Bodily Arousal, Sense of Purpose*, and *Expressive Behaviors* (p. 342). These components interact and produce emotions which influence the levels of motivation any individual has in a given situation.

Damasio (2003) in a very creative work addresses emotions from a neurological perspective and weaves it together with some of Spinoza's philosophical ruminations on the same topic. Damasio's work is particularly useful when examining the role of emotion and feeling in resistance to learning because he makes a clear distinction between the physiological emotion and the more cognitively-based feeling. Spinoza made a theoretical distinction between emotion and affect and Damasio essentially uses the word feelings to represent the Spinozian concept of affect.

In his work, emotions are considered:

…complicated collections of chemical and neural responses, forming a pattern; all emotions have some kind of regulatory role to play, leading in one way or another to the creation of circumstances advantageous to the organism exhibiting the phenomenon; emotions are about the life of an organism, its body to be precise, and their role is to assist the organism in maintaining life. (Damsio, 2003, p. 51)

Feelings are defined in contradistinction as "the perception of a certain state of the body along with the perception of a certain mode of thinking and of thoughts with certain themes" (p. 86). The key point here is that while the terms are often used interchangeably, there is a distinction that is very useful not only in understanding learning resistance, but also in mitigating it. Simply put, emotions can be used to refer to the unconscious, neurobiological response, while feelings are the cognitive assignments we make to those feelings. This is undoubtedly a much more complicated dynamic and there is a great degree of highly detailed information explaining the interworking of these two. However, the most noteworthy application of the distinction between emotion and feeling is that human beings have some ability to cognitively assign, that is, to think about and make a decision about, just what a given emotion we experience might mean. This can be more easily grasped when thinking about a more concrete exemplar - ancient war drums. Most would agree that hearing a beating war drum does not lead one to pick a side in a given conflict. A beating war drum merely helps one march more energetically on whichever side was chosen to begin with. The neurobiological experience set off by the auditory sensation of the drums causes one to "feel" more energy toward a given end, and step more quickly. Perhaps Shakespeare knew something of this when he wrote Timon's words, "follow thy drum…" (Shakespeare, 1936 [1623], p. 1066). So while there are physical emotions that might be outside the control of the individual learner, there is some capacity in that learner to channel that emotion in a certain direction and the totality of that channeling is feeling – how that individual feels about it. Damasio's (and Spinoza's) distinction is a valuable one because it allows for some cognitive control within an emotional domain. Acknowledging the cognitive aspects of what we commonly refer to as emotion and affect interchangeably, provides space for the practitioner to more scientifically influence and direct what would otherwise be almost entirely unpredictable. I will be using the term affect and feelings interchangeably in this chapter.

The motivational theories outlined in this section will be addressed according to the following categories: physiological theories, behaviorist theories, cognitive and social-cognitive theories, socio-cultural theories, humanistic theories, and psychoanalytic theories. These different theories and models are derived from multiple fields, such as educational psychology, adult education, cognitive psychology, and others, and are included in this overview because of their influence and contributions in the field of

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learning and student motivation. While they certainly are not inclusive of all motivational theories and models in the literature, they do represent the mainstream conceptions of learning motivation. Again, having a general understanding, at the conceptual level, of human motivation, will ultimately facilitate a greater understanding of learning resistance and a more adept ability to mitigate it in the learning context.

Physiological Theories

Physiological theories, like all theories of motivation, rely on certain underlying theoretical perspectives. In the case of physiological theories, that perspective is biological. Among those considered in this section are drive-reduction theory, arousal theory, and the evolutionist perspective.

Drive-Reduction Theory

Drive theory, writ large, was introduced by Woodworth (1918) and in its simplest form, is physiologically based (Reeve, 2015). Drive-reduction theory states that a physiological need induces an aroused tension state (drive) which motivates an organism to satisfy such needs (Myers, 2007). The primary purpose of physiological drives and the subsequent motivation to reduce the drive is to maintain homeostasis in the physical being. One of the more well-known drive theories is Hull's (1943; 1953), and Freud's (1942) psychoanalytical theory, which is addressed under the psychoanalytical section because it is a great deal more complex than the basic drive theories.

This theory was derived through the rise and fall of what was known as *instinct theory,* and while serving to adequately explain physiological drives such as hunger, it seems to have been largely ignored in terms of any helpful applicability to educational psychology. Nonetheless, drive theories are being mentioned here because they have explanatory power for at least some aspects of learning resistance.

Arousal Theory

Arousal theory developed over time to explain the fact that certain motivated behaviors, in and of themselves, served to increase arousal. Animals which are well-fed tend to leave shelter and explore their surroundings. Such risks are merited by the animal's gain in resources. If arousal is caused by a physiological need, and the ensuing motivation serves to reduce that drive, the behaviors directed to reduce those drives conceivably should not then cause more arousal. According to arousal theory, human motivation, rather than aiming to eliminate arousal, actually seeks to maintain optimum levels of arousal (Myers, 2007). For more in-depth information on arousal theory see, Butler (1954), and Zuckerman (1979). Arousal theories are interesting in this discussion because they seem to be closely related to both states and traits of interest, both of which are empirically connected to learning resistance (Taylor & Lounsbury, 2016).

While the term *evolutionist perspectives* does not refer to a specific motivational theory, it bears mention because it arises from evolutionary psychology, which has its roots in Darwin's evolutionary theory. Many theories such as the original instinct theory, drive-reduction theory, and even arousal theory, are evolutionist theories in that the proposed explanation for the need for arousal, drives, and motivation are stated in terms of their relation to the development and survival of the species. What makes a motivational theory an evolutionist theory is the explanation of the purposes of the phenomena and mechanisms, rather than the phenomena and mechanisms themselves.

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Behaviorist Approaches

Behaviorism, as a theoretical framework, adheres to a strictly interpreted scientific view of psychology. The exclusive focus, at least of radical behaviorists, is observable, external behavior. Since internal processes cannot be observed in any objective manner, they are summarily dismissed. More moderate lines of behaviorist thought allow for internal cognition but choose to focus on the more concrete observable behavior due to the many limitations of attempting to analyze internal, unobservable processes. The self-report, while holding a prominent place in psychological research, has largely been avoided within the ranks of behaviorist research. In this section, reinforcement theory will be discussed along with its connections to the Law of Effect (Thordike, 1913) and the general implications for motivational theory and research from a behaviorist perspective.

Reinforcement theory, which dominated the literature until the 1960s, is the most well-known behaviorist perspective related to motivation (Perry, Turner & Meyer, 2007; Stipek, 1996). Derived from Thorndike's (1913) *Law of Effect,* the theory posits that reinforcement is the predominant mechanism for establishing and maintaining behavior (Perry, Turner & Meyer, 2007). Conversely, punishment is the primary way to decrease or eliminate behavior. An increase or decrease in behavior then, represents both learning and motivation (Mook, 1987). Stipek (1996) points out that most motivational researchers find behaviorist approaches, when standing alone, to be too simple to explain the complexities of human motivation, a task Stipek claims requires a recognition and emphasis on cognitive processes.

The debate over the years, like so many academic period debates, was framed around a false-dichotomy, a dynamic that virtually ensured a process that ultimately prevailed but which did so very inefficiently. Trying to argue that either behaviorism or cognitive (or social) theories are more "true" or accurate is something akin to arguing over whether apple pie consists of apples or sugar or flour. Of course, this type of debate is the result of a form of theoretical reductionism which, while sometimes useful, can also miss the whole point of the exercise. While behaviorist approaches have had a strong emphasis in the study of motivation, the focus since the 60's has been directed more toward the cognitive and social aspects of motivation. This has been aided by advances in technology, such as PET scans, that permit much more rigorous examinations of the human brain as it processes information. The following sections provide an overview of the cognitive and social-cognitive views of motivation.

Cognitive and Social-Cognitive Theories

Unlike behaviorists, cognitive psychologists contend that the human mind can be studied scientifically (Anderson, 1990). Cognitive models acknowledge the role of external motivation and reinforcement but believe that the "degree to which students can be motivated by a reinforcer depends more on their expectations of reinforcement than on whether they have been similarly reinforced in the past" (Perry, Turner, & Meyer, 2007, p.329). Cognitive theories, therefore, value intrinsic motivation more so than extrinsic motivation (2007). It is also useful to note, when examining all of these theories in such close proximity, that there was a noticeable shift sometime around the late 60's, from grand theories to more narrowly-defined micro-theories that focused less on the global and universal aspects of motivation and more on the situated, contextual aspects of motivation (Reeve, 2015). The developmental history of cognitive theories roughly corresponded with this shift and this noticeable when looking closely at many of the theories.

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Cognitive and Social-Cognitive theories represent the largest share of motivational theories, largely because (among other reasons) the research trends in several of the fields from which the theories are drawn, most notably psychology, were favorable to the cognitive approach at a time when motivation was also of interest. There could be many reasons why research trends develop, and they are outside the purview of this paper, but one thing is certain, it cannot be refuted that cognitive and social-cognitive theories have been a deep well for the explanatory waters of motivational thought. Because of this vast number of theories, the section describing them will be noticeably longer than many of the others.

The theories that will be discussed in this section are as follows: achievement motivation theories, such as expectancy-value theories (both classic and contemporary); attribution theory; social cognitive theory; goal theory; multiple goals perspective; goal setting theory; cognitive dissonance theory; learned helplessness theory; reactance theory; effectance motivation; affect control theory; and self-determination theory.

Achievement Motivation Theories

Achievement Motivation Theories are a group of theories which have in common the desire, at some level, to display competence (Elliot & Church, 1997). While this desire is played out differently and/or represented from different angles in the following theories, it is a common thread in all of them.

Effectance

Motivation. Effectance Motivation Theory is not strictly an Achievement Motivation theory, per se, but it fits most clearly here in this section. First written about by White in 1959 and later more fully developed by Harter (1978), effectance motivation refers the intrinsic drive one feels to either pursue a new activity or to continue in an ongoing pursuit simply because of the elation of success at that task or other tasks in the past. This, of course, is similar in some ways to the notion of self-efficacy, which is addressed below, but is a more global reference to particular type of motivation rather than one factor embedded within a larger theory. Individuals who accomplish something take away a sense of excitement and energy that makes them more prone to continue in that activity or engage in other activities that might also lead to success and accomplishment, thereby facilitating another dose of this elation.

Expectancy-Value Theory

Expectancy-value theory (Atkinson, 1957; Atkinson & Feather, 1966; Atkinson & Raynor, 1974) was, according to Schunk & Zimmerman (2007) “a breakthrough in the study of achievement motivation” (p. 352). Simply put, Atkinson’s theory focuses on two distinct but related views that are necessary for one to be motivated. The first is the belief that one can attain a particular objective (has the ability or means to attain it), and the second is that one places a significant enough value on the outcome of that objective. If someone feels that they can accomplish a specific task but does not place any value on doing so, it is unlikely that that they will attempt to accomplish it. On the other hand, if that same person places a high value on a particular outcome, but feels that there are not means to actually accomplish that objective, than that person is not likely to feel motivated to make the (futile) attempt. In this case, two different causes provide for the same outcome.

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A further intricacy of this theory is that achievement behavior is embedded in a conflict between hope for success (approach goals), and fear of failure (avoidance goals) (Schunk & Zimmerman, 2007). These two factors vary from person to person depending upon whether an individual's drive to accomplish and succeed outweighed the risk that that same individual could also fail. The expression of the mathematical outcome of this dynamic produced the Resultant achievement motivation (2007). The significance of approach vs. avoid goals is that the motivation one has to succeed at a task cannot be viewed in isolation. It must be placed side-by-side with the motivation one has to avoid failure (2007). Another way of saying this is that our general way of speaking about motivation in the classroom has the wrong cast to it. While many teachers tend to think they need to motivate their students, this carries with it the assumption that learners are either motivated or not. Avoidance and Approach goals, among other things, draws our focus toward the reality that our students are motivated one way or the other in every learning experience. There is no motivational vacuum, per se. When faced with a group of learners, some may be motivated to learn and some, perhaps many, might be motivated to resist learning. If this is true, then we need to demotivate as well as motivate our students. The fact that writing or reading that phrase sounds odd, speaks loudly to the problem with our general colloquial handling of the motivation concept.

Despite the usefulness and durability of this theory, research results were problematic (Kuhl & Blankenship, 1979; Cooper, 1983; Ray, 1982). The strict view that approach and avoidance drives determined levels of motivation was lacking in mainstream educational psychology studies, but despite these problems, the wider literature on learning resistance and training transfer in the workplace do provide empirical evidence that avoidance goals are at least general motivators in learning contexts (Taylor, 2014). More contemporary achievement theories were proposed to address the weaknesses of this theory overall.

Contemporary Expectancy-Value

Expanding on earlier models, Eccles and Wigfield (Eccles, 1993; Wigfield, 1994; Eccles & Wiggield, 1995; 2002) used data from a large sample of adolescents to identify four psychometrically distinguishable components of achievement values, which include attainment value, intrinsic value, utility value, and cost (Anderman & Wolters, 2007). In this model, attainment value refers to the value one places on the attainment of the outcome (goal). Intrinsic value relates to the level of enjoyment one has while actually being engaged in the activity. Utility value refers to perceived usefulness of the task, and cost reflects the more negative side of the activity in that it points to what one has to give up in order to engage in the task and attempt to reach the goal and achieve the desired outcome.

A fifth dimension, sensation value, has been suggested by Anderman, Noar, Zimmerman, and Donohew (2004). Sensation value, based on an information processing perspective (Byrnes, 2001), is used to describe the "level of sensation, novelty, complexity, or physical stimulation" which may serve to increase interest by "high sensation-seeking individuals" (Anderman & Wolters, 2007, p. 374). The idea that certain individuals have an elevated need for sensation was originally posited by Zuckerman (1979) and seems to support this fifth dimension.

Interest is another perspective on values which is examined in some detail by Renniger (2000), and Schraw and Lehman (2001). These scholars identified two types of interest: personal or individual interest, and situational interest. Personal interest is used to indicate an ongoing state of interest in a specific area of focus or domain, while situational interest is used to refer to a more context-specific interest. Perhaps one of the most noteworthy applications of making the distinction between these two types of interest is that some claim that it is possible to design learning situations in a way that might elicit situ-

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ational interest (Schraw, Flowerday, & Lehman, 2001; Schraw & Lehman, 2001). The idea of situational interest is closely related to environmental learning resistance (Taylor, 2014; 2016).

Contrasted with personal and situational interest is a distinct type of interest referred to as *state* interest (Krapp, Hidi, & Renniger, 1992). State interest is used to recognize the fact that at any given time an individual may or may not be in a state of interest. Anderman and Wolters (2007) provide a cogent explanation of how the state of interest is related but distinct from personal and situational interest by writing that "When individuals are in this state of interest, it may represent the activation of some ongoing personal interest, or it may be the result of a situationally interesting context, or some confluence of both influences" (p. 375).

This focus on interest and its relationship to motivation brings to mind a similar but converse construct discussed and researched by Sawin and Scerbo (1995); Taylor, Kass, Vodanovich, and Stanny (2000); and Kass, Vodanovich, and Callender (2001) which focuses on a distinct *lack* of interest referred to as either state boredom or trait boredom (also known as boredom proneness). State boredom has been defined as "a state of relatively low arousal and dissatisfaction which is attributed to an inadequately stimulating environment" (Mikulas & Vodanovich,1993, p. 3), while trait boredom, or boredom proneness is defined as "…experience[ing] varying degrees of depression, hopelessness, loneliness, and distractibility. Common tasks are perceived as requiring effort, with dissatisfaction with one's work and psychological well-being" (Farmer & Sundberg, 1986, p. 14). The constructs of state and trait boredom are mentioned here because they seem to address the same set of issues from the opposite direction than that of interest.

The academic relationship between interest and boredom roughly parallel that of looking at motivation on the one hand versus resistance on the other. While both approaches are useful, and looking at interest might seem more positive, it does make sense, if one wishes to be learner centered, to look into the specific reasons a given learner might actually be bored.

Attribution Theory

Another cognitive theory of motivation is attribution theory (Peterson & Schreiber, 2012; Weiner, 1985, 1986), a theory that takes into account an individual's emotional experiences as well as their motivation. Attribution theory was originally developed by social psychologists (Heider, 1958) to explain the social-psychological dynamic involved in assigning meaning and cause to specific events and behaviors. Simply put, when individuals are exposed to a certain behavior, such as another individual cutting in front of a line, an attribution is made as to why that behavior occurred (the line cutting). The first individual would either make a dispositional attribution (the person is rude) or a situational attribution (that person must be having an emergency). While the former attribution connects that behavior to the line-cutter's personality or way of being (disposition), the latter attributes the behavior to external circumstances and thusly relieves the line-cutter of much of the responsibility for the behavior. It was Wiener that tied this established psychological theory back to education and learning. According to this theory, an individual makes attributions about those goals, achievements, and failures that have been set, obtained and experienced. According to Weiner, both one's attributions (dispositional vs. situational) and one's emotions share a reciprocal and symbiotic relationship which significantly influence the choices one makes. Since the attributions that one makes about a particular failure (for instance) - whether that failure was the result of internal factors (dispositional) such as low ability, or external (situational) factors, such as environmental interference, etc. - affect the way one feels about that activity, these feelings will in turn, influence motivation in the future.

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Wiener adds complexity to his ideas by designating three different dimensions along which such attributions might be considered. *Locus* refers to, for lack of a better word, the location of the cause in terms of whether it is internal or external; *stability*, is used to identify whether the attributed cause is considered to be more or less permanent, or merely a local phenomenon which might change often over time; and *controllability* simply refers to whether or not the cause is under the control of the individual making the attributions. Locus as used here is related to Rotter's (1954) locus of control, and controllability is similar to Bandura's (1986) ideas of self-regulation. These three dimensions when examined in connection with one another allow for a startling number of combinations. One example of such a combination of dimensions would be as follows: If a student fails an examination, she may make an internal-stable-uncontrollable attribution, an example of which would be that she believes that the reason for her failure was low aptitude. Low aptitude, in this case would be an internal attribution (dispositional, to borrow from the original psychological theory); a stable attribution in that aptitude, as innate potential rather than level of knowledge or education, is, in her mind, relatively fixed and unchangeable; and an uncontrollable attribution in that one cannot presumably help having low aptitude. This example of internal-stable-uncontrollable represents only one of many potential combinations. Given this set of attributions, that learner is unlikely to remain motivated to engage in that situation. It is understandable that she would not wish to waste her resources in a pursuit that is destined to be without return.

Conversely, if a given student in the same situation believer that the exam failure was the result of an external problem (construction noise in the hallway), is unstable in that the construction will be of a limited duration, and controllable in that he can wear earplugs or request that he be permitted to take the test in a different location the next time. In this case, an attribution of external-unstable-controllable would leave lots of space for sustained motivation because there is room for the perception that future investments of energy will not continue to result in failure.

Boiled down, the primary substantive contribution of this theory is that it requires the motivational researcher (or practitioner wishing to motivate) to recognize affect when considering motivational theory or practice. Affect cannot be distilled out of any effective and accurate explanation of human motivation (Meyer & Turner, 2002) nor can it be disentangled from any form of learning (Illeris, 2007, 2011; Taylor, 2014).

Of course, Weiner was not alone in the inclusion of affect in motivational studies. Many others before and after him examined some aspect of the relationship between affect and motivation (Kagan, 1994; James, 1890; Zajonc, 1980; Thorndike, 1913; Zeidner, 1998; Lazarus, 1991; Schacter & Singer, 1962). Rosenberg (1998) identified three distinct levels at which affect could be evaluated, which he designated as traits, moods, and emotions. While traits are more reflective of stable, long-term differences between individuals, moods reflect an affective engagement which is less stable and permanent than traits but much longer lasting than the third category, emotions, which Rosenberg used to describe very transitory, situationally-driven psychological states. (For a more in-depth discussion of these levels, consult Kagan, 1994 for traits; Forgas, 2001, and Linnenbrink & Pintrich, 2002 for moods; and Forgas, 2001, Linnenbrink & Pintrich, 2002, and Schutz & DeCuir, 2002, for emotions). In a replication study (Weiner, 1986), the concept of using attributions for student ability and effort and to predict outcome emotions and future success was reexamined and results maintain the relationship between affect and motivation (Peterson &Schreiber, 2012) . Social Science theories such as *Affect Control Theory* (given rise by the work of a sociologist, Walter Reckless in 1973), also address that attributions that individuals make.

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Learned Helplessness Theory

In 1967, Seligman and Maier discovered that dogs that were repeatedly given aversive stimuli that they were unable to escape, eventually gave up and stopped trying even once the ability to avoid the stimulus was provided. This dynamic was labeled learned helplessness and has been used for many years to understand human depression and its effects. This is not, in the strictest sense, a theory of motivation. It does however, provide useful illumination regarding how motivation might be elusive for those whose life experiences have led them to believe that the conditions of their suffering are not controllable. Applications for the classroom are easy to make. Students who believe they cannot influence the outcome of their success, no matter what they do, suffer significantly reduced motivation. Learned helplessness shares a relationship with attribution theory in that attributions are made regarding the controllability of the situation. Bandura's theories discussed below also share this commonality.

Social Cognitive Theories

Like achievement motivation theories, social cognitive approaches refer to more than one precise theory (Perry, Turner, & Meyer, 2007). This can lead to confusion because additionally, *Social Cognitive Theory* is often referred to as a single theory and refers to the work of Bandura (1986). In this chapter, when *social cognitive theories* (plural) is used, it can be considered a reference to the collection of theories which have come to be recognized as being social cognitive theories. When *social cognitive theory* (singular) is used, it can be taken to mean the work of Bandura and his associates (Bandura, 1986, 1997, 2001; Badura & Walters, 1963).

Social cognitive theories are an extension of Rotter's (1954) earlier social learning theory, and "incorporate constructs concerning individual's expectations and values, but expand the original cognitive framework by highlighting how students reconcile the personal and social to make judgments about self, likely outcomes, and values associated with tasks and outcomes" (p. 331). Bandura (1986) refers to *triadic reciprocality* in which the reciprocal interactions between behaviors, environmental factors, and personal elements are framed.

They also have the distinction of differentiating learning from performance and enactive versus vicarious learning (2007). Two of the most important constructs within social cognitive theories are self-efficacy and self-regulation. Both of these constructs fall under the realm of individual beliefs about competence and control (Schunk & Zimmerman, 2007). Competence beliefs are defined as "students' perceptions about their means, processes, capabilities to accomplish certain tasks" (p. 349). Control beliefs, on the other hand, are "student's perceptions about the likelihood of accomplishing desired ends or outcomes under certain conditions" (p. 349). Self-efficacy is a competence belief which refers specifically to peoples' beliefs about their ability to learn and perform activities at certain levels (Bandura, 1997). Self-efficacy is differentiated from self-concept, which has a more global and less domain-specific connotation, and from one's actual level of ability, which, of course, does not always reflect one's perceived ability. Self-efficacy can affect individuals across a wide array of learning contexts in a variety of ways (Bandura, 1997; Pajares, 1996; Schunk, 1995; Schunk & Zimmerman, 2007). It has been shown to influence which learning activities an individual chooses and which are avoided (Schunk & Zimmerman, 2007). Additionally, it can affect how much effort is expended, how persistent one is, and how much one actually learns (2007).

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Self-regulation, or personal agency, is a control belief and another strong component of social cognitive theory, which refers to the perceived level of control (agency) one has in a given context. One's perceived agency is necessary along with an adequate level of self-efficacy in order for one to be motivated to engage in a task. Kadhiravan (2012) found that self- regulation in adolescents was significantly related to their achievement motivation. Students with high achievement motivation in turn feel the need to master difficult task, thus promoting effective regulatory capabilities. There are many things which can aid in boosting self-efficacy but perhaps the most important is that of mastery experiences, or highly successful experiences in the particular domain.

One must also consider the role and influence of gender when examining achievement motivation theories. Females are found to have higher achievement motivation when compared to that of males and showed better usage of self-regulated learning strategies being able to assess one's own performance and outcomes (Kadhiravan, 2012; Shekhar & Devi, 2012).

Goal Theories

Like many motivational theories, goal theories are referred to in the literature as a loose collection of related theories as well as a single unified theory (goal theory). Goal theory takes into account important relations claimed to exist among the goals, goal orientations, expectations, conceptions of ability, social and self-comparisons, achievement behaviors, and attributions (Linnenbrink & Pintrich, 2002; Pintrich, 2000; Schunk & Zimmerman, 2007). Goal orientation, perhaps the most important construct in goal theory, refers to one's purpose and focus when engaged in an achievement activity, or the purposes for engaging in the activity in the first place. (Anderman, Austin & Johnson, 2002; Pintrich, 2000; Schunk & Zimmerman, 2007). Two distinct types of goal orientations are mastery goals, which focus on the acquisition of knowledge, and performance goals, which focus on attempts to demonstrate competence by performing at a level greater than that of peers (Elliot & Harackiewics, 1996; Pintrich, 2000; Schrunk & Zimmerman, 2007). Other types of goal orientations are learning, task-involved, and task-focused goals, which are conceptually similar to mastery goals, and ego-involved, and ability-focused goals which are likewise similar to performance goals (Shcunk & Zimmerman, 2007).

There is much debate about the importance and effects of these different types of goals, but there appears to be some consensus that mastery goals are more desirable (Schunk & Zimmerman, 2007) because they "focus students' attention on processes and strategies that help them acquire skills and improve their competencies" (Schunk & Zimmerman, 2007, p. 358). Kaufman and Dodge (2009) found that mastery goals are both positively and significantly associated with feelings of relatedness to the professor and the value of the course.

One important distinction between these two types of goal orientations which is a possible contributor to the greater motivational benefit of mastery goals, is the relationship between the attainment of mastery goals and the enhancement of self-efficacy and the subsequent increase of positive affectation in the individual. When one achieves a mastery goal, a greater level of self-efficacy is experienced which, in turn, brings with it positive emotion. A higher level of positive emotion, along with the increase in self-efficacy, will serve to further motivate the individual in future activities. Performance goals, on the other hand, fail to facilitate these positive effects since the individual is comparing his achievement with another individual rather than comparing his or her most current achievement with her own past achievement. Both performance-approach and performance-avoidance goals may result in a barrier to feelings of relatedness (Kaufman & Dodge, 2009). Put another way, social comparison, brought about through

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performance goals, does not facilitate enhanced learning strategies and techniques, the development of which would require routine critical self-assessment rather than the assessment of the achievement of others. There is support for many of the predictions of goal theory (Pintrich, 2000; Schunk & Zimmerman, 2007), perhaps the most important of which, in the educational setting, is that students with mastery goal orientations "demonstrated better cognitive monitoring, and use of learning strategies" (2007, p. 358).

Multiple Goals Perspectives

Others have adopted multiple-goals perspective on motivation (Pintrich, 2000, 2003; Elliot, 1999; Linnenbrink & Pintrich, 2002). In this approach an approach-avoid dimension has been added to both the mastery and performance goal orientations, creating a mastery-approach, mastery-avoid orientation; and performance-approach and performance avoid orientation. These additional approach-avoid designations refer to whether the individual is actually striving to "approach" the mastery goal, or "avoid" the opposite, or whether the individual is attempting to approach the performance goal, or avoid the opposite. In other words, in a mastery goal orientation, if the individual is attempting to obtain high standards, that individual could be said to have a mastery-approach goal orientation, while, on the other hand, if the individual was more concerned with not failing to meet high standards, therefore avoiding the task, that individual would be identified as having a mastery-avoid goal orientation. The same could be said for performance orientations. If one is most concerned with out-performing others, one is said to have a performance-approach orientation, while a performance-avoid orientation is assigned to one who is primarily concerned with avoiding any chance of performing in a way that is inferior to one's peers. While research has, to some extent, validated the benefit of mastery-performance goal orientations, there is little research on mastery-avoid orientations (Schunk & Zimmerman, 2007). Research on performance approach and avoidance goal orientations has had mixed results (Wolters, Yu, & Pintrich, 1996; Kaplan & Midgley, 1997; Wolters, 2004; Middleton & Midgley, 1997).

Up until this point, only goal orientations have been discussed. Another different but related construct is goal structure. While goal orientations refer to the personal goal orientations set by individuals, goal structures refer to the learning environment (classroom) structure in terms of its contribution to the learners within that environment choosing one goal orientation or the other. Anderman, Patrick, Hruda, and Linnenbrink, (2002) concisely describe this relationship by writing that "a central tenet of goal theories is that students' adoption of personal goals is influenced, at least in part, by the goal structures present in and promoted by the classroom and broader school environment" (p.244). When applying goal theories of motivation to the learning context, it is essential that goal structures be included in the analysis.

Motivational Systems Theory

Ford (1992) proposed a much more comprehensive motivational theory, taking into account goal content, and proposed that human motivation is a combination of three components, goals, emotions, and personal agency beliefs. In distinguishing between goal content and goal processes, Ford draws attention to the differences, respectively, between the consequences of a specific goal, and the specific processes one sets up by which to obtain that goal. When viewing motivation as the interaction of goals, emotions, and personal agency beliefs, one can develop a large number of possible combinations from which an equally large number of motivational explanations can be made.

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Self-Determination Theory

Self-determination theory (Deci, 1980; Grolnich, Gurland, Jacob, & Decourcey, 2002; Ryan, Connell, & Deci, 1985) centers, to some extent on the difference between intrinsic and extrinsic motivation with a strong focus on the preference for the intrinsic. Three basic innate psychological needs, according to the theory, are competence, autonomy, and relatedness. Schunk and Zimmerman (2007) compared competence to White's (1959) need for "mastering the environment (Schunk & Zimmerman, 2007, p. 359). Autonomy refers to the similar construct personal agency and could be considered a feeling of internal locus of control. Relatedness draws in socio-cultural views (discussed later in this paper) and acknowledges the human need for connection and the subsequent internalization of social values. According to Beachboard, Beachboard, Li and Adkison (2011), increased relatedness to peers and faculty and higher ordered thinking were found to substantially predict educational outcomes.

Although not related to self-determination theory, the psychological theory of reactance illustrates the importance of individual autonomy. *Reactance Theory* (Brehm, 1966) describes the motivational force one experiences to resist a perceived loss of freedom. The common expression of this is what is so often colloquially referred to as reverse psychology. When one engages in reverse psychology he or she is playing on the internal motivation of the subject to want to do the opposite of what has been suggested. In these circumstances, it is the desire of the individual to demonstrate autonomy that results in the motivated behavior opposite of that suggested.

Research by Ryan (1993) has shown that when individuals believe that they have control over their environments, they achieve higher and are more resilient in the face of environmental challenges. Perhaps one of the most unsettling aspects of this theory is the implications of school and other formal learning environments (primary, secondary, undergraduate, graduate, and workplace training), what was earlier referred to as goal structures, and how that environment influences student motivation. Schunk and Zimmerman (2007) report that factors such as rewards, punishments, threats, deadlines, surveillance, and evaluations, cause intrinsic motivation to diminish. While empirical evidence on this effect is a bit more complicated than that (see Ryan & Deci, 2000), there is evidence to suggest that these structures are harmful to a learner's motivation. If this theory were to be accepted as an accurate explanation of student motivation, it would seem that the current educational system, at least in the U.S., is destined for failure or, at best, mediocre progress.

Socio-Cultural Theories

Socio-cultural theories, while inextricably tied to the work of Lev Vygotsky (1978), more broadly speaking, examine human motivation from a perspective which acknowledges the validity of the internal cognitive process but also accounts for the external social dynamics, and view the internal and the external as existing in a type of symbiotic relationship wherein each influences the other and neither can exist without the other. There are those that take a more limited view of internal cognition but for the purposes of this discussion, the more mainstream views will be provided. While there do not seem to be many coherent, stand-alone theories specifically addressing motivation within socio-cultural approaches to learning, motivation is, nonetheless, accounted for and addressed. In the following paragraphs, ideas such as the Zone of Proximal Development, Scaffolding, and co-regulation (models of co-regulated learning) will be discussed.

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Two key constructs in socio-cultural theories are *participation* and *appropriation* (Perry, Turner, & Meyer, 2007). These constructs when taken together, indicate a learning dynamic in which people, rather than being mere products of their environments, create, or co-construct their environments (2007).

The Zone of Proximal Development (ZPD) refers to the area that exists between the child's current ability or development and the level of ability or development that the child could achieve with support and guidance (collaboration) with more capable peers (Woolfolk, 2008). Vygotsky claimed that cultural tools, including material as well as psychological tools, play a significant role in learning. Brophy (1999) promoted a motivational version of the ZPD, suggesting that teachers and learning contexts can serve to support students in ways that may facilitate, within the students, motivation to attempt certain learning goals for which they might not have on their own been motivated. Wood, Bruner, and Ross, (1976) coined the contemporarily popular term scaffolding to refer to all of the assistance, including clues, reminders, encouragement, examples, etc., which is provided to a learner in an attempt to foster that individual's learning independence. Models of co-regulated learning, include an "arena of co-regulation" which encompasses motivation, enactment, and evaluation, all within learning communities of support (McCaslin & Good, 1996; McCaslin & Hickey, 2001).

There is some dissension in the field over whether to focus on the internal processes of the learner in the context of the community, or on the participants work with others in the learning community to co-construct knowledge. This controversy seems to have served, to some extent, to stunt the creation of socio-cultural motivation theory. While many still try to conduct research and attempt to apply generalizations, Perry, Turner, and Meyer (2007) claim that one's "perspectives on motivation, posit beliefs, values, and expectations may be so tightly bound to the context in which they are co-constructed as to make notions of internalization and generalization, which are essential for self-regulation, irrelevant.

Humanistic Theories

Humanistic theories are centered most squarely upon the work of Abraham Maslow (1954) and Carl Rogers (1963). Generally speaking, humanistic theories "discuss individuals' capabilities and potentialities as they make choices and seek control over their lives" (Schunk & Zimmerman, 2008, p.351). Most noteworthy in humanistic theories is Maslow's (1954) *hierarchy of needs*, and Roger's (1963) *actualizing tendency* (related to Maslow's *self-actualization*), *positive regard*, and *positive self-regard*.

Abraham Maslow

Maslow (1954) believed that human beings have a number of motivations which are hierarchically arranged. Each level of the hierarchy, beginning at the bottom level, must be satisfied and fulfilled prior to the individual becoming motivated by the next level. These levels, beginning with the lowest level (that which must be fulfilled first) are: physiological needs; safety needs; belongingness and love need; esteem needs; and self-actualization, respectively.

While this theory has a great deal of face-validity and is useful when interpreting and understanding many human motivational needs and choices, it has been criticized for its proposed strictness of order (Myers, 2007) and many have been quick to point out that one may be self-actualized while starving to death. An example of this would be Ghandi, to name an individual, and faith martyrs to name a larger group.

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Carl Rogers

Rogers agreed with much of what Maslow had to say and believed that the fundamental motivational drive for human beings was growth and the idea of achieving wholeness, the innate pursuit for which he designated the term actualizing tendency. According to Rogers, people have a need to have the feeling of being accepted, respected, and liked, feelings which, when summed up, are referred to as positive regard. Additionally, individuals have the need for positive self-regard, which is derived from personal experiences. Human beings strive, according to Rogers, to see a consistency between what they hope to be and what they feel that they are.

In particular, many adult educational theories and approaches are based in, or derived from humanistic thought such as Knowles (1970, 1980, 1984) andragogical principles and self-directed learning approaches (Tough, 1967, 1971; Knowles, 1970, 1980, 1984; Brockett & Hiemstra, 1991).

Psychoanalytic Theories

Psychoanalytic theory, based originally upon the work of Sigmund Freud, has been expanded over time to adjust for some of the inadequacies of the theory in its original form. Psychoanalysts now consist, most prominently of Neo-Freudians, and while subscribing to the explanatory power of the triadic mind, namely the id, the ego, and the super ego, have distanced the theory from Freud's almost exclusive view of the id (unconscious) as a reservoir of primitive, sexual drives.

One of the primary purposes of psychoanalytic theory is to bridge the gap between an individual's subconscious and conscious thoughts. In this way, the unconscious thoughts that were causing the individual to have emotional and psychological difficulties, can be brought to the forefront of the conscious mind and then be more adequately dealt with. Despite the tension between the psychoanalytic perspective's significant influence and contribution to the field of psychology and its notoriety in the same field, it does have something significant to contribute to the motivation canon.

Classic

The traditional psychoanalytic explanation for behavior and personality was proposed by Freud (1959). An in-depth discussion of Freud's ideas will be avoided in this context, but a brief mention of the general premise of the psychoanalytic perspective will serve to assist one in understanding contemporary revisions and uses of the theories. Freud believed the mind was segmented into three parts, the id, the ego, and the super ego. The id consisted of libidinal drives not consciously known to the individual. According to Freud, these drives were base and largely sexual in nature. More contemporary, or Neo-Freudians, consider this orientation to sex overstated at best and, at worst, erroneous. The ego contains our partially conscious perceptions, thoughts and judgements, and acts on what has been called the *reality principle* to curtail the drives and impulses and direct behavior in a more realistic way which will provide a greater level of health, success, and long-term happiness. The superego refers to the internalized subjective norms and acts as an individual's "conscious" in regulating behavior (the use of conscious here refers to the idea expressed when one has a "clear conscious" or "guilty conscious," rather than the opposite of unconscious).

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While much has been learned about human thought and many of Freud's ideas have been discarded in the face of better, more accurate explanations, the psychoanalytical perspective is still strong in contemporary psychology and is driven primarily by its recognition of the interaction of conscious and unconscious feelings and perceptions, rather than a purely primal, sexual unconscious. Of particular note, in terms of motivational psychology, is the idea of innate, libidinal drives, which an individual feels a natural sense of need to fulfill. One of the more noteworthy scholars writing from a more modern psychoanalytic view is the French psychoanalytic philosopher Lacan (2007).

Contemporary

Illeris (2002), relying on a qualitative research method which he refers to as "biographical research" (2002, p.204), integrates a psychoanalytic framework into a life-span motivational theory. In his typology, he addresses four primary phases of human learning which are, respectively, childhood, youth, adulthood, and mature adulthood (Illeris claims to be using Giddens' term (1993) mature adulthood). In this context, childhood lasts from birth to the onset of puberty and youth lasts from puberty until the "preconditions for a more or less stable adulthood are established" (2002, p.207). Adulthood lasts from the end of youth until the *life turn*. The life turn refers to the point at which ones' end of life is perceived as a realistic future event and is accepted or at least begun to be accepted and related to (Jensen, 1993, as in Illeris, 2002). This is a very fluid event which can take place anywhere between 45 and 65 (Illeris, 2002). Mature adulthood then, lasts from this time turn until the end of life. According to Illeris, children seek to "capture their world," youth, to "construct their own identities," adults to "pursue their life goals," and those in mature adulthood to "seek richness and harmony" (pp. 208-222).

This theory is similar to Maslow's (1954) theory in that it does not explain the mechanisms of motivation, instead merely explaining what it is that humans are motivated by, in a specific sense. In contrast to this, many of the theories mentioned thus far in this paper, such as expectancy-value theories, provide some basis for how one comes to be motivated by any given process or phenomenon. In the case of Illeris' theory of motivation and his stage typologies, he is using the elements of basic psychodynamic theory and human development to explain the mechanisms by which those in these different stages come to be motivated by the posited factors. The significance of this theory is that while all humans may have the underlying mechanism for motivation, each group is motivated by a significantly different set of factors. This type of variation serves to support specialized study and attention to those in each of these stages in addition to overarching, general motivational research. It could perhaps be said that the complex intertwining of psychoanalytic theoretical mechanisms and stage-contextualized motivational drives acts to create such diversity between the stages that each stage could be said to have its own mechanism, rather than just a different motivational objective. Either way, it does seem to credit the importance of a specialization in adult motivation, which is something that will be discussed later in this chapter.

ADULT LEARNER MOTIVATION

There has been some contention over the years regarding the difference, or lack of difference, between adult and non-adult learners (e.g., Brookfield, 1986; Hanson, 1996; Hartree, 1984). This is a significant debate because an entire field is predicated upon the belief/assumption that there is, indeed, a difference. The resolution of that controversy, while meaningful, is not necessary for our purposes here. However,

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one particular aspect, motivation, is highly relevant to this discussion and so must be addressed, at least in brief. There is an underrepresentation of research examining motivation among adult learners.

While the majority (though not all) of mainstream motivational theories explored in the preceding sections have been empirically tested in the context of childhood, they almost universally address the basic physiological, psychological, sociological facets of human beings, and as such are highly relevant to adult learners. Wlodkowski (2011) stands out in the field of adult education in that he has addressed motivation as it pertains to adult learners rather prolifically. His work has been of great value to the field, but does tend to hug the contours of adult education scholarship in a way that results in large volumes of important motivational theory being omitted.

He points to adult responsibility as the "cornerstone of adult motivation" (p. 96), and indeed that statement seems to be the cornerstone of his book. It is difficult to argue the logic of this assessment and I won't do so here. However, it is important to realize that while adults are generally oriented toward being responsible for their own actions, they don't necessarily feel responsible in any given learning moment to actually learn something. This is easily seen when thinking in terms of mandatory workplace and formal educational training contexts in the adult learning arena. Further, adults are faced with many situations in life in which they may choose to take on the responsibility of earning a certificate and/or diploma but this also is no guarantee that they will take responsibility to engage and learn during all moments in the process. It is in these "moments," however, that the professed teacher of adults must have the greatest conceptual grasp of all of the many facets of human motivation.

Beyond Wlodkowski, there are others who have contributed to the field of study. Scholars in the field of adult education have not been as prolific regarding motivational theory as have been those in other fields but there is, nonetheless, a modest collection to examine.

An examination of such literature would be incomplete without discussing the theories of Knud Illeris (2007; 2011), but for organizational purposes his ideas were addressed in the previous section. In the following paragraphs, Adult learning typologies (Houle, 1988), EPS (Boshier, 2005), Barriers to learning (Merriam & Baumgartner, 2007), self-directed learning motivation (Garrison, 1997), and the work of Zemke and Zemke (1995) will be examined.

Many adult education scholars have focused on the specific *things* that motivate adults, and by doing so have demonstrated, most likely inadvertently, their recognition that the adult learner may be subject to the same underlying psychological principles and mechanisms of motivation as are non-adult learners. This would cast adult learning, as a field of scholarship, as more of a context-specific investigation of learning, rather than an independent exploration of adult learning as a fundamentally distinct phenomenon. This has implications for questions related to the distinctions between mainstream educational psychology and adult education which, as mentioned in the above section, is an interesting but unnecessary facet of the discussion in this chapter.

Houle's Typology

Cyril Houle (1988) posited three different learning orientations into which all adult learners can be categorized, which are goal-oriented learners, activity-oriented learners, and learning-oriented learners. The names assigned to the three categories are all rather self-explanatory and refer to, respectively, those who engage in a learning activity in order to achieve some separate (other than learning for the sake of learning itself) goal; those who engage in a learning context for the sake of the activity itself and the social aspects of that context; and those who set out to expand their knowledge for the sake of

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that knowledge itself. This typology is useful because, complex psychological theory aside, it leads an educator to realize that differences exist in terms of the motivations one has, conceivably even in the most homogenous groups, and to attempt to identify what the motivations might be for the individual learners in his particular context.

Education Participation Scale

Boshier (1991), constructed a forty-eight item Education Participation Scale (EPS). This scale, later reduced to forty-two items, is arranged into seven factors each containing six items. The seven primary factors are as follows: communication; improvement of verbal and written skills; social contact; educational preparation; professional advancement; family togetherness; social stimulation (escaping boredom); and cognitive interest. A cursory glance will reveal that these factors represent a more elaborate, or less-reductionist reflection of Houle's typologies.

Barriers

Conversely, there is substantial literature in the adult education field on the reasons adults do not participate. The two most commonly asserted barriers are lack of time and lack of money (Merriam, Caffarella, & Baumgartner, 2007). Johnstone and Rivera (1965) clustered reasons adults do not participate into two categories containing ten different barriers. The two categories were external (situational) and internal (dispositional). In a counterpart to the EPS, which looked at participation, Darkenwald and colleagues have developed a Deterrents to Participation Scale (DPS) which revealed six factors of non-participation which included lack of confidence, lack of course relevance, time constraints, low personal priority, cost, and personal problems (Darkenwald & Valentine, 1985).

Reference to Motivation

While motivation has managed to escape the spotlight in the field of adult education, it has been recognized through the years by many of its prominent scholars. Malcolm Knowles acknowledged that "most [adult learning] motivations are internal rather than external" (1984, p. 12); that the "readiness of an adult to learn is closely related to the developmental tasks of his or her social role" (1980, pp. 44-45); and that adults need to know why they need to learn something (1980). Garrison (1997) includes a motivational dimension in his model of self-directed learning, even though he remained vague about what that motivation might look like and suggested more research be conducted in that area; and Zemke and Zemke (1995), claimed that "when the conditions are right, adults seek out and demand learning experiences… the key to using adults' "natural" motivation to learn is tapping into their most teachable moments: those points in their lives when they believe they need to learn something new or different" (p. 32).

IMPLICATIONS FOR LEARNING RESISTANCE SCHOLARSHIP

Over and against the theoretical overviews of mainstream motivational theory, a number of important implications come into focus. I will address only two of the more significant implications in the final sections of this chapter.

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Motivation Is Connected to Both Resistance and Engagement

It is impossible to address resistance to learning without also examining motivation. One of the many difficult facets of the resistance to learning construct that needs to be addressed is the nature of the relationship between motivation and resistance to learning. It seems inherently clear that there is a connection between the two, and it could seem as though the two might be, on some level, different sides of the same thing. That is, resistance might just be the absence of motivation. A closer examination, however, seems to reveal that motivational factors contribute to both resistance *and* engagement. An understanding of Goal Theory for instance, can more accurately direct us to "unmotivate" learners with regards to their avoidance goals while, simultaneously motivating them toward their approach goals. That is, learners are motivated to resist just as they are motivated to resist. The common one dimensional view of learning motivation has teachers everywhere working merely to motivate learners to "get with the program," rather than working to more deeply understand the learners' various motivations to avoid learning and resist. Viewing motivation as an explanatory backdrop for the resistance-engagement continuum (rather than just viewing it in connection with either resistance or engagement alone) can give rise to many different conceptualizations of the teaching-learning dynamic and practical applications for the teaching process.

Low Motivation Mediates Learner Resistance

Of course, there is no new revelation here. One might have suspected as much before laboring through the long pages of the previous sections. But having a feeling about something and being able to articulate it substantively are two different things. When I first began looking at motivation, I was asking, 'how is motivation related to resistance to learning?' It is my assertion that motivation, or rather, low motivation, mediates the causal relationship between all learning resistance predictor variables and resistance to learning behavior and cognitions. Preliminary results from some early studies seem to provide some evidence for this dynamic but future investigation is required (Taylor, 2010; 2016). An in-depth discussion of mediation modeling will be avoided in this context but to clarify the use of the word "mediates" the following guideline provided by Baron and Kenney (1986) should be helpful.

A variable functions as a mediator when it meets the following conditions: (a) variations in levels of the independent variable significantly account for variations in the presumed mediator (i.e. path a), (b) variations in the mediator significantly account for variations in the dependant variable (i.e. path b), and (c) when Paths a and b are controlled, a previously significant relation between the independent and dependent variables is no longer significant, with the strongest demonstration of mediation occurring when Path C is zero. (p. 1176)

In this case, it is suggested that the independent variable is any one of the constructs discussed elsewhere in the resistance literature, such as *boredom,* the dependent variable (outcome) is the resistance behavior or cognition, and the mediator is low motivation. Using the Baron and Kenny (1986) criteria of mediation, that low motivation can be said to be a mediator if: (a) variations in the level of boredom in an individual result in a significant variation in the level of motivation, (b) variations in motivation significantly account for variations in resistance behavior(s) or cognition(s), and (c) when motivation is controlled for in analysis, the previously significant relationship between boredom and the resistance behavior(s) and cognition(s) is no longer significant.

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Studying Learning Resistance Beyond Motivation Is Both Positive and Important

Another early question was, given the relationship between motivation and resistance to learning, and the extensive focus on motivation in educational psychology, why is it important to formulate a model of resistance to learning*?* This is related to the question of why one should focus on what can seem like a negative dynamic (learning resistance) rather than a more positive approach based on human strengths (positive psychology). In keeping with this dichotomy, each of these parts will be addressed in this section.

Learning Resistance Is Important

First, when studying motivation, one is often studying the underlying mechanisms by which human motivation is powered. This indeed is a helpful enterprise for many reasons, not least among them the opportunity to understand such mechanisms in a way that will allow the would-be motivator to more successfully and efficiently develop motivational practices and programs. Simply put, we apply more efficiently and successfully what we understand more deeply and clearly. There are however, practical limitations of this line of study in that one must often engage in great effort to usefully apply the knowledge.

Motivation, often a supremely practical phenomenon, suffers the same natural theory-practice gap as does any other element or factor subjected to scholarly examination. On the other end of the spectrum, in the anecdotal realm, teachers, coaches, business owners, managers, and parents, dedicate great focus to understanding the practical, day-to-day components of motivation. In these cases, what motivates takes precedent over an understanding of why it motivates. Again, simply put, the pragmatic is in most cases not subject to the theory-practice gap for the fundamental reason that it is created and recognized in action (in situ) while embedded in a physical context. And herein lies the connection to the approach chosen here to examine the overall dynamic from the resistance end – it is at once both learner-centered and pragmatic.

Learning Resistance Is Not Deficit-Based

Second, choosing to examine teaching and learning from a learner resistance perspective, is simply not based on a "deficit model." However, it is a reasonable assertion, at least on the surface, and should be answered. The rise of positive psychology has brought with it, like almost all things, both good and bad, useful and problematic. While shifting the focus to human strengths, and away from the places where human beings were demonstrating weak or damaged behavior, and/or behavior of which greater society disapproves, it also brought with it a pendulum swing to the other side of balance where only human strengths can be looked at, and all other approaches are potentially negative and marginalizing.

At a closer look, however, that situation cannot be applied to the present case for at least one clear reason. The conception of learning resistance provided in this chapter is, as I have already pointed out, not about negative behavior, per se. Rather it is about a lack of openness and engagement in the learning process writ large. In fact, many times the resistance that learners invoke in a given learning situation is well-merited and represents rather sound decision-making. Brookfield (2006) pointed this out while weighing in on the subject some years back (though he was defining resistance in a slightly different way, perhaps).

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In this case, it is the lack of openness that is the problem, not the behavior that indicates its presence. In this case, there is no a priori assumption that something is "wrong" with the learner to begin with. There may be, in fact, an assumption that something is wrong with the *environment*. Looking at learning resistance is about attempting to find out what is going on, from the learner's perspective, and seeing if anything can be done about it.

Going further, specifically because of, rather than despite the direction it approaches from, learning resistance scholarship is highly learner-centered and practical. Learning resistance scholarship starts with the individual learner, asks what that individual learner is doing, asks the individual learner why she or he is doing it, and then sets out to rectify the situation and create a more efficient learning environment.

Trying to improve everything that is going well in a learning experience, and choosing to boost the individual strengths of the learners in a given learning situation, is not the same thing as attempting to address the learner's actual difficulty in the first place. When a student engages in learning resistance in the classroom, there is always a reason. Some of these reasons may be deemed more legitimate by some than others, but it would be difficult to deny the presence of a reason to being with. To mitigate learning resistance is to give voice to the learner and to address the specific reason that the learner is consciously or unconsciously, closing off to the given learning experience. Because of this, it is both learner-centered, as well as practical.

Finally, to add the power of anecdote, one might consider that when visiting a restaurant and having a particularly serious problem while attempting to dine, anything short of the manager acknowledging and addressing the specific problem would come across as somewhat less than helpful and probably a little marginalizing as well. Hearing the manager prattle on about all of the positive points of the experience would most likely not satisfy the customer.

Meeting the learner where they are, connecting with the learner, and helping the learner shift to a place where the material can be critically and openly reflected upon, is an intensely leaner-centered and service-oriented way to give voice back to the learner.

As such, the line of scholarship itself simply must not be confused with the given ways that resistance mitigation skills might be evoked (negatively) from time to time. What the ability to mitigate learning resistance is, and how one uses that ability are two distinct things, much like how the power of education and how it is used are different things.

The development of a comprehensive understanding of learning resistance and the motivational theories to which it is connected represents a complex integration of these two realms of investigation. While each of the two approaches is useful and important on its own merit, a combination of the two into something which will provide specific practice-related implications and detailed plans of action, while at the same time being based upon the great and empirically honored canon of motivational research can only serve to advance the progress of academic and practitioner alike. The combined strength of these two approaches could provide invaluable support to the world of professional training and development in a way that neither of the two formerly mentioned approaches could on their own.

CONCLUSION

When looking at all of these motivational theories together a number of observations are salient. First, nearly all of the theories are related in some way or another (with some exceptions), drawing from many of the same concepts and factors but viewing them in different light and placing them in different levels

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of prominence. This assessment serves to bring to the forefront the impossibility of reducing the concept of human motivation into one concise generalizable theory (a pursuit driven by theoretical reductionism). It may be that the best way to view these theories is as "different lenses, each of which may be particularly capable of revealing certain features" (Rosen, 2006, p. 53).

Second, motivation is linked to both engagement and resistance. While traditionally teachers and trainers speak of ways to motivate their learners/students, meaning motivate them to learn. Less is said about specifically seeking out the valid motivations learners may have for avoiding the stress of learning and attempting to demotivate learners in those particular areas. Seeing motivation as a bi-directional dynamic by viewing it as a backdrop for a continuum that stretches between resistance and engagement, provides a way of speaking about and addressing these issues more fully and holistically.

Third, resistance to learning, no matter which construct of the given model is utilized, is likely mediated by low motivation. That is to say, each of the potential causal factors cause resistance behaviors and cognitions because of the state of reduced motivation produced from that causal factor.

Fourth, learning resistance research is not based on a deficit model of human learning. Focusing on learning resistance as one (of many) points of departure when facilitating learning is a very learner-centered approach in that it comes alongside the learner, attempts to understand the learner's world, and moves in a collaborative manner with the learner from resistance to engagement. Acknowledging learner resistance respects and promotes the dignity of the individual learner.

Fifth and last, despite the close connection with motivation, resistance to learning is important to address because of its real-world, pragmatic, and anecdotally recognizable features. Put another way, motivational theory represents an underlying mechanism (or, more accurately, mediation) for a much more visible set of constructs and behaviors. In an organizational setting it would be a great deal more practical and beneficial to address overconfidence among employees and related corrective measures, than to discuss in-depth, theoretical motivational constructs.

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KEY TERMS AND DEFINITIONS

Emotion: Physiological response to stimulus.

Feeling: Totality of feeling and cognitive assessment/assignment of that feeling in relationship to the context.

Learning Engagement: The intentional mobilization of emotional, physical, emotional, and cognitive resources toward learning in a given situation.

Learning Motivation: Processes that give rise to energy and direction for learning engagement.

Learning Resistance: A state in which a learner is not open to learning in a specific learning situation as demonstrated through either active rejection or passive disengagement.

Learning Resistance Approach (LRA): An approach to fostering learning that attempts to understand, from the perspective of the learner, the many potential reasons why that learner might fail to engage in a learning situation, and then seeks to address those concerns through curricular, and instructional changes.

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Chapter 13
Social Justice and Advocacy in University-Based Play Therapy Training Clinics

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ABSTRACT

This chapter examines how university training programs and clinics can help play therapists develop social justice advocacy competency. Developing social justice advocacy can help play therapists understand social inequalities and oppressive systems, experience empathy with clients, and integrate advocacy action into their work. Training programs can help facilitate social justice advocacy for students through curriculum focus, service learning, and continuing education opportunities that promote awareness and empathy. Play therapy services offered in university clinics also offer opportunities for interns to increase understanding of social justice advocacy through client interactions and clinical supervision. Clinic directors promote social justice advocacy through managing just organization procedures and coordinating advocacy and outreach initiatives.

INTRODUCTION

According to the *Play Therapy Best Practices: Clinical, Professional, & Ethical Issues* published by the Association for Play Therapy (APT, 2016), training programs should include a focus on diversity issues. This is imperative as play therapists are serving increasingly diverse clients. Currently, almost half of children in the United States are racial and ethnic minorities, and it is estimated that more than 64% of children will be from racial and ethnic minorities by 2060 (Colby & Ortman, 2015). Mental health

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practitioners need cultural competence to respond to the needs of children and families in an increasingly diverse society, and the need for multicultural play therapy has been addressed in the play therapy literature (e.g., Davis & Pereira, 2014; O'Connor, 2005).

In addition to developing multicultural competence, mental health practitioners provide social justice advocacy to better serve clients. This is an intentional practice of seeking to meet the needs of disenfranchised clients based on an awareness of privilege, social inequality, and oppressive systems. Social justice advocacy can help clinicians understand and address the effects of social equalities and oppression on well-being. One framework for the integration of multiculturalism and social justice is provided in the Multicultural and Social Justice Counseling Competencies endorsed by the American Counseling Association (ACA; Ratts, Singh, Nassar-McMillan, Butler, & McCullough, 2015, 2016). To facilitate the development of these competencies, mental health training programs are tasked with providing education and supervision for mental health practitioners (Ratts et al., 2016). Play therapy training programs also need to provide multicultural training and awareness for play therapists on issues of diversity and social justice (Parikah, Ceballos & Post, 2013). Specifically, Parikah and colleagues (2013) recommended play therapists engage in "empathy training, activities that increase dialogue and immersion, the use of case studies, and role play . . . to increase their empathy and challenge their [belief in a just world], which may lead to an increase in their [social justice advocacy]" (p. 250). Parikh and colleagues (2013) suggested social justice advocacy attitudes could help play therapists enhance empathy in relationships with children and integrate advocacy into their work.

Despite recognition of the need for social justice advocacy training for play therapists, APT's (2016) guidelines have little to no information on advocacy, outreach, or social justice work. Therefore, this chapter provides university based play therapy training clinics with information on furthering social justice advocacy competencies in training programs with recommendations for training, clinical services, advocacy, and outreach efforts.

TRAINING PLAY THERAPISTS FOR SOCIAL JUSTICE ADVOCACY

Mental health practitioners recognize cultural competence and social justice as components of ethical practice (ACA, 2014; APA, 2017; NASW, 2017). Social justice includes understanding issues of oppression, privilege, and equality and taking social action for equity (Lee, 2012). Mental health practitioners use this understanding to provide social justice counseling considering "the impact of oppression, privilege, and discrimination on the mental health of the individual with the goal of establishing equitable distribution of power and resources through social advocacy" (Chang, Creather, & Ratts, 2010, p. 84). These principles and practices are rooted in a belief in a just world where all people have access to resources needed for physical and mental health. This professional call for social justice is embodied through advocacy actions with and for clients at various systemic levels.

To prepare mental health practitioners for multicultural and social justice counseling, training programs need to increase students' self-awareness, knowledge, and skills to take action (Ratts et al., 2016). Training that encourages advocacy action may be particularly salient given potential gaps between social justice advocacy perceptions and practice. Steele, Bischof, and Craig (2014) found many counselors believed social justice advocacy was important but fewer reported engaging in social justice advocacy action. Therefore, additional professional development and training may be needed to prepare mental health practitioners for advocacy action. Play therapy training programs can help address this through

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curriculum and continuing education. All of these training efforts help prepare students for clinical work in a university based play therapy training clinic and in future practice.

Graduate Coursework

Play therapists can develop social justice advocacy perceptions and practices when engaged in classroom instruction across the curriculum. Providing opportunities for reflection, experiential learning, and application helps students develop as social and advocacy-oriented practitioners (Hill, Harrawood, Vereen, & Doughty, 2012). To facilitate knowledge on counseling children in the training curriculum, instructors are encouraged to include case study examples of children. Instructors can also help play therapy students gain knowledge through a systems approach to client conceptualization and treatment planning. As students reflect on case examples, they should consider experiences of oppression, ecological factors, and therapeutic needs for children and families.

Even in classes that traditionally focus on adult clients, instructors could help play therapists develop social advocacy by incorporating examples of the impact of parental behaviors or mental illness on children and families. For example, discussing parental addiction and incarceration in an addictions course can help foster students' advocacy knowledge and skills when providing play therapy for families with these experiences. Case examples in psychopathology or diagnostic courses can include childhood examples of mental illness. Infusing discussions of childhood adversity and trauma across coursework can help play therapists gain perspective on systemic barriers and marginalization experiences connected to discrimination, poverty, homelessness, immigration, or mental illness. Also, students should develop an understanding of inequities in educational settings to more fully understand systemic barriers faced by school-age clients. Students should be encouraged to reflect on their developing awareness through class discussions and journaling for increased personal insight and growth.

Play therapy training programs offer play therapy specific coursework, such as Introduction to Play Therapy or Advanced Play Therapy courses. Assignments in these courses offer opportunities for experiential learning to develop multicultural and social justice counseling skills. APT (2010) provides a sample syllabus of an introductory play therapy course that recommends teaching practices in the course that help students "1) become and remain aware of their own cultural backgrounds, influences, and biases . . ., 2) acquire and continuously seek knowledge about how cultural backgrounds, influences, and biases operate in the lives of their clients, and 3) demonstrate culturally-appropriate therapeutic skills" (p. 3). These guidelines demonstrate the process of developing cultural competency. Within an introductory course, students can reflect on the influence of their culture on personal childhood play, cultural and diversity considerations when selecting materials for the playroom, and cultural implications when working with children experiencing adversity and oppression. Reflective practices in the course should help play therapy students explore biases and assumptions that can hinder empathy (Parikh et al., 2013). Students should also have opportunities for experiential learning, such as role play and providing practice play sessions with a "normal" child (APT, 2010). With this work, play therapy students could also reflect on cultural influences in the relationship established with the child and have opportunities to practice clinical conceptualizations from a systems perspective to prepare for social advocacy.

To help play therapists develop a systems perspective, graduate instructors can introduce Ecosystemic Play Therapy (O'Connor, 2016). Ecosystemic Play Therapy is a metatheory that requires play therapists to recognize and respond to the contextual systems of the child and family. This approach could help play therapists learn to consider how the child's presenting problems are linked to difficulties in vari-

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ous systemic levels (e.g., individual, caregiver, school, community, medical, judicial) and to develop treatment goals that meet client needs in these systems. Within this approach, students should be taught appropriate advocacy roles and personal and professional boundaries (O'Connor, 2016). Introducing this content and systems perspective can help play therapists understand the impact of various systems on children and learn to intervene for and with clients for social justice and advocacy work.

Graduate coursework in filial therapy is also recommended in university play therapy training to prepare play therapists for social justice advocacy work with families. Indeed, the preface for Landreth and Bratton's (2006) filial training text states mental health professionals must "empower parents to become therapeutic agents with their own children" (p. viii). Filial therapy has been implemented with families from diverse racial and cultural groups and with various presenting problems. For example, research supports filial therapy interventions with various trauma histories, including abuse (Costas & Landreth, 1999), family violence (Smith & Landreth, 2003), parental incarceration (Harris & Landreth, 1997), and foster care (Carnes-Holt & Bratton, 2014). These vulnerable children with trauma histories are often involved with child welfare and social service agencies, and play therapists need an understanding of these experiences and systems for social justice advocacy. Teaching filial therapy approaches to play therapists provides them with advocacy skills and knowledge that can be used to equip and empower caregivers with needed support and resources.

Service learning offers another opportunity to prepare play therapists for social justice counseling and advocacy through application of play therapy skills. Service learning should provide volunteer service opportunities in the community that are beneficial to participants and students (Baggerly, 2006). In addition, service learning activities include reflective practices for students to synthesize learning across contexts. Parikh et al. (2013) suggested activities that increase immersion could help play therapists develop empathy and gain new perspectives towards social justice advocacy. Several examples of play therapy service learning opportunities are found in the literature. These include play therapy at a federally funded preschool (Thanasiu, Rust, & Walter, 2018), play therapy at an elementary school with a play buddy program (Smith-Adcock et al., 2012), group play therapy services at an after-school care center (Baggerly, 2006), and an 8-week filial group for urban preschool parents (VanderGast, Post, & Kascsak-Miller, 2010). Graduate students provided play and filial services for high poverty children and families in each of these service learning examples. These examples highlight the mutually beneficial design of service learning activities that promote student learning and meet community needs. When designing service learning opportunities, course instructors and clinic directors should infuse social justice advocacy opportunities within communities where no cost play therapy services may be most needed.

Continuing Education

Universities can also provide play therapy training through continuing education opportunities. Since play therapists need continuing education in multicultural issues (APT, 2016), university based play therapy training clinics can offer training and help develop social justice competency for play therapists working in the community. For example, training clinics can host a summer play therapy conference. At the conference, affiliated program faculty can provide play therapy professional development for school counselors and community partners. Professional development with a social justice focus could include education on using play therapy to foster resilience for children and families from diverse cultural backgrounds or on advocacy approaches given disproportionate rates of adverse childhood experiences for children of color and children living in poverty (Sacks & Murphy, 2018). Clinic directors should use their

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awareness of community needs to inform topics of focus. For example, community needs assessments (such as those conducted by the United Way or other non-profit agencies) may highlight mental health or wellness needs of children and families. Clinic directors could connect professional development to this data to help mental health practitioners and play therapists respond to community needs. These efforts help integrate social justice and advocacy into professional development offered by the university based play therapy training clinic.

PROVIDING PLAY THERAPY SERVICES

Play therapy training clinic directors seek to provide exceptional clinical training experiences for students and play therapy services for clients. Promoting social justice advocacy in the play therapy training clinic involves careful reflection on organizational procedures and clinical supervision practices that affect the learning and experiences for students and clients.

Organizational Procedures

When providing play therapy services in a university based play therapy training clinic, one strategy for promoting social justice advocacy is to provide services at an affordable rate or through a sliding scale. Providing services using a sliding scale fee is common practice in university training centers (Aubrey, Hunsley, Josephson, & Vito, 2000). The sliding scale fee is typically set based on the client's income and number of people in the household. When clinics offer services at a reduced rate or pro bono, they enable access to play therapy for marginalized populations without creating a financial barrier. University based counseling clinics or play therapy training clinics often serve populations that belong to a lower socioeconomic social class bracket. When fees for services are adjusted to a level that is commensurate with the client or families' ability to pay, client attendance and outcome are not impacted (Clark & Kimberly, 2014). Some practitioners may argue against setting differential or sliding scale fees; however, the literature suggests that differential fees set according to income do not influence client attendance (Clark & Kimberly, 2014) or treatment outcomes (Aubrey et al., 2000) in any way. Therefore, offering a differential fee scale is a social justice approach to alleviate a financial burden to play therapy services for some clients.

Some strategies for supplementing fees in a university based play therapy clinic for clients with limited access to financial resources or in rural communities include eliciting gift funding from donors, applying for grant funding at the local, regional, state or federal level, or developing agreements with state agencies. Gift funding can be elicited by reaching out to the university foundation or advancement office as well as alumni from graduate programs. Previous or current faculty may be additional sources of gift funding to support play therapy services for low-income families in the training clinic. Clinic directors can also apply for grants from agencies such as the department of Health and Human Services, local and state Mental Health Boards, professional organizations, or private foundations to supplement fees for play therapy services in a university based training center. Finally, some state agencies such as Child Protective Services, departments of Child and Family Services, or state or local programs for children with disabilities may be able to support children by paying for play therapy services at a university based play therapy training clinic. Clinic directors can reach out to these partners and organizations to

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establish funding agreements, and this is a social justice advocacy approach given the potential to reduce financial barriers to play therapy services.

Clinic directors should also ensure play rooms at the clinic have diverse toys and toys that represent a variety of potential life experiences for children who may have experienced trauma (O'Connor, 2005). This is needed in social justice play therapy given disproportionate rates of adverse childhood experiences experienced by children of color and children living in poverty (Sacks & Murphy, 2018). For example, play rooms can include handcuffs, police cars, guns, and phones when working with children of incarcerated parents or victims of crime (Brown & Gibbons, 2018). Play rooms can be equipped with ethnically diverse dolls, foods, and dress up clothes to allow for expression for children of any culture (Davis & Pereira, 2014). Understanding individuals within their contexts and environments is a component of multicultural and social justice counseling (Ratts et al., 2016), so playrooms should be equipped with various toys connected to the child's related systems levels (O'Connor, 2016). Play therapy training clinic directors can help ready playroom materials for interns by considering diverse experiences of potential clients.

Before the intake session, clinic directors can develop culturally responsive organizational procedures that respect the diverse needs of clients. Culturally competent organizational procedures include offering cultural skills training for the administrative staff answering the phones in the training clinic, asking caregivers about therapist expectations and preferences, and offering intake forms in other languages (Whealin & Ruzek, 2008). Care must be taken in university play therapy training clinics to match children with play therapists with the experience and training to connect with diverse children and families. For example, if a child with a disability is referred to the training clinic for play therapy services, best practice would suggest that the child be matched with a practitioner who has experience or training in working with individuals with disabilities. Altogether, play therapists should be actively considering how diversity is connected to the experiences of the child and caregivers. It is important for children and caregivers to trust the play therapist's appreciation for the client's culture. Clinic directors can ensure multicultural training is a prerequisite for clinical experiences.

Clinical Skills and Supervision

Training clinics are likely the initial setting where graduate students provide play therapy services for actual clients. Therefore, interns will be providing play therapy with varying levels of competence and familiarity related to diverse demographic factors (e.g., ethnicity, nationality, religious orientation). For example, play therapists may have an initial encounter with children who are refugees in the university training clinic. In this scenario, play therapy interns should consider personal assumptions or perceptions about refugee status, build knowledge on the potential refugee experiences of oppression and advocacy needs faced by children and families, and review the literature on play therapy with refugee populations (e.g., Schottelkorb, Doumas, & Garcia, 2012) to apply this knowledge and skills with clients. All of this clinical work should be done with an awareness of social justice advocacy.

Evaluating clinical skill development is a crucial component of university play therapy training connected to clinical services. As students provide play therapy services in university clinics, instructors and supervisors must provide feedback on their clinical skills. One approach to documenting skill development is through a skills checklist form to provide formative and summative evaluation data. Training programs can include social justice advocacy skills on these program checklists to monitor the development of these skills.

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Social justice advocacy competencies for play therapists include skills and actions needed for working with and on behalf of individuals, family systems, institutions, communities, and beyond (Ratts et al., 2015). Examples of these competencies are included in the Multicultural and Social Justice Counseling Competencies (Ratts et al., 2015). However, many of the recommended social justice focused conversations are beyond the scope of children receiving play therapy, so conceptualizing these competencies for play therapists requires using a family systems approach to clinical services. Ackerman (2017) provided a model for integrating social justice advocacy in child welfare that may prove helpful to play therapists when working with marginalized populations. Based on these recommendations, specific competencies for social justice advocacy should include the ability to initiate conversations with guardians about ways "culture, stereotypes, prejudice, discrimination, power, privilege, and oppression" may influence presenting problems and counseling relationships (Ratts et al., 2015, p. 11). Play therapists should be ready to explore with guardians the relationships children have with family, friends, and peers. Play therapists also need skills to empower children and caregivers to identify supportive adults at school, daycare, or other relevant settings who can address inequities in those settings (Ratts et al., 2015). Play therapists may need to provide information for supervisors to be able to evaluate competency for social justice advocacy skills as some of these actions may occur during phone consultations rather than video recorded sessions in the clinic.

All interns providing play therapy in the training clinic receive clinical supervision from an individual trained in supervision methods and skills. Clinic directors and affiliated program faculty often provide supervision for play therapists or for doctoral student supervisors who provide supervision for interns. Ideally, supervisors should have play therapy knowledge and experience to supervise play therapy interns in the university play therapy training clinic. Offering group supervision from a Registered Play Therapist-Supervisor (RPT-S) is recommended if individual supervisors are not trained in play therapy. Supervisors help play therapy interns understand privilege, marginalization, and the need for establishing supportive relationships with culturally diverse children, families, and communities (Ratts et al., 2016). Additionally, multiculturally competent play therapy supervision provides space for supervisors and supervisees to explore personal culture and views on play in a supportive environment (Drewes, 2008).

One model of social justice supervision recommends supervisors engage supervisees in Goodyear's (2014) pedagogical processes of modeling, feedback, direct instruction, and self-directed learning in each of three key areas: supervisory power relations, reflective practice, and advocacy skills (Asakura & Maurer, 2018). To foster the development of social justice advocacy, play therapy clinical supervisors should directly address issues of culture and power in the supervisory dyad, discuss supervisee's values and biases that influence perceptions and advocacy behaviors, and explore strengths and areas for growth as advocates (Glosoff & Durham, 2010). Additionally, supervisors can use questionnaires or structured measures, such as the Social Justice Advocacy Scale (Dean, 2009) and Social Justice Scale (SJS; Torres-Harding, Siers, & Olson, 2012), to help play therapists explore social justice advocacy readiness and reactions to such instruments (Glosoff & Durham, 2010; Parikh et al., 2013). Play therapy supervisors help prepare play therapists to be social justice advocates.

ADVOCACY AND OUTREACH EFFORTS

There is a strong need for advocacy and outreach efforts in university based play therapy training clinics in order to both advocate for play therapy services and to advocate for marginalized populations.

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Advocacy involves using one's voice or standing to institute change (Wright & Jaffe, 2014). Advocacy is important in all aspects of mental health training, particularly when serving children who often lack the platform and power to change oppressive systems that are affecting them (Wright & Jaffe, 2014). Clinic directors have various ways in which they coordinate and provide social justice advocacy through promoting access to play therapy services, establishing community partnerships, and modeling best practices for child advocacy.

University programs increase access to play therapy services in school and clinical settings across their communities through the training of future play therapists. Social advocacy includes ensuring clients are aware of and have access to services within social institutions. University based play therapy training clinics provide access to services for clients when social institutions do not have a trained play therapist. Therefore, clinic directors should work to make other mental health providers aware of the play therapy services offered at the clinic. Clinic directors can promote awareness of services for marginalized populations by ensuring stakeholders have information about the training clinic and play therapy services. Providing flyers about play therapy services to local schools and non-profit agencies, such as those serving children and families experiencing poverty, neighborhood violence, relocation, or parental absence, may help disenfranchised families know about available low-cost play therapy services in the university training clinic.

Child Advocacy Efforts

Successful child advocacy includes efforts that seek to institute a positive change for children (Wright & Jaffe, 2014). There are different levels of advocacy depending on the population or system of professional focus. Advocacy for a particular child or small group of children is considered micro or case advocacy. Play therapists may engage in this advocacy by becoming an advocate for a child in a classroom or helping a guardian seek changes for their child. Community or group based advocacy is known as mezzo advocacy (Wright & Jaffe, 2014). Examples of mezzo level advocacy include leading a training on trauma for all educators in a school setting or advocating for a community through work at a university based play therapy training center. Advocates that work at the macro level seek to address a concern that affects a large group at the state, national, or international level. Before engaging in advocacy, it is important for clinic directors to identify end goals to appropriately identify advocacy targets (Wright & Jaffe, 2014).

Once a problem or concern has been identified for advocacy, clinic directors can determine resources necessary for an advocacy plan. The development of a coalition of allies is one way to help distribute the workload of advocacy within the organization and to recruit other professionals to help with the project. This could take the form of a board or committee, and is typically an alliance of individuals, organizations, or other like-minded individuals who are acting towards a common goal (Wright & Jaffe, 2014). Play therapy training clinic directors could be involved with a regional coalition of child and family mental health providers. Such groups could meet monthly or quarterly to discuss trends and support social change in the community. If seeking to start a coalition, clinic directors should identify potential partners (e.g., partnering school counselors, referral agency staff, program alumni, play therapists, and other faculty) and develop objectives for the coalition.

Elements of child advocacy include engaging allies, utilizing media, and blending micro and macro advocacy to institute change (Wright & Jaffe, 2014). Although there are various approaches to child advocacy described in the literature, organizational advocacy is the primary focus here given the scope of professional responsibilities for university based play therapy training clinic directors. Organization

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advocacy includes efforts by an individual within an organization (typically with a professional role) that aim to change practices for working with children or families.

Wright and Jaffe (2014) provided six steps for successful child advocacy developed from their professional experiences and practice in child advocacy. Following is a description of each step and potential application of each organizational or political advocacy step for university based play therapy training clinic directors.

Step 1: Knowing Your Issue

Knowledge is power when it comes to advocacy. Individuals cannot advocate for a population or change without fully understanding and knowing the important aspects of the situation. Advocates should be able to effectively and succinctly describe the issue to stakeholders, decision makers, gatekeepers, and others directly involved (Wright & Jaffe, 2014). For play therapy training clinic directors, this step involves determining which level of advocacy is most relevant (e.g. micro or macro) and the specific needs of the clients and potential clients in the center. For example, play therapy training clinic directors can use community data to identify a need in the community for access to mental health care for marginalized populations, including children. Based on the evident needs in the community, play therapy training clinic directors could determine a need to provide filial therapy groups to underserved caregivers in financial need in the community at no cost.

Step 2: Research for Background and Impact

Step 1 and Step 2 go hand-in-hand since research is necessary in order to have knowledge on the issue. The research step involves systematically gathering information to support the advocacy plan and to educate others about the issue. It is important to not only research the background of the issue but also the impact change could have on the community. Research can take the form of surveys, focus groups, previous research studies, interviews, census data, or demographic data (Wright & Jaffe, 2014). Following the example from Step 1, this step would involve researching funding sources at the community, state, or federal level that target services for children and that support your advocacy plan. The clinic director or group may need to research funding opportunities that support services for children and families.

Step 3: Preparing Effective Materials

Once the issue has been identified and research has been gathered, organizational advocates can prepare materials to distribute the information to decision makers, gatekeepers, team members, and allies. The development of a summary sheet is a succinct way to distribute the information to key stakeholders (Wright & Jaffe, 2014). Information can be shared in a variety of ways, including email distribution, town hall meetings, social media, or focus groups. The way that information is shared is not as important as ensuring that key stakeholders receive the information (Wright & Jaffe, 2014). Continuing the example provided in previous steps, the clinic director could prepare funding proposals or letters of intent, including proposed budgets, requesting financial support for clinic services or materials and submit these to potential funders.

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Step 4: Making Meetings That Work

Organizational advocates can next plan strategic meetings focused on accomplishing the advocacy plan. It is important that the individuals involved in the meetings are key stakeholders (i.e., decision makers or gatekeepers with access to decision makers) who can help put the advocacy plan steps into motion. It is during this step that the work from the previous steps will pay off, as advocates who are knowledge about the plan, have researched both the issue and the impact of the solution, and have developed effective materials will be more successful at making the meetings work (Wright & Jaffe, 2014). For this step, the play therapy training clinic director would schedule meetings with potential donors of funding sources to present the materials. They may also meet with potential partners in the community to strategically develop partnerships, including referral sources or agencies that provide similar services.

Step 5: Conducting Strategic Follow-Up

In order to stay on the radar of decision makers and gatekeepers, organizational advocates must schedule strategic and appropriate follow-ups. Also, advocates need to understand the steps necessary for decision-making and action to reach the advocacy goals. Actions in this step include following up and providing updates to other key stakeholders, including fellow advocates and allies, on the progress of the project (Wright & Jaffe, 2014). Following the example, the clinic director could follow-up with the funding source on the decision of the funding or keep the funder appraised of the process of the application for funding or request for funding.

Step 6: Reinforcing Successful Advocacy Outcomes

Reaching step six implies that the advocacy plan has been either fully or partially successful. During this step the advocate works to ensure that lasting bonds are created with key stakeholders and that the advocacy project goals are reached. One way to maintain positive relationships with stakeholders is to thank them in a meaningful way. This could be as simple as a card or as elaborate as a press release. It is important to tactfully determine the appropriate way to thank stakeholders as some may require a public display of gratitude, via a press release or social media, while others may be embarrassed by such a public display and may wish to remain anonymous. It is imperative for future work together to determine the best way to recognize the key stakeholders for their work on the advocacy project (Wright & Jaffe, 2014). For example, play therapy training clinic directors may submit an announcement to the university marking team or campus news to publicize grant funding. Touting successes can generate awareness of play therapy clinical services and thank donors.

Altogether, these steps demonstrate the potential for university play therapy training clinic directors to engage in organizational advocacy within their roles and responsibilities. Training clinic directors may already be tasked with fundraising and developing community partnerships. Following these steps for child advocacy (Wright & Jaffe, 2014), university play therapy training clinic directors may be more cognizant of strategic social justice advocacy efforts that may expand play therapy services to marginalized children in the community.

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Outreach Efforts

With awareness of the impact of oppressive systems on families and children, play therapy training programs and clinics may develop outreach efforts. Outreach efforts work to address the barriers experienced as a result of societal inequities while also highlighting the societal problems that impact children and families (Ratts et al., 2016). Clinic directors can further outreach efforts by integrating clinic services and programs into their local community. To help understand the needs of the community, clinic directors could invite members of the community to serve on the clinic's advisory board or could join community organizations. Another strategy for integrating the clinic into the community is to provide workshops or professional development opportunities to local educators, school counselors, or mental health providers. Clinic directors could also use the location of their clinic in the community to provide preventative outreach opportunities to families in the community. For example, directors could partner with local child care centers and preschools to provide outreach filial therapy groups for guardians to learn play therapy skills as a preventative and social justice strategy. Finally, training programs can work with schools and community mental health agencies to develop practicum or internship placements to provide play therapy services as center outreach and with center supervisors, especially in rural areas lacking supervisors with play therapy experience or the RPT-S credential.

Another example of how training clinics can facilitate outreach is through the development and use of mobile play therapy kits or portable play rooms. An example of this work occurred in Ferguson, Missouri as students and faculty provided a social justice outreach response by taking mobile sand trays and symbolic figurines into the community during a time of violence and community mourning (Bray, 2014). Students and faculty set up counseling tents to provide space for community members to talk and create scenes in sand trays, and community members were able to communicate their feelings and have space to be seen and heard. Community members were also provided information about free or low-cost counseling services in the university based training clinic or other local mental health agencies (Bray, 2014). This outreach work provided a way for students and faculty to be involved in social justice action in the community.

Finally, university based play therapy training clinics could coordinate play therapy outreach opportunities that offer mobile play therapy activities in the community. Outreach play therapy teams engage children and adults in brief play interventions, allow individuals opportunities for self-expression through play, and provide participants additional information about clinic services. Training clinics could assemble mobile play therapy kits with activities such as sand trays, story stones, or art making activities to engage individuals at community events or agencies. These mobile play therapy outreach efforts would require recruiting a team of students and faculty who have play therapy training. Ideally, the team members would be completing clinical coursework in the affiliated training program or be able to count the hours as direct client contact towards the Registered Play Therapist credential or licensure. It is important to ensure that all students and faculty interacting with individuals in the community on behalf of the clinic are carefully trained in play therapy and mobile play therapy techniques and under supervision while completing outreach interventions. To ensure appropriate outreach training, the training clinic director might host a targeted training for the team to learn the techniques that will be used. Potential settings where mobile play therapy outreach teams could have an outreach table or booth include back to school fairs at partnering schools, community mental health or health fairs, university sponsored events, and community events such as festivals with an area designated for children. Bringing play therapists from the clinic into the community increases visibility and access to services.

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Case Example

Dr. Ana Griffin, Clinical Director of a university based play therapy center, was aware of the high rates of trauma exposure for children in a local school district that frequently hosted interns and employed graduates of the training program. Dr. Griffin met with school district administrators about available clinic services. Based on the mental health needs described by school district leaders, Dr. Griffin viewed expanding clinic play therapy services as a priority. Fitting with her professional role, she approached the steps to organizational child advocacy by gathering additional data from school district stakeholders (including administrators, counselors, teachers, and parents) about the needs of children. In addition to learning more about the prevalence of some trauma experiences, she learned that distance to the university clinic, transportation, and misinformation about mental health were reported barriers for services. With this knowledge, she researched grants that could expand play therapy services into schools during the school day to address distance and transportation concerns and prepared a funding proposal to purchase play therapy materials needed for expanding school-based services. Dr. Griffin also met with her advisory council and school district leaders to develop strategies for providing information about mental health to caregivers, and the team identified several outreach strategies, including running ads about the play therapy clinic in the local newspaper and hosting mental health focused parent workshops at schools, the library, and several churches across the region. The school leaders also planned to include professional development for teachers about mental health and provide teachers with strategies for talking about mental health concerns with caregivers during meetings or over the phone. Dr. Griffin organized a meeting with several community partners, including leaders from the county public health department, school district, child social services, and a few potential funding donors. At this strategic meeting, she presented demographic data on the community, mental health needs, strategies for addressing some of these needs, and a proposed budget. In the weeks following this successful meeting, she contacted donors and followed up with identified leaders on the various initiatives (e.g., workshops, professional development, advertising for clinic services). After six months, she secured a $10,000 donation to expand play therapy services in the schools and community. Dr. Griffin's leadership and partnerships with the school district stakeholders brought micro and mezzo level changes through increased play therapy services via interns at schools and affordable services at the university clinic. Also, this advocacy facilitated change for children and family systems as more caregivers received critical information about mental health through clinic outreach efforts.

IMPLICATIONS FOR CLINIC DIRECTORS

It is important to acknowledge these efforts to develop social justice advocacy take time and collaboration to implement. Although clinic directors may primarily interact with their program's graduate students in the clinic setting, the training for social justice advocacy work begins prior to clinical practice. Therefore, clinic directors need to build collaborative relationships with course instructors so that social advocacy is being promoted across the curriculum before play therapists see their first clients. To promote these efforts, clinic directors can share resources or ideas for class activities and service learning as outlined. Also, there may be varying attitudes and perceptions about the importance of professional social justice advocacy (Steele et al., 2014), so clinic directors may face resistance to proposed recommendations for

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a social justice advocacy curricular emphasis. Regardless, clinic directors can consider ways to partner with other faculty to further social justice advocacy before clinical interactions.

Clinic directors must also consider their resources and gather support for policy or practice changes in the clinic that further services to marginalized populations. Grounding these efforts in data is an important component of effective practice. Clinic directors could collect data (e.g., client demographic information, student perceptions of preparedness on social justice work, and clinic program evaluation data) to identify areas for social justice advocacy focus. Given the various responsibilities and demands on the clinic director's time, clinic directors may invite clinic workers or doctoral students to help plan play therapy continuing education events or organize outreach efforts at the onset of this work. Inviting doctoral students to help with these efforts also provides leadership and advocacy opportunities and can allow for easier implementation of large projects. Additionally, developing an advisory council that involves various stakeholders (e.g., community members, faculty, students, play therapist supervisors, representatives from partner agencies) provides guidance and accountability for social justice advocacy efforts as well as strengthens support for the training clinic. Involving these various stakeholders can help social justice advocacy development become a program initiative beyond the training clinic setting.

If serving marginalized children and families with a commitment to social justice advocacy, clinic directors need to be prepared for some of the barriers that may limit access or continuation of play therapy treatment. For instance, guardians may have difficulty arranging or bringing children for play therapy services due to access to transportation, communication methods, work schedules, language, or finances. With these barriers, clinic directors may notice premature termination of play therapy services. If clinic directors are committed to social justice advocacy, then they should consider how their clinic is accessible and approachable for diverse clients and families to potentially mitigate some of these barriers. There may need to be changes in policies and practices as clinic directors consider ways in which the play therapy training clinic can best serve marginalized populations.

Clinic directors are responsible for ensuring the best treatment for clients and optimal training experiences for play therapists. One training clinic procedure for monitoring client satisfaction with therapeutic services is using a self-report rating scale that measures client outcomes during therapy and the quality of the therapeutic alliance. Examples of these type of measures are the ORS (Outcome Rating Scale) and SRS (Session Rating Scale) (Duncan et al., 2003; Miller, Duncan, Brown, Sparks, & Claud, 2003). There are two versions of the rating scales designed for children (CORS/CSRS) and young children (YCORS/YCSRS). The CORS/CSRS has been normed for children ages 6 to 12 while the YCORS/YCSRS has been designed for children below 6 years of age (Bertolino, 2018). These evaluation procedures may need to be adapted when providing play therapy based on developmental level or other cultural factors of children. Given the developmental level of children, parents or guardians are likely better informants about child progress and behaviors outside of the playroom. If evaluation procedures are in use, clinic directors should review these report forms to monitor the effectiveness of play therapy for all clients.

Additionally, these types of evaluation procedures need to be considered from a social justice perspective. Ratts et al. (2016) outlined the importance of conceptualizing implications of power and oppression in the counseling relationship for various domains, including that of the privileged counselor and marginalized client. Regardless of theoretical approach to play therapy, there is an inherent power differential involved in play therapy given the play therapist's privilege of age, and many clients will have other marginalized identities. If using an evaluation procedure such as the CORS/CSRS or YCORS/YCSRS (Duncan et al., 2003; Miller et al., 2003) as a standard practice in the university training clinic, clinic directors should acknowledge that these evaluation forms may not provide accurate clinic data.

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Instead, they offer a tool for feedback that should be considered within a social justice paradigm. Children may not be ready or able to provide feedback about the work of the play therapist, and these types of procedures may not be congruent with the principles of some approaches to play therapy.

CONCLUSION

University based play therapy training clinics are critical settings for play therapist social justice advocacy development. Clinic directors can integrate social justice advocacy principles into the mission and work of the training clinic through play therapy training, clinical services, and outreach efforts. Just as suggested for play therapist social justice advocacy development, clinic directors can begin the process by reflecting on their personal social justice competence and advocacy action. Engaging in this reflective practice can help clinic directors determine priorities and create action plans for furthering the emphasis on social justice advocacy. Ultimately these efforts can help play therapists meet the needs of all children and families that can be served through university based play therapy training clinics.

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KEY TERMS AND DEFINITIONS

Advisory Council: A group of stakeholders who provide guidance and support for a program or initiative.

Advocacy: A practice of using one's voice to institute change at an individual, institutional, systemic, or political level.

Cultural Competence: The ability to recognize and understand personal culture and the complex ways this intersects with the client's culture and can influence the therapeutic relationship. Cultural competence includes recognizing and responding to different cultures and is a lifelong endeavor.

Marginalized Populations: Groups and communities which are discriminated against and excluded from mainstream social, economic, cultural, or political life based on a cultural identity or difference. Examples include, but are not limited to, race, religion, age, gender, or financial status.

Mobile Play Therapy: An approach offering play therapy outside of traditional office settings. The play therapist takes materials to client settings.

Multiculturalism: The development of a philosophy that encourages an understanding of diverse cultures along the lines of race, ethnicity, gender, social class, religion, age, or level of ability.

Outreach: The provision of services or activities to individuals with limited access or knowledge of services.

Service Learning: Activities that involve students in community experiences that benefit others, usually involving volunteer work followed by active reflection of the experience.

Social Justice: The concept of fair distribution of resources to all individuals.

Social Justice Advocacy: Intentional actions to meet the needs of disadvantaged groups and institute change based on an awareness of privilege, social inequality, and oppressive systems.

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Chapter 14
Buddhist Approaches to Counselling and Psychotherapy:
Exploratory Discussions From Different Traditions

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ABSTRACT

Three authors from differing Buddhist backgrounds share their approaches to using Buddhism in psychotherapy. The authors argue that Buddhism itself is fundamentally a psychotherapy approach because it is essentially a prescription to end discontent and misery. This chapter provides basic points on how Buddhism can be used in counselling by discussing how different Buddhist traditions might approach counselling. This chapter also brings up reflections on how practice may differ according to experience in the fields of counselling and clinical psychology. Overall, the chapter is subdivided into six parts: (1) introduction; (2) basic tenets of Buddhism relevant to psychotherapy; (3) case study illustrations of applied Buddhism in counselling and psychotherapy; (4) discussion on reconciling differing Buddhist schools of thought in the practice of counselling and psychotherapy; (5) discussion on compatibility of Buddhist principles with applied Western philosophies and therapeutic approaches; and (6) suggestions of future directions given the current research literature patterns.

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INTRODUCTION

This chapter looks at the application of Buddhist principles within the practice of counselling and psychotherapy. The three authors who contributed this chapter are mental health workers with different backgrounds and approaches to Buddhist practice as well as upbringing. The main angle of this paper is to discuss the applications of Buddhist principles in the helping professions of counselling and psychotherapy by exploring and discussing illustrated examples from each individual author's journey as mental health workers.

The chapter begins with a general introduction to the chapter coupled with personal introductions of the three authors as a primer for the later discussion of case studies using Buddhist approaches to counselling. These introductions aim to provide some familiarity to the reader concerning the authors' backgrounds to be able to relate better to the case studies being brought up in the middle of the chapter. This introduction also touches on how religious aspects of psychotherapy has the potential for a wider reach into the larger community, especially for lower socio-economic status groups who tend to have less access and exposure to professional mental health providers.

The introduction would then lead to a brief discussion of basic Buddhism that underlies the use of its principles within the practice of counselling and psychotherapy. Given the presence of both Theravada and Mahayana traditions in this chapter, Pali, and Sanskrit terms will be used to explain certain Buddhist concepts. A short background into the spiritual development triad (*Silā-Samādhi-Paññā* / Morality-Mind Cultivation-Wisdom) within Buddhism sets the stage for concepts discussed in this section. Main concepts to be introduced are the Four Noble Truths which includes the Eightfold Noble Path; the Five Precepts of lay Buddhist practice; the concept of the Four *Brahma Viharas* (Divine Dwellings), the concept of the Three Evils – *Lobha, Dosa, Moha* (Greed, Hatred and Delusion) and lastly, the concept of *Paticca Samupada* (Dependent Origination). These Buddhist concepts are central to the practice of Buddhism that are, in turn, applied directly in attitude, behavior and observation for the improvement of individual well-being though conduct, reflection and meditation practice, regardless of cultural traditions. The mechanisms of how these concepts help with gaining insight and wisdom for better well-being will be summarized.

The brief introduction into the tenets of Buddhism will be followed by a note on Buddhism in Malaysia, describing a short history and context to which this chapter can be better understood, especially with regards to the very diverse understanding and practice of Buddhism in the country (i.e. cultural, linguistic, historical and education level). References to articles of interest will be given so as to maintain the scope of this chapter without having to digress to other discussions on the development and practice of Buddhism in Malaysia.

Following from the description of Buddhist concepts are three case studies using Buddhist principles within counselling and psychotherapeutic practice by the three authors respectively. Given their diverse backgrounds and Buddhist practice, the authors will discuss their approaches from the Buddhist traditions of Mahayana, Vajrayana and the Theravada schools of thought. These cases that are discussed come from each authors' personal experiences and are based on multiple cases combined to mask any identifiable information to protect the identity of the clients.

After the case studies, the chapter compares Buddhist principles to similar concepts within Western philosophy such as Stoicism, and contemporary applied therapeutic practices such as Acceptance and Commitment Therapy (ACT), Reality Therapy (RT) and Rational Emotive Behavior Therapy (REBT).

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This comparison would spell out the compatibility of using Buddhist thought within Western counselling practice given the similarities in approach to the improvement of mental well-being.

This chapter ends with a very brief review of current trends in research literature to point towards suggestions of future directions in the development of applied Buddhist practice in the field of counselling and psychotherapy. A rehash of the discussion on using Buddhist principles in methods of psychotherapeutic intervention within the larger communities will be added in to reinforce the relevance of applied philosophy for social well-being.

PERSONAL BACKGROUNDS

Overview

The three authors of this chapter have different beginnings from which they developed their understanding of Buddhism. AN comes from an English-speaking background Theravada tradition, while EM and MC are Chinese-literate and lean towards the Mahayana traditions of Buddhism. This background presentation serves to provide a frame of sort towards the understanding of the approaches to counselling and psychotherapy cases later in the chapter.

AN

AN is a clinical psychologist by training with a professional doctorate in clinical psychology from Murdoch University, Western Australia. He practiced as a clinical psychologist and a postgraduate trainer in clinical psychology for 11 years at Universiti Kebangsaan Malaysia (National University of Malaysia) before moving on to focus more on teaching and research at Sunway University where he is at the time of publication. He currently does not provide clinical consultations per se but is still much into the field of clinical psychology through research and his role as the Vice President of the Malaysian Society of Clinical Psychology (MSCP) which he founded in 2010 as the Founding President. He was also a consultant psychologist, appearing weekly on a breakfast radio show to provide discussions on mental health topics and to answer public questions about mental health issues for two years from 2015 to 2017. AN is also a sought-after speaker and consultant for various issues pertaining to mental health management.

With regards to Buddhism, AN credits his meditation practice and study of Buddhism as part of his work principles in applying clinical methods in helping people solve personal problems. AN attended Buddhist Sunday school at the Buddhist Maha Vihara in Kuala Lumpur since the age of 10. He attended a Buddhist monk novitiate program there when he was 16, under the tutelage of Venerable M. Mahinda and his preceptor, Venerable K. Sri Dhammananda Maha Thera. Growing up with Buddhism primed his venturing into meditation classes while he was on his clinical internship at a hospital in Perth, Western Australia. He met a renowned meditation teacher, Venerable Ajahn Brahmavamso then, and continued to practice meditation, occasionally joining meditation retreats in the Theravadin tradition of Buddhism.

To AN, Buddhism should be used as practical wisdom that is relatable to the general public. The practice of Buddhism personally is more to philosophy of the good life that is principle-based rather than something that is religious or spiritual. He believes that spirituality is a personal thing. Therefore, when it comes to applying Buddhist principles in therapy or counselling, he approaches it from the pragmatic perspective that is through experiential learning, which is to extract out the knowledge and answers

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from the client in providing insights to problems. This approach also encourages the client to learn as a teacher, rather than as a student. The empowerment that comes from realizing something useful, that can be taught or shared with others is more likely to be sustainable, compared to just a personalized learning. A wider perspective is obtained in that clients are better able to realize they belong to a system that is interconnected, and that there are many factors at play that contribute to their well-being in relation to others. In terms of philosophical leanings, AN also applies Taoist principles of balance and flow, as well as Stoic principles of acceptance. Both philosophies have much in common with Buddhist practice.

EM

EM is a registered counsellor, with a Master's degree in Counselling, and Bachelor degree in psychology from HELP University. Her foray into counselling began as a psychology intern at Universiti Malaya Medical Centre where she spent two years and then two more years as an intern counsellor at a number of centers including private universities, government hospital, vocational boarding center, primary schools and a refugee center. EM is currently practicing in a mental health specialist clinic, providing therapy sessions to individual clients. She is certified in Choice Theory and Reality Therapy (CTRT), which she actively uses in her practice. When working with clients, EM stresses the importance in exploring their strengths and resources in supporting their needs, by incorporating and applying different techniques and tools in helping them solve problems.

EM's approach to helping her clients in counselling is inspired by her yoga practice and meditation as well as her study of Buddhism. She was exposed to formal Buddhism at a tender age of 5 where she attended Buddhist Sunday School at the Jetavana Monastery in Kuala Lumpur led by abbot Venerable Zheng Kong. As a teenager, she became more active in engaged Buddhism where she attended a Buddhist youth camp when she was 13 years old and a Dharma camp when she was 15 years old, organized by Blia Yad Malaysia Subdivisions, under the tutelage of Venerable Hui Xian. Since then, she has been an active volunteer at Buddhist camps for children and youth. EM encountered mindfulness practice while she was on internship at a hospital, which inspired her to join Hatha yoga classes. She practices weekly meditation and Hatha yoga, with a yoga teacher whose spiritual approach is within the Mahayana Buddhist tradition.

To EM, Buddhist teaching is daily wisdom and a philosophy of life, where it's learning progresses a person towards a better self and a better life. The practice of Buddhism is through experiential learning that varies according to individuals, depending on their understanding of and connection with Buddhism. When it comes to actively applying Buddhist principles and ideas into therapy sessions, it is important to firstly understand the client's cultural background as well as their perspective of Buddhism. This would help facilitate knowledge and insights from Buddhist practice to help the client gain further understanding and new learnings about their situations in order to help him/her manage their challenges. These gains are usually internalized and help empower the client to become more adaptive in life, especially when acting according to the understanding of systemic consequences of one's action that is dynamic and constantly interacting with many other factors around them. Self-awareness of this continuous interaction could bring clients more contentment in their lives. EM also incorporates Taoist philosophy in her approach. She believes in the balance between Yin (energy of being) and Yang (energy of doing). Individuals proportionally have more energy of doing to conduct activities and roles on daily basis, it is equally important to have some time and space to nourish their energy of being for manifestation of emotional, physical and psychological health.

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MC

MC is currently pursuing a Master's degree in counselling and practicing as an intern counsellor at a Buddhist temple and also at a Christian church. At the temple, he provides individual counselling and play therapy services, while also acting as a trainer / facilitator for children and youth at Buddhist camps and as well as a trainer for the social workers. At the church, he assists the pastor in running separate groups for grief support, and special children. He also helps out in mission work. MC applies Person-centered, Satir Model and Mindfulness-Based Stress Reduction (MBSR) in his counselling sessions. He believes that clients are better able to explore their strengths and work out solutions by themselves, when their emotions are stabilized.

In terms of Buddhism, MC is an active practitioner and derives his methods from his regular meditation to help his clients to create self-awareness and relaxation through guided meditation and mindfulness-based intervention. Born into a Taoist family, MC used to participate in Taoism temple activities and is exposed to many types of Taoism ceremonies.

MC became a Buddhist at the age of 18 after participating in a Buddhist monks' novitiate program at Fo Guang Shan Centre, Malaysia. Since then, he participated in Buddhist monk novitiate programs in different countries and under different Buddhism traditions. As such, he has a wide exposure to the diversity of Buddhist traditions. He studied and practiced Mahayana Buddhism under Venerable Hui Nian from Singapore for three years and Theravada Buddhism under Venerable Uttamasara from Myanmar as well as meditation under Venerable Kassapa from Sri Lanka. MC explored Christianity for one year before continuing his spiritual journey in Vajrayana Buddhism. He practices Vajrayana prostrations daily and abides by the practices under Venerable Nubpa Rinpoche from Nepal.

To MC, the teachings in Buddhism helps improve self-awareness and provides guidance in improving daily life. One concept from Buddhism that MC relies on heavily is the concept of impermanence. He contends that the truth of impermanence helps us to be more aware of personal attachments that lead to problems, and that it is important to realize the need for letting go or detachment.

Relevance to the Community

The three authors may be from different backgrounds but the type of approaches they use from Buddhism are pragmatic and directly relevant in addressing challenges in daily life. While there are generic approaches that are easily applicable to the general public, some may be more suitable for individuals who actually believe in more Buddhist-centric thoughts and rituals. These will be expounded in the later sections of this chapter.

BASICS TENETS OF BUDDHISM RELEVANT TO PSYCHOTHERAPY

Buddhism originated from the search to end suffering. As such its philosophy and teachings are already aligned with well-being. Siddhartha Gautama's insights to his emotional troubles as a pampered prince led him to renounce the worldly life and seek methods to end his sufferings once and for all. His success in finding the answers to his questions about the eternal cessation of suffering resulted in him being called the Buddha, or "the Awakened / Enlightened One". Buddhism is basically the teachings of the Buddha Gautama that provides practitioners with the methods to manage and ultimately stop suffering.

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The Four Noble Truths

The main teachings of the Buddha are summarized into what is commonly called the Four Noble Truths. These truths provide the way in which suffering can be better understood so that it can be conquered. The First Noble Truth makes the acknowledgement that suffering exists. The Second Noble Truth states that there are causes of suffering. The Third Nobel Truth states that there is an end to suffering. This leads to the Fourth Noble Truth that provides the means to end suffering, which is also commonly known as the Middle Way, or the Noble Eightfold Path.

The Middle Way / Noble Eightfold Path

While the first three Noble Truths state that there is suffering, causes of suffering and the end of suffering, the Fourth Noble Truth details the way to end suffering with a prescription of eight qualities to develop as a practitioner. These eight qualities are:

1. Skillful thought
2. Skillful speech
3. Skillful action
4. Skillful livelihood
5. Skillful effort
6. Skillful mindfulness
7. Skillful stillness
8. Skillful understanding

The concept of skillfulness within this prescription is whatever that brings adaptation in beneficial ways and that avoids harm, while maintaining peace. It is taught in Buddhism that when one has skillful understanding of their circumstances, cognitions and behaviors, one is also likely to be skillful thus amounting to adaptive daily discipline that in the long run, reduces suffering. So Buddhist practitioners are constantly reminded to refer to this basic teaching to calibrate their attitudes and behaviors towards a balanced lifestyle where extremes are avoided while wisdom is cultivated via mindful practices such as meditation and following precepts.

The guidelines for the reduction of suffering as suggested in the Noble Eightfold Path can be divided into a triad of sort that is to be observed for spiritual development in Buddhism. This is commonly known as *Silā-Samādhi-Paññā* (Morality-Mind Cultivation-Wisdom) where moral attitudes and behaviors (e.g. speech, action, livelihood, and effort) would facilitate the cultivation of mental faculties (e.g. mindfulness, and stillness) that result in wisdom (e.g. understanding, and thought). The wisdom that is mentioned here refers primarily to the realizations that help stop suffering.

The morality part of practice in Buddhism is also known as s*ilā,* which is set out as daily precepts for lay Buddhist practice for personal training in the cultivation of moral qualities of the Middle Way (e.g. speech, action, and livelihood, effort). For lay Buddhist, five precepts are prescribed for daily practice as the most basic qualities to cultivate in pursuing the goal of Buddhism. These five precepts are:

1. To abstain from killing
2. To abstain from stealing

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3. To abstain from sexual misconduct
4. To abstain from false and unskillful speech
5. To abstain from intoxicating substances

The idea of observing these precepts is to provide the practitioner with a regulation in daily life that improves overall morality, which is in line with the Noble Eightfold Path. Abstaining from the five immoral actions prevents one from a lot of trouble, shame and guilt, which would hinder personal practices of mindfulness and observing peace, thus increasing suffering. The other side of these five precepts is that while abstaining from unskillful behaviors, the practitioner is also encouraged to engage in behaviors of the opposite, which are:

1. To promote kindness and compassion
2. To promote generosity
3. To promote trustworthiness and responsibility
4. To promote honesty and pleasantness
5. To promote health and well-being

The above five prescriptions to promote goodness are likely to result in well-being in others as well as the individual who does them. These plus the abstention from the listed five immoral behaviors would reduce suffering and improve well-being. So the basics of Buddhist practice are fundamentally designed for well-being and to minimize any suffering – similar to "the Good Life" preached by ancient Greek philosophers such as the Epicureans and Aristotle.

The mind cultivation part of practice in Buddhism is termed as s*amādhi,* which is usually translated into English as "concentration". However, being practitioners and amateur scholars in Buddhism, we are more inclined to use the term "stillness" because meditation requires the individual to be still and to observe the processes that occur in the mind without adding any other efforts to it. "Concentration" seems too forceful a word to use to describe an activity that is meant to be relaxing and natural.

Nevertheless, the concept of *samādhi* is, in essence, the training of the mind to be able to perceive with strong awareness, the natural processes that arise and dissipate within it. The reason for this training is to develop a level of awareness within the self in relation to the interactions with one's senses to the point of understanding perspectives in life that can help to manage daily challenges that typically bring not just dissatisfaction, but a whole gamut of emotions that disturbs the peace of stillness.

The practice of meditation is said to be the exercise for the mind, which is somewhat parallel to what physical exercise does to the body. There is no such thing as good or bad meditation because every effort to remain still and observe processes within and without strengthens the individuals mind to be better able to be clear and sharp in perceiving information. Without any disturbance that is brought about by the results of immoral activities, the meditator is better able to remain still and have a strong awareness of the processes in the present moment. A strong mind built from meditation is better able to obtain the wisdom to understand perspectives that can help solve problems of discontentment and misery.

As such, moral practices provide the foundation to a light heart that allows the mind to be clear for wisdom to arise from effortful meditation practice. This is how the triad of spiritual development is connected. One has to practice a moral code, in order to improve mindfulness practice which then results in wisdom that can help overcome suffering.

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Divine Dwelling (*Brahma Vihārā*)

The concept of *brahma vihārā* (divine dwelling) is usually used as a metaphor for good qualities that are to be cultivated by the Buddhist practitioner to facilitate better *samādhi* practice. These qualities are *mettā* (loving-kindness), *karunā* (compassion), *muditā* (sympathetic joy) and *upekkhā* (equanimity). The idea of developing these qualities comes from the immediate effect of having them, which is a general feeling of well-being, that aids cognitive and affective functioning for meditative practice.

These qualities are called Divine Dwelling because they reflect how a divine being would be and are goals that a practitioner should seek to achieve. Given that these are highly revered qualities, having them would also improve one's social standing, which then provides a more nurturing environment for the practitioner thus, reducing the likelihood of any suffering which may arise.

For example, a person who has developed loving-kindness well would come across as very warm and friendly, therefore putting people at ease, and having strong compassion would also improve empathy and care towards others. These two qualities are significant enough to be very attractive and therefore are protected from harm. Sympathetic joy is also known as vicarious joy where one rejoices with others when something skillful is demonstrated. Having such quality would give someone the impression of being supportive and nurturing. Equanimity is usually expressed as calmness and nonthreatening. So, in terms of well-being, these four qualities when cultivated exude an attractive resonance that also affects others positively.

Three Evils

While there is encouragement to develop qualities of divine dwelling as described above, Buddhists also put effort into avoiding the Three Evils, which as *lobha* (greed), *dosa* (hatred) and *moha* (delusion). Greed is expecting from the world what it cannot give you, thus increasing discontentment and hence suffering. Hatred is a strong dislike for something or someone that is usually brought on by rumination, thus increasing suffering. Delusion refers to the tendency for people to expect permanence when the truth is that every conditioned thing is impermanent. This is tied to greed where expectations of the impossible brings about suffering. Therefore, to reduce suffering is to live with less greed and hatred and to have better ability to embrace impermanence (*anicca*).

Dependent Origination

Simply speaking, the concept of dependent origination (*paticca samupada*) is the law of how suffering is caused and how it is ended, by a chain of causes. The key to the end of suffering is to be able to identify the causes that lead to suffering and to systematically stop them. Through insight that is usually facilitated by regular meditation practice and reflections of observed processes, the individual is able to detect the causes and conditions that bring about suffering, and so learns from it to prevent any further future suffering by the same causes and conditions. These causes and conditions are basically what the Three Evils are about. The law of dependent originations reminds the practitioner of the consequences of actions that occur from chains of previous actions. The insight from this law can help the practitioner decide on making changes to stop suffering and improve well-being.

While karma (or *kamma*, in Pali) is a large part of Buddhist belief, it is not necessarily beneficial to be accepting of current miseries as purely karma and to resign by nothing but just suffer. One of the reasons

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why meditation practice is important in Buddhist practice is that it internalizes the scholarly points of its teachings through practical realization, rather than an intellectualization of knowledge. Meditation is about being in the present and observing the rise and fall of phenomena occurring in the mind, and to some extent, the physical body. The basics of dependent origination applies where any addition to a chain of actions would lead to more natural consequences of whatever was added. For example, if there is already misery, and guilt is added – the misery becomes worse. In this case, guilt itself causes bad karma – propagating the cycle of shame and guilt. Therefore, to change from discontentment to contentment, there has to be a start to a chain of actions that leads to contentment. Therapy would then focus on working towards encouraging more skillful and beneficial actions to bring about better circumstances for well-being, and the cessation of suffering.

Basic Tenets but Different Traditions

These are the basic tenets of Buddhist teaching that form the bases of practice towards personal and communal well-being. Nevertheless, they may not be known or practiced by people who declare themselves to be Buddhists in Malaysia. This is due to the diversity of traditions and practices that come under the name of Buddhism, given its historical development and cultural assimilation throughout the centuries since its founding. The next section briefly discusses the context within which Buddhism is practiced in Malaysia.

Before that, it is important to name the main traditions of Buddhism. There is Theravada, Mahayana, Vajrayana and Zen of Ch'an. Some would argue that there are only two divisions where Vajrayana and Ch'an are forms of Mahayana. Nonetheless, this chapter will not make any arguments as to which division is more precise. The authors will contend with just talking from the perspectives of Theravada, Mahayana and Vajrayana. In short, the Theravada tradition, which is also called the Hinayana tradition is the predominant school of thought for Buddhism in India, Sri Lanka, Myanmar, Laos, Cambodia and Thailand. The Mahayana tradition is found in China, Vietnam, and South Korea. The Vajrayana tradition has many similarities with Mahayana practices and in some cases, are the same but only differentiated by the former being of Tibetan origins. Zen or Ch'an is usually found in Japan and Vietnam. While traditions may differ in customs and rituals, all of them are based on the basic Buddhist teaching, or *Dhamma* (*Dharma* in Sanskrit) as described above.

BUDDHISM IN MALAYSIA

Buddhism has had a long history in the South East Asian region. There are archaeological sites in the north parts of Malaysia identified as belonging to Hindu-Buddhist communities dating back to the fifth century. Currently, Buddhism is the second most prevalently declared religion in Malaysia, after Islam. Majority of people who consider themselves Buddhist in the country are ethnic Chinese and they tend to follow the Mahayana Buddhist school of thought. A smaller segment of Buddhists is from the Theravada tradition – these tend to be the English-speaking ethnic Chinese, the ethnic Thais, Sinhalese, Indians, and Burmese (Myanmar) communities. Among the ethnic Chinese in Malaysia, many practice a combination of Taoism, Buddhism, and Confucianism but would consider themselves Buddhist when asked what their religion is. More recently, in the past 20 years, the Vajrayana tradition has been growing with new centers opening around the country.

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Generally, Buddhist devotees from all traditions in Malaysia have established many centers for missionary and scholarly activities, with many coordinating multiple charity organizations and community welfare centers. Some of the Mahayana based centers are branches of very established global Buddhist organizations from Taiwan. These centers also respond to natural disasters such as floods. Some of these centers also provide mental health services. Few of these centers, usually temples and hermitage focus on the development of Buddhist monastics. As such, Buddhism is a very established religion with many organizations that work to develop its practice within the community at many different levels, from lay devotees, to intellectual scholars to monastics. Malaysia is a hub for Buddhist scholars of diverse denominations and languages in South East Asia given the number of publications that have been churned out over the years.

Given the diversity of beliefs and practices of Buddhism in Malaysia, we should be careful in applying personal understanding of the tenets or impose the more streamlined and basic teachings of Buddhism on whoever who calls themselves Buddhist. Much of Buddhist practice in the lay community are infused with rituals and supernatural beliefs, that are not necessarily the intellectual teachings of Buddhism but have many pragmatic benefits to the believers. As such the next section illustrates how diversity is acknowledged in the approaches to using Buddhism in counselling and psychotherapy.

CASE STUDIES USING BUDDHIST APPROACHES IN COUNSELLING

The Theravada Buddhist approach to practice is typically based on personal efforts in self-development in the cultivation of mind towards the cessation of suffering and ultimate enlightenment. Self-reliance is a main focus of the Theravadin practitioner. However, this differs from the Mahayana Buddhist school of thought where spiritual development is more of a systemic effort that usually involves the belief that wellness is a mutual communal concept. Therefore, approaches in counselling between the two schools of thought in Buddhism can be simplified into independent (Theravada) and interdependent (Mahayana). In the case studies below some are presented in a more individualistic approach to personal practice towards well-being while another case highlights a more relational approach to applying Buddhist principles. There are also hints of practice that are relevant to individuals who believe in supernatural powers of rituals. Without any declaration from the authors in terms of who contributed to which case, it is virtually impossible to tell which one is leaning towards Mahayana or Theravada approach. Nevertheless, it should be noted that regardless of tradition, the approaches used in psychotherapy are not identified as Theravada or Mahayana because there is no qualitative demarcation between the two traditions in their applications.

Case 1: Mr B

Mr. B was a 39-year-old corporate lawyer who was recently divorced after three years of marriage. He was the one who initiated the divorce after finding out that on top of being emotionally abused on a daily basis by his former wife, she was also cheating on him with another man. Mr. B presented as depressed with the tendency for self-blame for his situation. He was a devoted husband although he received verbal and emotional abuse from his wife who, according to him, kept insisting that he was never good enough. He felt trapped in his relationship but after realizing that his former wife was also cheating on him, he decided to call it quits and somehow reluctantly asked for a divorce. He had, in his mind, the

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perception that a good husband should stick with his wife through thick and thin, regardless of how he is being treated because he should practice compassion at all times. So, he viewed himself as a failure in being a husband as well as being someone to uphold the Buddhist qualities such as loving-kindness and compassion. This led him to feel a lot of guilt and shame with the thought that if only he did a bit more, she might have accepted him better.

Mr. B kept saying that he must have had bad karma from his past lives that led to how he was treated by his former wife. He had concepts of karma where his guilt and thoughts of being punished led to depression. He expressed the need to perform some kind of ritual cleansing to rid himself of the so-called curse due to bad karma. While Mr. B tried performing some cleansing rituals and blessings with the aid of a familiar monk, his relief was short-lived as he still kept ruminating about how silly he was to allow his wife to manipulate him and that he had lost his confidence in being a lawyer.

The therapist discussed Mr. B's understanding of Buddhism where the misconceptions of punishment and sin in the law of karma had helped him understand that all these while he was adding on the "bad karma" to himself by ruminating. Applying the concepts of the three evils – guilt itself is a form of hatred (*dosa*) towards the self which is also latched on to the idea of permanence (a delusion) – once there is understanding that there is impermanence and that there is no greater punishment than what we do to ourselves. Furthermore, he also realized that his wife was no longer with him and therefore there was no longer any manipulation. He realized that he was still living in the past. When given some guided meditation instructions on the present moment, Mr. B's regular practice helped him let go of the guilt and shame and move on to a more adaptive mindset. This included his realization that his attachment to the past was what made his misery somewhat permanent, when in actual fact, it was not. While there were still frequent relapses towards self-blame and guilt, the improved mindfulness in Mr. B helped him to be better able to gently reframe his automatic reactions to a more beneficial set of beliefs so he could move on from his mistakes.

Case 2: Madam T

Madam T was a 60 year old retired Chinese woman, who was referred by her psychiatrist for follow up treatment for depression. She had been on anti-depressant for three years prior to her visit. At the initial presentation, the client seemed to attribute her depression to hardships in the past. She acknowledged that she was not ready to let go of past troubles as well as her current ones. For this, she was brought through the discussions of the four Brahma Vihara (Divine Dwellings) of loving-kindness, compassion, sympathetic joy and equanimity, by the counsellor. After relating these qualities towards herself and her situation, Madam T was better able to be kinder to herself, and to rejoice in her own efforts through the years, as well as the efforts from her children and grandchildren. By doing this, she formed better relationships with her family members and improved in her overall emotional well-being.

As the therapeutic relationship strengthened, Madam T eventually disclosed a traumatic and miserable memory from her past. She shared that she was nearly molested by her biological father in her formative years as an adolescent, and she had a troubled marriage to her abusive husband who used her past as a threat throughout their marriage. Nevertheless, she worked hard to financially support her family of origin as well as her own family. The couple only owned their own home late in their lives. Over the years, she has lost siblings and parents-in-laws whom she was close to. Madam T was involved in family conflicts over the selling of their previous family home as coerced by her husband and spent more time in her children's homes. This led to relationship difficulties with her children and grandchildren.

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Madam T was conflicted because her Buddhist perspective sees devotion to family in her multiple roles as wife, mother and grandmother as very important in maintaining harmony in her life, but she was not able to cater to everyone's needs. At the time Madam T broke down in the session and spoke about her emotional pressure for the first time. She was very ashamed of sharing this part of her struggles and was anxious that her personal disdain towards her roles might go against her Buddhist beliefs. She believed that she was depressed because she had not done well enough in her roles and responsibilities, and she was being punished for that reason.

Similar to the other sessions discussion on loving kindness, compassion, sympathetic joy and equanimity, Socratic dialogues and discussions related to Buddhist principles helped Madam T feel that she can begin to love herself more compassionately prior to taking care of others. She was better able to gently validate and affirm her own feelings, actions and thoughts, which led to better self-acceptance and reduced depressive feelings. The therapist encouraged Madam T to reflect on how she felt about being unconditionally accepted in the therapy session, and this helped her to be more accepting of who she was and helped her believe she had an active choice to make changes for the better. Madam T had been desperately seeking reciprocal love from others that made her feel overwhelmed and confused whenever her family members did not seem to appreciate her love and care. When Madam T obtained the insight that the only person's behavior she could control was herself, she was able to let go of her expectations and practice the qualities of the four Brahma Viharas, and thus had much less blame and anger. Eventually, Madam T found some closure for her past in that she recognized it was the best she could have done then, but in the present, she has the power to make the changes she wants. She regained the sense of self-confidence and motivation to be more involved in the activities that she enjoys in her daily life, while also spending quality affectionate moments with her children and grandchildren in their house while maintaining healthy boundaries with them.

A Side Note to Case 2: Mahayana Buddhist Application of the *Brahma Viharas* (Divine Dwellings)

Following from the above case study under a Mahayana approach. This subsection explains how the *Brahma Viharas* would have been related to Madam T above. As mentioned under the basic tenets of Buddhism, the four sublime states of mind called *Brahma Vihara* (Divine Dwelling) are ideal individual practice. The *Brahma Viharas* provide guidance for challenging situations, and help individuals to regain a sense of peace, heal emotional wounds and revive joy in their lives. These four states of mind are incompatible with the negative emotion of hate. Individuals have the seed of Brahma Viharas that comes from nature rooted in their mind and heart. However, individuals do not easily discover the seed when they are shaded by the surface of what is happening and are occupied with hatred, anger, jealousy, and dissatisfaction. Through repetitive mindful self-awareness and practice, individuals can cultivate more energy to develop these sublime states of mind as a dominant perspective of mind, which is close to Brahma-like (boundless-like) state of mind. The core ideology of Brahma Viharas in Buddhist scripture of "*Āgama Sutra*" is based on continuous practice of self-purification in loving-kindness, compassion, empathetic joy and equanimity apparent to significant immediate environment to selfless immeasurable pervading of loving-kindness, compassion, empathetic joy and equanimity towards living and non-living beings in the universe (Liao Tuo, 2014).

Loving-kindness (*mettā*) describes an unconditional love that includes caring, acceptance and forgiviness towards every creature in the universe. In the Mahayana Buddhist perspective, because of one's own

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desires and confusion-driven behaviors, they become trapped in the life and death cycle of suffering. With this profound, gentle and kind of love to embrace all these beings, individuals deliver a deeper blessing by hoping that all living creatures will achieve a true sense of happiness and well-being. The ultimate meaning of love is love without possession. Absent from the idea of having, the act of showing and giving loving-kindness is a happiness and comfortable existence.

Compassion (*karuṇā*) describes a willingness to open one's eyes and heart to experience the emotions that bring pain and an intention to soothe the suffering. All beings are afflicted by emotions, confusion and suffering from birth, old age, sickness and death. Feeling of pain, sadness and distress can be overwhelming. Little did individuals realize that the suffering and sorrow they experience arise from their minds. With a little more kindness and compassion, individuals could be better at distinguishing themselves (solely as a person existed in the world) from the suffering and emotions. With a rich sense of experiencing suffering, compassion reconciles individuals to their life, to appreciate what they have, to have strengths to overcome life challenges, and to contribute whenever they could to others. A peaceful mind is the best way to eradicate misery and achieve liberation.

Sympathetic joy (*muditā*) describes the joy that individuals feel towards achievement of others (and also themselves). This joy empowers them to be freed from perceived hardships in life. When something happens according to individuals' wish, they feel happy and satisfied. At other times when others achieve certain accomplishments or have done good deeds, rejoicing with them and encouraging further accomplishment brings up good feelings in the one rejoicing, even when it was not them who directly contributed to the success. This type of joy brings a serene calmness that leads individuals to a contemplative state of mind (equanimity). Study has shown that a human brain tends to activate different processes when they feel different emotions (Etkin, Egner & Kalisch, 2011). A mind that is serene and peacefully aware can eventually allow individuals to obtain wisdom to be freed from afflictions and achieve true happiness by avoiding the causes of suffering. This is very much related to the next *Brahma Vihara.*

Equanimity (*upekkhā*) describes the abandonment of own desires, expectations and confusions in order to experience peace and stillness of mind. Life is two-sided, the end of birth is disintegration, and the end of gathering is separation. When experiencing life's journey which moves between contrasts of rise and fall, success and failure, loss and gain, individuals can feel how they respond with hope and fear, happiness and sorrow, satisfaction and disappointment. Mahayana Buddhist perspective encourages the concept of moderation. When individuals practice equanimity, they gradually give up the idea of possession, the thought of "mine". Individuals who has a mind of equanimity can empathize and accept more with who or what that stands out differently contrary to the pictures in their mind as they thought. When individuals demonstrate the invaluable good and accumulation of innumerable merits in generosity of the Brahma Viharas, the art of practicing loving-kindness, compassion, empathetic joy and equanimity is fulfilling and truly happy in itself. Followers of Buddhism believe that the evil actions will fall into the hell realm and the virtuous actions will lead to the good path and higher realms eventually.

Case 3: Mr. H

Mr. H was a 33-year old man who presented as depressed due to financial hardship and relationship issues with his family members. He had volatile emotions, which made him easily agitated, and had trouble sleeping for a few months prior to seeing the therapist. After an intake session, the therapist had an agreement with Mr. H that there was a pressing need to help him calm down and to get enough sleep given his presenting symptoms. Managing his relationship issues were secondary at that time. So,

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the therapist helped by teaching Mr. H some mindfulness activities, including relaxation exercises to practice for better skills in improving his ability to be calmer. One of the mindfulness activities, was to recite "Om Mani Padme Hung" repeatedly. In Tibetan Buddhism or Vajrayana tradition, this recitation also helps to produce good karma, on top of bringing calmness and focus. These mindfulness activities helped Mr. H to be calmer, and as a result, become more aware of his feelings and thoughts. Once he was better at noticing his feelings and thoughts, the therapist went through sessions of guided breathing technique and body scan to help the client to reduce his anxiety and tension. Mr. H was taught to be aware without passing judgement to the sensations of his body that arise and fall. Regular practice of these techniques helped Mr. H become more aware of his immediate thoughts and feelings. Once this was achieved, the therapist discussed the concept of impermanence with Mr. H and related it to his thoughts and feelings. This discussion helped Mr. H realize that the sensations he feels are constantly changing and are not permanent. This helped him understand that he does not have to be attached to his feelings – be it pleasant or unpleasant. He learnt to treasure the pleasant ones and sit out the unpleasant ones until they went away. This realization of letting go of control helped Mr. H reduce his agitation and he slept much better. This became his preparation to work on his relationship problems with his family members.

Reconciling Different Traditions in Buddhism on Psychotherapy Approaches

While there are tendencies of both schools of thought – Theravada and Mahayana Buddhist traditions to have generally different approaches in their counselling methods, the essence of both traditions originates from the basic teachings of Gautama Buddha, called the *Dhamma* (or in Sanskrit, *Dharma*). The Mahayana Buddhists, being more communal in practice, employs concepts of the *Bodhisatta* (*Bodhisattva* in Sanskrit, e.g. *Kuan Yin*, *Maitreya* and *Manjushri*) and a pantheon of lesser gods and goddesses, saints as well as spiritual protectors of the Dharma for spiritual practices. So, it seems as though it is more complicated with various sutras to be read and rituals to be carried out for a better well-being outcome in practice. Similar traditional rituals and beliefs, though not as elaborate, can be seen in Theravada traditions depending on which country they are practiced in. Theravadins do not highlight the practices related to Bodhisattas and the extended pantheon that is seen in the Mahayana tradition, but focuses more on ritualistic chanting for protection, precept-observing behaviors as basic customs for lay Buddhists.

Both traditions teach meditation as mental cultivations towards better wisdom in dealing with life and death. However, the means by which meditation is taught may also differ between traditions, with Mahayana Buddhist more likely to refer to their sutras and koans, while the Theravadins have *vipassanā* (insight) and *samatha* (calmness) meditations based in the *Satipattanā Sutta* (the Buddha's purported manual on meditation). Either way, both traditions recognize meditation as part of the spiritual practice, on top of observing moral precepts, to achieve wisdom.

Though it is beyond the scope of this chapter to discuss the origins of these practices, it should be noted that these concepts are pragmatic methods for engaging individuals in spiritual practice at different levels of understanding. Ultimately, the basic tenets of Buddhism are reflected in these practices that have long histories of development to suit the needs of the cultures they are assimilated into.

With regards to the examples above, it would have been very easy for either tradition of Buddhism to employ each other's approaches e.g. Theravada using *Brahma Vihara* focus and Mahayana using *paticca samupāda* focus in psychotherapy. So, in essence, there is nothing actually to reconcile. Much of the practice, in the authors' opinion, is in the language of therapy, which can be very diverse.

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Given the age of rapid globalization, there has been many instances of cross-overs between Buddhist traditions in practice, especially in the West, where different denominations of Buddhist practitioners have been exchanging notes and developing mutual practices based on the scriptures, and applying them to modern day challenges in pragmatic ways. Therefore, in this case, reconciliation of traditions is automatically happening already in spiritual and intellectual practice. What is important also is how traditional Buddhist approaches are compatible with mainstream Western psychotherapy methods. This will be briefly discussed in the next section.

THE COMPATIBILITY BETWEEN BUDDHIST APPROACHES AND WESTERN TECHNIQUES OF COUNSELLING AND PSYCHOTHERAPY?

From the case studies given, there are many parallels to what we know as cognitive therapies. Much have been written about these parallels with many authors arguing for the compatibility between Buddhism and Western Psychotherapy. In some cases, to the point of duplicity of Eastern and Western philosophies in their applied approaches to improving mental health.

In terms of Western psychotherapy, the end of the millennium has seen a boom in mindfulness-based intervention that originated from Buddhist meditation practices. The treatment of borderline personality disorder (BPD) also highlighted the importance of insight and mindfulness that stem from Buddhist teaching. Older concepts of therapy such as Rational Emotive Behavior Therapy (REBT) has very close reasoning to Buddhist tenets. The more current "Third Wave" therapies are very much "Buddhistic" in nature – i.e. Acceptance and Commitment Therapy (ACT) and Self-Compassion Movement.

To illustrate an example of parallels, we compare Buddhist approaches with Choice Theory / Reality Therapy (CTRT). One aspect of the Buddhist approach in psychotherapy is to return the sense of choice to the individual. There is much encouragement in Buddhism to look inwards for a deeper understanding of self and its habits, and then make an informed choice to make changes for betterment. These steps are guided by the precepts and Eightfold Noble Path. Nevertheless, the main point is that the individual has to "walk the path themselves" in order to reach their goal. This is in line with CTRT where the main believe is that the only person's behavior they can control is their own. What individuals perceive from the external world is merely information and they decide what and how they want to respond to it, as said by Glasser (2011, p.5), "Nothing we do is caused by what happens outside us. If we believe that what we do is caused by forces outside us, we are acting like a dead machine, not living people." Also in line with the Noble Eightfold Path of Skillful Understanding, CTRT posits that once you have an understanding of how suffering happens, you can choose to prevent it, by also acting in ways that leads to preferred outcomes. Skilled practitioners know how to replace unskillful actions with more skillful ones. In CTRT, the awareness is active and it leads to more adaptive behavior.

Given that the *Dhamma* is meant to reflect the universal truth, it is not surprising that there are many parallels in approaches from Western psychology towards the management of personal suffering. Ancient Greek philosophies, especially Stoicism has many instances where their reasoning resembles that of Buddhism. Given that Western Psychology originated mostly from Greek and European philosophies, there is much compatibility between it and Buddhist approaches. Some scholars even argue that these philosophies have come full circle, or at least they have traveled all around between India and Greece during ancient times where the nature of exchanges made it difficult to tell of their origins.

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There are more discussions to be had and descriptions of parallels between Buddhism and Western psychotherapy but it would be beyond the scope of this chapter. These can be found in many literatures already. The idea of mentioning parallels here is so that there is some acknowledgement of how relevant Buddhist teachings are in promoting mental well-being within the psychotherapy situation.

THE (MIDDLE) WAY FORWARD: FUTURE DIRECTIONS FOR BUDDHISM IN COUNSELLING AND PSYCHOTHERAPY

This chapter so far has touched on Buddhist approaches in counselling and psychotherapy in general. Much more has to be studied systematically with regards to methodology and outcomes before more comparisons can be made with more established Western cognitive therapies. However, this can be a very difficult task given the limited research to being with that show specifically Buddhism-based approaches are scientifically efficacious. Furthermore, there are many overlaps between techniques in Buddhism and Western psychotherapy. The whole idea of technique itself may be a questionable concept or term that may require its own investigation. It is difficult to ascertain how a Buddhist approach might look like minus the Western formula of psychotherapy. What this chapter has demonstrated so far was the use of Buddhist concepts within Westernized psychotherapy settings. Perhaps investigations should also look into situational difference of the Buddhist approach. For example, how would monastics members of the Buddhist clergy use their teachings as means of directly propagating well-being in troubled individuals who go to them for help. This would be relevant especially when individual insecurities revolve around afterlife, supernatural beliefs and religious intellectual confusion.

Many evidence have been largely anecdotal rather than based on rigorous randomized control trial-type research. Much of the studies that are related to Buddhist approaches have been largely on mindfulness-based cognitive therapy (MBCT). These researches have established MBCT's efficacy as part of the "Third Wave" of psychotherapies. Nevertheless, there has been recent criticisms towards MBCT as being misapplied outside of the overall context where the morality aspects of behavioral change have not necessarily been applied. These criticisms come from how mindfulness was extracted from Buddhist practice of *samādhi* for its strong effect on improving focus and self-understanding but had neglected the *silā* or morality side, coupled with respect for cultural customs that facilitates the practice of mindfulness. Therefore, more research beyond just mindfulness-based interventions are needed, partly also to address the criticisms towards MBIs as missing the context for mindfulness, which is part of the spiritual development triad – which needs moral development as well.

CONCLUSION

This chapter has presented a basic view of Buddhism in relation to how its teachings can form part of the psychotherapeutic process in helping individuals improve their mental health. Much of the Buddhist approach is cognitive in nature and can easily be intellectualized without actual realization. However, when delivered in a more experiential manner, the tenets of Buddhism can be applied to daily challenges in life that are rife with personal attachments, inaccurate assumptions of permanence and aversive events. The main teachings of Buddhism serve to help individuals understand the nature of suffering or discontentment and how, by understanding the nature, taking steps to stop the causes and conditions that

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bring about the misery that suffering and discontentment lead to. Given that Buddhism is in essence a manual for freedom from suffering, it is argued by the authors that it is basically a psychotherapy practice. While Western psychotherapy uses organized techniques developed over the last two centuries by psychiatrists and psychologists, Buddhism is largely infused into social lifestyle as a religion or spiritual practice, which has overshadowed its value as a mental health system of knowledge. Much of the practice of Buddhism has been demonstrated by ritualistic activities than actual internalization of its basic teachings that are meant for personal betterment. This is not to say that the rituals are not beneficial, but the deeper understanding of the basic underpinnings of what the Buddha taught can be very effective and practical in promoting mental health. It is hoped that this chapter highlights Buddhist philosophy as something more than just a spiritual identity but also a tool for overall well-being.

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Chapter 15
Vocational Rehabilitation of Persons With Hearing Impairment:
A Step Towards Inclusive Development

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ABSTRACT

This chapter focuses on the importance of vocational rehabilitation of persons with hearing impairment to attain the goal of inclusive development and rights of equal opportunities and participation. It deals with the definition of hearing impairment, in terms of ILO and prevailing legislations, the process of vocational rehabilitation, and importance of follow up. The chapter gives special emphasis to different approaches of evaluations of residual capacities, skill training models, and status of employment market along with the scope of entrepreneurial development. It also deals with various issues and challenges in the process of vocational rehabilitation of persons with hearing impairment.

INTRODUCTION

Ears are delicate and have complex mechanisms for many functions and not for just hearing per se. A well-functioning ear can make you hear very soft sounds over a wide range of frequency as well as withstand very loud sounds. It can also discriminate between sounds of varying pitch and intensity and locate the source of a sound. Various reasons of damage to ear like disease process, any physical trauma, exposure to excessive noise, drugs or simply the process of aging, may result in malfunction. This further may result in varying degrees of deafness which is also known as 'Hearing Impairment'.

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Hearing impairment may be understood as a partial or complete inability to hear from one or both ears at a desired or even enhanced frequency. It may be congenital or acquired, and temporary or permanent. Hearing impairment is one of the most frequently experienced sensory deficits in the human population, and it affects more than 250 million people worldwide. Its consequences could be reduced capacity to understand speech sounds, communicate, and delay in language development, educational and economic backwardness, social isolation and stigmatization (Singh, 2015). The various types of hearing impairment are described in Table 1(Nagaraja, 2002).

Table 1. Description of hearing impairment

<table>
<tr><th>Degree in *dB</th><th>Types of Loss</th><th>Onset</th><th>Course of Nature</th></tr>
<tr><td>Normal 0-25</td><td>Conductive Hearing Loss</td><td>Pre-lingual Congenital or before 4-4.5 years</td><td>Gradual</td></tr>
<tr><td>Mild 26-40</td><td>Mixed Hearing Loss</td><td>During development of language</td><td>Sudden</td></tr>
<tr><td>Moderate 41-55</td><td>Sensorineural Hearing Loss</td><td rowspan="2">Post-lingual and after development of language</td><td>Fluctuating</td></tr>
<tr><td>Moderately Severe 70-90</td><td>Retro Cochlear</td><td rowspan="3">Progressive</td></tr>
<tr><td>Severe 71-90</td><td rowspan="2">Central deafness</td><td rowspan="2">During Adulthood or old age</td></tr>
<tr><td>Profound 91 +</td></tr>
</table>

*dB-Decibel

All previous legislation that were enforced to protect the rights of the disabled have included certain disabilities under them. The International Labour Organization defined a disabled person as ‘an individual whose prospects of securing, retaining and advancing in suitable employment are substantially reduced as a result of a duly recognized physical, sensory, intellectual or mental impairment’ (ILO, 1983).The Persons With Disability (Equal Opportunities, Protection of Rights, and Full Participation) Act, 1995 covered 7 such specific disabilities viz. Blindness, Low Vision, Hearing Impairment, Mental Retardation, Mental Illness, Leprosy-cured and Locomotor disability. Hearing impairment has been defined in the 1995 Acts ‘loss of 60dB or more in the better ear for conversational range of frequencies’ (The Persons With Disability Equal Opportunities, Protection of Rights, and Full Participations Act, 1995). However, this Act has been revised and replaced by Rights of Persons with Disability Act, 2016. This new Act of 2016 includes 21 conditions under ‘Disability’ including the 7 conditions that were covered by earlier Persons with Disability Act 1995. Further, the new Act has also expanded the definition of hearing impairment by including both ‘deaf’ and ‘hard of hearing’ persons. As such, hearing impairment has been defined as follows:

A - *‘Deaf’ means persons having 70 dB hearing loss in speech frequencies in both ears, and*
B – *‘Hard of hearing’ means persons having 60 dB to 70 dB hearing loss in speech frequencies. (Rights of Persons with Disabilities Act (2016)*

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PREVALENCE OF HEARING IMPAIRMENT

Census of India 2011, reported that out of the population of 1,210 million, about 26.8 million persons are 'disabled' which is 2.21% of the total population (Statistical Profile of Disabled Persons in India, 2016). Figure 1 presents the statistics related to the persons with disability. As one can see, hearing impairment accounts for 19% of the disabled population and is the second biggest type of disability.

Figure 1. Distribution of various disabilities

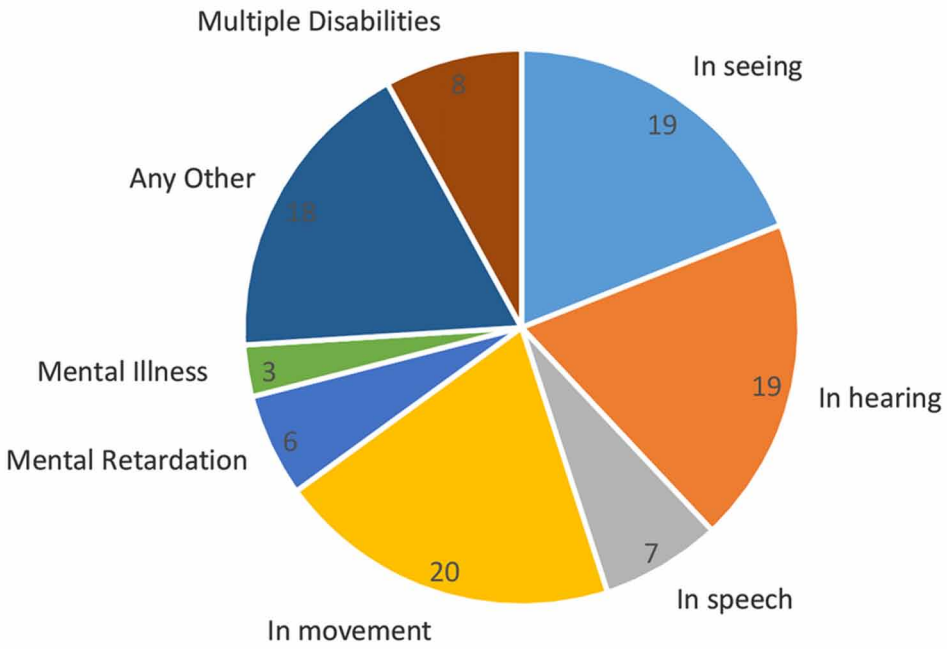

Table 2 presents an overview of the number of persons with disabilities in India, as per the Census 2011 data. Further analysis of the Census Report revealed that though there has been an appreciable improvement in the literacy rate of the general population of India, yet the literacy rate of persons with disability is still considerably low in comparison to the general population which further imposes limitations in their empowerment.

Table 2. Disabled persons in India, census 2011

	Persons	Males	Females
Number (In crores)	2.68	1.5	1.18
Percentage (out of Total Population)	2.21%	1.24%	0.97%

Data from Statistical Profile of Disabled Persons in India, 2016.

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Table 3 presents the data on the literacy status of the disabled population as compared to the general population of India. The poor literacy rate among persons with disabilities is resulting in their limited participation in the workforce as one of the reasons. As per one estimate, about 3 million persons with disabilities belonging to working age are currently not working on regular basis. Analysis of reports available on employment status of persons with disabilities (Statistical Profile of Disabled Persons in India, 2016) revealed that the participation of such group in the main workforce is marginal for various reasons including lack of opportunities, lack of basic education, employable skills and the prejudice attached to their employability and productivity resulting in non-utilization of huge workforce who have full potential to be integrated in main working stream provided suitable training and opportunities are extended.

Table 3. Literacy status of disabled population in comparison to general population

	Literate		Illiterate		
	General Population	Disabled	General Population	Disabled	
Total Persons	74.04%	55%	25.96%	45%	
Males	Over 80%	62%	Less than 20%	38%	
Females	65.46%	45%	35.54%	55%	

Data from Statistical Profile of Disabled Persons in India, 2016 and Population of India Census 2011

VOCATIONAL REHABILITATION

Decent work is one of International Labour Organization's (ILO) primary goal for everyone, including Persons with Disabilities. When we promote rights and dignity of Persons with Disability we are empowering individuals, strengthening economic security and in reaching society at large (Shenoy, 2011). Vocational rehabilitation is defined as enabling individuals with either temporary or permanent disability to access, return to, or remain in, employment (British Society of Rehabilitation Medicine, 2000). This definition echoes the one proposed by the ILO which is "Vocational Rehabilitation is a process to enable a disabled person to secure and retain suitable employment" (International Labour Organization, 1998). It is to be understood as a step in the continuous efforts towards the social rehabilitation of any disabled individual, where the aim may be to minimize the functional and psychological, socio-cultural or financial consequences of the disability.

In principle, as explained by ILO (2004), it should cover all services and efforts that contribute in ensuring equality of opportunity in work for people with disabilities and in leading to their integration or reintegration, whichever applicable, to society. It may include vocational guidance, career counselling, vocational training, placement and ergonomic modifications of select jobs to make them disabled-friendly and need-based psychosocial interventions.

The goal of vocational rehabilitation is fostering self-reliance, independence and feelings of self-worth. When given appropriate opportunities, individuals with hearing impairment can become economically productive and contributing citizens of the country. In the time when 'inclusive development' is being emphasized as the right way toward sustainable development, focused efforts for the empowerment of

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the disabled are essential. The inclusive development consists of ensuring that all marginalized and excluded groups are stakeholders in development processes design, implementation, monitoring and evaluation. It strives to ensure that all sections of the society, including the disabled are valued equally as rights-holding citizens and contribute to the country's developmental issues and strategies. It is based on three principles: accessibility, participation and non-discrimination (International Disability and Development Consortium, 2005).

Economically speaking, nations are battling the global economic crisis, unsteady unemployment trends and inequality. In making efforts for economic growth, it has to be ensured that benefits reach everyone. The inclusive development also focuses on making more comprehensive strategies which will reduce inequality and include diversity.

MODELS FOR REHABILITATION OF INDIVIDUALS WITH HEARING IMPAIRMENT

Disability and Rehabilitation can be explained using various perspectives and models. Few of them are briefly discussed.

Religious-Moral-Spiritual Model/Conventional Model

- It understands disability as a punishment received by an individual or his family by some external force due to any wrong deeds done by the disabled person or someone else in the family in current life or in a previous reincarnation.
- Sometimes it is also attributed to evil spirits for which exorcism or faith healing may be tried, thus putting the disabled in danger and further isolation.
- Rehabilitation efforts are thus done by undoing the so-called sins, pleasing supernatural power, charity in conformity to religious faith or otherwise.

All such efforts have been done to either please supernatural powers or to show sympathy and humility towards persons inflicted with disabilities and not because the disabled is taken as an equal partner of the society. Additionally, the people who help or give charity act as 'pitiful' donors and expect gratitude from the disabled person.

Medical Model

- May also be referred to as the Biological-Inferiority or Functional-Limitation Model.
- Views that disability is a result of the disabled person's physical and/or mental limitations, being largely unrelated to one's social or geographical environment.
- It places the source of the problem within the impaired person and suggests that solutions may be found by treating the physical limitations through medicines, surgical procedures, and fitment of aids and appliances.
- In rehabilitation efforts, the focus is on finding the 'cure' for the disability, and when that inevitably fails, then providing 'care' for the 'incurable' disabled person, consequently, justifying institutionalization and/or segregation.

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Psychosocial Model

- It understands disability as a consequence of any environmental, social or attitudinal barriers that may prevent people with impairments from participating maximally in society, therefore removing these is posited to improve the lives of disabled people.
- It seeks solutions outside the disabled person, in his environment.
- Focus on 'equity' rather than on 'equality'.
- It changed the way in which disability was attributed, and has had a huge influence on rehabilitation efforts in terms of anti-discriminatory legislation.
- Rehabilitation efforts are also aimed at changing the psychosocial environment of the disabled person so as to reduce or overcome the barriers in the society. If the problem lies within the environment, then the environment must be changed to cause a solution. For example, if a wheelchair user cannot board a bus limiting his functioning, the bus may be modified to include ramps; or if a hearing impaired cannot hear announcements, the infrastructure may be modified to include important announcements visually on screens.

Economic Model

- It narrows the complex issue of disability to the limitations and restrictions a disabled person can be expected to have, with inferences drawn as to whether and till what extent "flawed" people may be productive.
- Disability is defined by the disabled person's inability to participate in work, with further assessment of the degree to which this impairment may affect an individual's productivity and consequently the economic burden or impact on the individual, his employer and the state. This view may further reinforce the prejudiced beliefs of employers that disabled persons are less productive than their counterparts.
- Policymakers, from this view, assess the distribution of benefits to those who are disabled and hence are unable to participate in work 'fully'.
- Employers may employ less productive disabled persons to enjoy benefits of an image of an organization with community values, for economic reasons and not because of recognition of their rights. Also, they may pay disabled people less.

APPROACH TO VOCATIONAL REHABILITATION WITH PERSONS WITH HEARING IMPAIRMENT

Vocational rehabilitation is based on the multi-disciplinary support consisting of experts from different fields of specialities like neurologists, ENT surgeon, clinical psychologist, speech pathologist, audiologist, special educator, special vocational instructor, communication instructor, placement counsellor, and employment provider. It aims at finding a suitable income generating activity in which person can be suitably inducted and flourish. It is a process involving following steps:

1. Assessment
2. Fitment of assistive devices

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3. Communication training
4. Career counseling
5. Skill Training
6. Job placement
7. Follow up

Assessment

Assessment is a process of evaluating the residual capacities of an individual with the objective of unfolding his assets and extent of limitations. It has to be done by an interdisciplinary team mentioned above. A medical specialist evaluates possibilities of organic involvement, the location and extent of the damage, possibilities of correction, and introduction of intervention to arrest any further impairment. He/she may also advise the various work situations which may or may not be convenient and suitable for persons with hearing impairment. The clinical psychologist conducts the detailed assessment to evaluate the mental processes, developmental status, intellectual level, personality correlates, attitude, adaptability etc and prepare a psychological profile. The profile prepared by the clinical psychologist becomes the basic guidelines for providing vocational guidance and counselling in later stages. It also helps in selection of suitable careers and support in enhancing adjustment process in workplace and attitude towards employment, employer, and colleagues etc.

Some popular psychological tests used by Clinical Psychologist are given below:

1. Leiter International Performance Scales or LIPS (Roid & Miller, 1997)
2. Wechsler Intelligence Scales for Children or WISC (Wechsler, 1991)
3. Wechsler Individual Achievement Tests or WIAT (Wechsler, 1992)
4. Universal Nonverbal Intelligence Test or UNIT (Bracken & McCallum, 1998)
5. Vineland Adaptive Behavior Scales (Sparrow, 2011)
6. Carolina Picture Vocabulary Test for Deaf and Hearing Impaired Children (CPVT; Layton & Homes, 1985)
7. Bender Visual Motor Gestalt Test, Second Edition (Bender Gestalt II; Dumond & Willis, 2008)
8. The Halstead-Reitan Battery - performance type tests, (e.g., trails, categories, grip strength) (Reitan & Wolfson, 1985)
9. Draw A Person Test (DAPT; Short, DeOrnellas, & Walrath, 2011)
10. House Tree Person Test (HTP; Buck, 1971)
11. Reynolds Adolescent Adjustment Screening Inventory: RAASI (Reynolds, 2001)
12. Meadow-Kendall Social-Emotional Assessment Inventory for Deaf & Hearing Impaired Students (Meadow, 1980)

In addition to the above, there are many rating scales based on observational techniques for evaluating the mental status, emotional reactions, and adjustment processes. Some of the above-reported tests are having separate norms and specific guidelines for administration on hearing impaired population. Although some of them may not have Indian norms specifically yet they can be used in day to day rehabilitation practice as they are not used to diagnose any specific condition but to assess psychological variables and for profiling their assets, liabilities and residual capacities to arrange their skill training and job placement.

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Audiologist assesses the extent of hearing loss and level of Disability. Audiologist's role is also in assisting the ENT Surgeon in exploring the possibilities of the fitment of hearing aids and the possibilities of major surgical intervention. The speech pathologist is a specialist who provides Speech therapy to enhance language development, vocabulary, and verbal expression/communication. Sign language instructor may also be associated here, in planning the speech training with special reference to developing the functional conversational skills required for acquiring a vocational skill and discharging the duties at the workplace.

Assessment to unfold the suitability of the hearing impaired person for induction informal/non-formal education program leading to different certifications is conducted by the special educator. A specific educational need of the individual to facilitate the development of lesson plan, study material, teaching aids, periodical assessment procedure, individualized examination pattern to assure acquiring of functional literacy and preparedness for induction in formal education imparting recognized courses are evaluated.

The special vocational instructor is responsible for evaluating the trainability of the individual for any specific vocation. Special vocational instructor under the guidance of clinical psychologist observes the person with hearing impairment in the real job setting. A series of job samples consisting of operations required in performing a particular job is given to the individual and the performance on these job samples are rated through different rating scales. The vocational instructor also assesses the work traits on the basis of behavior shown by the individual on workstation. Some of the important work traits are endurance, comprehension, safety consciousness, adaptability, fatigue, stress tolerance, resistance, adjustment with colleagues, work environment, regularity, punctuality etc. The profiles prepared by the vocational instructor are used in the selection of a suitable skill set and placement area for the individual.

Fitment of Assistive Devices

Success in vocational rehabilitation requires effective communication skills on the continuous basis. Hearing aids which have been traditionally used since many years have undergone tremendous improvement and upgradation. Based on the recommendation of ENT surgeon and audiologist, the individual being prepared for vocational rehabilitation is provided with suitable hearing aids properly adjusted with frequencies recommended by the experts. They are also trained to adjust with hearing aids and go for periodical maintenance/repair of their device depending upon the financial background and availability of funds. Hearing aids are also provided to individuals under various government schemes either free of cost, or with subsidized rates.

Communication Training

Communication is usually considered to a mean of conveying the message and feelings through words. Words play a very limited role in communicating the message of various types provided the sender is suitably trained and the receiver is suitably sensitized. In the process of communication training, the trainer may use sign language, lips reading or combination of both. However, he would also train his client on job-specific communication skills like sign for tools, sign required for receptionist, signs required for sales and marketing, and for many such job profile/requirements.

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Career Guidance and Counselling

Career guidance and counseling is a very important component of vocational rehabilitation where a career counselor tries to match the job profile and profile of the individual and help the client in choosing a career best suited to him. In case of persons with hearing impairment, career guidance and counselling is still more important to prevent the individual from sticking up to the point of no return in the course of his career advancement. In Indian scenario, having limited opportunities the role of career guidance and counselling is not only to provide the information about the jobs available but also to collect the employment market information, explore the future market scenario, conduct job identification studies in the area in which persons with hearing impairment can be trained and placed. Such studies are needed to be based on local employment market from which the persons with hearing impairment belong to and not on the hypothetical basis for the jobs which may not be existing in the area of their normal residency. Beside the career-related information, the career counselor should also be well versed in communication skills to minimize the communication gaps between the client and the information.

Skill Training

Skill training refers to the organized and systematic efforts to train a person suitably so that he may develop ability required for performing a job, operation and earn his livelihood. Skill training also involves the adaptation with different work environments to meet out the vocational challenges. It could be arranged in formal mode by admitting the persons in an institute of different levels depending upon his educational background, the severity of communication problem, aptitude and other psychological parameters, or in non-formal mode, where the training is arranged as per the individual need and his psychosocial profile. All the formal training institutes starting from Industrial training Institute (ITI), Polytechnic to upgraded professional institutes like College of Engineering, Indian Institute of Technology (IIT), National Institute etc. and governed by government have certain seats reserved for persons with hearing impairment provided the applicant is otherwise eligible for admission and has functional conversational ability and could qualify the entrance examination/assessment test. However, in spite of having the reservation of seats and other support systems, the representation of persons with hearing impairment in formal training institutes based on inclusive education and training system has been extremely marginal, mainly because by and large, they do not possess the basic educational qualification required for the higher level of vocational training. Hence, the only alternative left out for the majority of persons with hearing impairment is undergoing non-formal training in places like Vocational Rehabilitation Centres (VRC), other training centres, Vocational Training centres (VTC) run by different Non-Governmental Organizations(NGOs) and apprenticeship training in different workshops. The main principle of arranging such non-formal training is modular-based practical oriented training having minimum involvement of language, and verbal inputs. However, the certificate granted by NGOs and other organizations for non-formal training may endorse the level of skill attained but lack the approval of any regulatory authority.

In order to ease the above limitation, the government of India has launched short-term training programs with the name of Modular Employable Skill Scheme (MES) (Ministry of Labour and Employment, 2008) which has now been transferred to state government. MES is based on short-term operational based training in different vocational skills required in the employment market. The theoretical component of the training is 10% while 90% is practical and workshop training. It is a tri-partite program involving

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recognized training institutes who would be organizing the day to day training activities, employers who would be appraising the organization with changing employment market and the need for their industry. Employers would also support in skill mapping and in conducting the skill test on completion of training, and regulatory council like National Council of Vocational Training (NCVT)/State Council of Vocational Training (SCVT) will award the certificates to successful candidates. The most popular and employable skill sets for persons with hearing impairment include data entry operator, networking and hardware professionals, fashion technology, fine arts, photography, ceramics related activities, assembly line activities, food craft, printing technology, architectural draftsmanship, horticulture and gardening, interior decoration, and furniture making etc. The above list is only illustrative and not exhaustive. The success of individuals in attaining the skills directly depends upon motivational level, aptitude, family support, and infrastructure facilities (modified workstations and tools) and sensitivity and training of instructional staff. Recently, Planning Commission has identified 20 high growth sectors where the requirement of skilled workforce would be in plenty during years to come and wherein Persons with different physical limitations including hearing impairment can also be trained.

The priority list of 20 high growth sectors is as per following:

1. Automobile and Auto Components
2. Banking/Insurance and Finance services
3. Building and construction industries
4. Chemical and Pharmaceuticals
5. Leather and leather goods
6. Retails
7. Educational and Skill Development Services
8. Electronics and Hardware
9. Food Processing
10. Furniture and Furnishing
11. Gems and Jewellery
12. Healthcare
13. Handloom and Handicraft
14. Business Process Outsourcing
15. Software Service/Hardware Assembly
16. Real Estate
17. Textile/Garments
18. Tourism Hospitality and Travel
19. Transportation and Logistic
20. Packing (Planning Commission of India's report on 12th Five-year plan, 2013)

Job Placement

Placement can be defined as an activity which not only supports the individual in finding an income generating engagement but also sustaining in it and progressing in future. Placement for persons with disabilities has always been a great challenge and a rewarding experience too. Because of change of disability models, the placement scenario has also undergone the drastic change. The concepts like sheltered employment, protected employment or welfare factory etc. have been redefined mainly because

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of the growing concern about the rights of persons with disabilities, their working abilities, commitment, proven sincerity and of course, expenses required to set up an exclusive workshop or industry for persons with disabilities. Advancement in technology has also brought a revolution in trainability, and employability of persons with disabilities. Persons with hearing impairment in spite of their good physical fitness, motivational level and ability to perform well have not been the first choice for many employers because of their own (employer's) inability to establish effective communications. In order to assure the equal opportunity to persons with disabilities in the employment market, the government of India has identified thousands of jobs available in public and private sectors that can be performed by persons of different types of disabilities. The list of jobs also includes those for the hearing impaired workforce and range from routine jobs to jobs requiring the high level of skills, scientific knowledge, and administrative abilities. All the employers, particularly in government sectors, are governed by different Acts assuring job reservation and placement support. They do not impose any restrictions for employers to recruit persons with hearing impairment even on those jobs which may not be in the list of identified jobs because the identification exercise can never be updated at a pace comparable to the change in employment markets. Beside job reservation and identification of jobs, there are many agencies of the government of India and state government exclusively functioning to promote and arrange placements for them. The organizations like Special Employment Exchange, Vocational Rehabilitation Centres (VRC) for handicapped (now known as National Career Service Centre for Differently Abled), model career centres run by state government and placement divisions working under national institutes for different types of disabilities register the persons with hearing impairment and arrange their placements in different government and private sectors. The preparation for competitive examinations known as Pre Recruitment Tests has also been a point of concern for candidates with hearing impairment. Government agencies like VRC (National Career Service Centre for Differently abled) in collaboration with various banks, staff selection commissions, NGOs have been organizing the pre-recruitment training for briefing them about the knowledge and skills required for qualifying the competitive examinations.

The continuous shrinking and cuts in salaried employment globally have also imposed additional limitations in arranging salaried employment for persons with hearing impairment and with this universal phenomenon, the only alternative left out is to encourage the person with hearing impairment towards self-employment activities. Self-employment as the name suggests means taking up or setting up a program by an entrepreneur individually or in partnership by producing and marketing an item or extending services on fixed or negotiable financial returns in the form of yield or income. Self-employment has not been a preferred mode for many years for various reasons such as lack of awareness of market needs, lack of skills to produce or market a particular item, lack of finance, lack of management skills, lack of marketing skills and salesmanship, and on the top of all, lack of risk taking capacity or entrepreneurship. But now the scenario is changing. There are many government agencies and NGO initiatives focusing on entrepreneurial skill development among person with disabilities which also include hearing impairment at every stage. National Handicap Finance and Development Corporation (NHFDC) set up by the government of India is addressing the issue of financial requirement of self- employment projects of PWD in a big way through its wide net of channelizing agencies functioning in grass root level. NHFDC not only provides the finances in the form of the loan on a highly subsidized rate of interests but also supports pre self-employment vocational skill training to facilitate smooth implementation of project. Central and state government also encourage physically challenged entrepreneurs by procuring their product on the priority basis. There are many persons with hearing impairment who have set up their

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units of garment making, furniture making workshops, laundry work, automobile service centres and washing plants, gents and ladies' parlors to name a few.

Follow Up

Follow up is the extension of placement activities especially in the sector of placement of PWD. Follow up involves frequent visit of the workplace by the professional member of placement agencies, interaction with employers, supervisors and colleagues and sorting out issues if any. The effective follow up enhances the confidence among employees, employers and co-workers. It also gives a very important feedback to placement agencies as to what extent the persons with hearing impairment has been placed suitably and what changes may be required in future placement efforts. It also gives an insight into the real work challenges and requirements to modify the pre-placement skill training, orientation program and advocacy. In fact, effective placement and follow up open the avenues for future placement and possibilities of success for other candidates. In case of persons with hearing impairment, the follow up is particularly very important in the enhancement of communication between the employee with hearing impairment and his colleagues which ultimately reduces the fear of being isolated of which such persons have been serious victims, which may lead to dropouts, discontinuation and high attrition rate.

Issues and Challenges

Inspite of commitment of government of India, and the United Nation Convention on Rights of Persons with Disability, 2007 Article 27 which recognizes the rights of persons with disability to work on an equal basis with others, this includes the opportunity to gain living by work freely chosen or accepted in the labour market and work environment that is open, intrusive and accessible to persons with disabilities,the representation of persons with disabilities particularly hearing impaired in national workforce is far from satisfactory to the extent that even the quota reserved for this category of candidates could not be filled in many organizations. Private sector companies that are not governed by the reservation policy and are open and flexible in employment recruitment process could also not be assured respectable representation of the persons with hearing impairment in their workforce.

Various studies conducted by different national and international agencies and also individual experiences of employers, recruiting agencies and hearing impaired persons reveal following issues that need to be addressed to assure reasonable sustainable vocational rehabilitation to persons with hearing impairment.

1. The huge gap between the resources, infrastructure and manpower and the number of persons with hearing impairment to be employed in sustainable employment activities.
2. The training and educational requirements of children with pre-lingual deafness and post-lingual deafness are different. Children with pre-lingual deafness are mostly congenital having no understanding of words, meaning and are primarily trained by sign language with visual training aids, whereas children with post-lingual deafness are the victims of acquired deafness. Many of them after the development of their language and having good vocabulary may be communicated with amplified equipment supported with the sign, but there are hardly any vocational training institutes that can bifurcate the training module as per the onset and typology of the hearing loss. This leads to more or less permanent gaps in communication, acquiring of vocational skills and job performance.

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Employers also may not be equipped enough to appreciate the difference between pre-lingual and post-lingual hearing impaired persons and may undervalue the efficiency of the employees for no fault of both.

3. The area/domain of vocational training is mostly focused on urban-based employment opportunities while the sizable numbers of persons with disabilities are residing in rural or semi-urban areas having very little opportunities of post-training placements resulting in either non-utilization of skill acquired or underutilization of the trained manpower. For example, desktop publishing and other printing related training can only be utilized in industrial or metropolitan cities and there would hardly be any use of placement in rural areas no matter how well the hearing impaired person has been trained.
4. The workplace, nature of occupation and employer's perception also play an important barrier and causative factor in the feeling of being discriminated resulting in discontinuation of the jobs.
5. No matter what social security schemes any government may frame, accessibility and effectiveness of scheme would directly depend upon the basic education level, awareness, risk-taking attitude, independence and family support in case of persons with hearing impairment. They are trailing behind in almost all the above parameters. Their basic education is still not compatible with the educational level of their counterparts in open employment. They are not aware of various social security schemes, legislation and not easily approachable because of their scattered and remote living vicinity. The skill sets are not being upgraded frequently mainly because of lack of trained instructors required for imparting and upgrading the skills.
6. In spite of the fact that self-employment is perhaps the only long-term solution for the continuous shrinking of salaried pay employment opportunities, yet persons with hearing impairment by and large are not very keen to go for self-employment ventures and there is hardly any facility available exclusively for them for entrepreneurial development. This lack of motivation towards self-employment has many a time proved to be the main cause of failures of many governments sponsored schemes promoting self-employment.
7. The assistive devices are either beyond the easy approach of common hearing impaired persons due to its scarcity/short of supply or beyond financial reach. The devices provided by different agencies either free of cost or in subsidized rates have not been very long lasting and require continuous maintenance and repair which may not be available or accessible easily.

SOLUTIONS AND RECOMMENDATIONS

1. There cannot be a second opinion that no one would disagree or show any resistance to the efforts of assuring full participation and integration of persons with hearing impairment with mainstream workforce but some deep-seated biases and stereotypes about their efficacy, productivity and employability are still persisting which require intensive desensitization and advocacy by showcasing their employability through various media.
2. Intensive training of school teachers of so-called normal schools and vocational instructors in communication skills for both pre-lingual deaf students and post-lingual deaf students would ease the problem of attaining basic education required for acquiring marketable vocational skills.
3. Area-based employment market and job surveys would help in providing vocational guidance and career counselling with special reference to the locality and usual residency.

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4. Accessibility to the social security schemes and awareness about rights of the person with hearing impairment may elevate the motivational levels and drives toward vocational independence.
5. Effective implementation of different legislations and accountability of its implementing agencies would also be helpful in the integration of persons with hearing impairment with the workforce.

CONCLUSION

Vocational rehabilitation of persons with hearing impairment is not only an important step in the entire management of persons with hearing impairment but the ultimate outcome of entire rehabilitation exercise. In a country like India, where more than 26 million persons are inflicted with hearing impairment, they cannot be left unattended particularly when they possess all the qualities, abilities, personality traits and potential to become a productive member of workforce par excellence to their fellow citizens, provided suitable education and training is inculcated, positive attitude and accommodative environment is created and advancement in technology in skill development and training and job-related assistive devices are made available.

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KEY TERMS AND DEFINITIONS

Acquired Disability: Getting some disability after birth.
Advocacy: The act of speaking up for others.
Anxiety: Fear reactions for unknown reasons.

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Assistive Listening Device: Equipment like hearing aids that help in listening by amplifying the pitch/tone.

Audiogram: A graphic status obtained from electronic equipment depicting hearing thresholds.

Audiometer: Electronic equipment measuring the threshold of hearing.

Barrier-Free Environment: A physical environment where any person with any physical limitations such as those of locomotion, vision, or hearing can live and function independently.

Communication: The process of conveying one's thoughts and feelings through gestures or words.

Communication Disorders: A condition that is characterized by the inability to use a communication medium to successfully convey to others, one's thoughts, feelings, beliefs, etc.

Counselling: It is a professional technique to help an individual in understanding and solving his problems of different natures.

Disability: A status caused by physical or mental impairment and resultant functional limitations.

Evaluation: A process of assessing assets and liabilities of an individual objectively to the extent possible.

Hearing Impaired: A person who cannot hear the sound even those with amplified pitch/tone, and whose hearing threshold is higher than the normal hearing threshold.

On-the-Job Training: Arranging skill training in real shop floor or actual working conditions.

Open Employment: Placement of an individual in salaried employment without any special consideration, relaxation, and by open competitions.

Self-Advocacy: Speaking up for oneself.

Sign Language: A method of communication by using different symbolic signs by using fingers and facial expressions in place of words.

Social Exclusion: Excluding persons due to a range of reasons determined and influenced by culture, communities, attitudes, etc.

Social Inclusion: Including all persons regardless of any dividing factors to the social fabric of life. There are various types of inclusion; full, partial and mainstreaming. It is a process that requires deliberate actions.

Social Model of Disability: First introduced in 1976, the model seeks to place responsibility on society to enable inclusion and to actively engage in eradicating barriers that subscribe to exclusion of people with disabilities.

Special Vocational Instructor: A vocational instructor who is trained for imparting vocational training and transferring the skills to persons with disabilities.

Vocational Evaluation: Assessment of an individual to evaluate his physical and mental potentials/abilities to acquire specific skills related to different vocations.

Work Study: A method of analyzing different operations involved in performing a specific work sample.

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Chapter 16
Psychological (and Emotional) Architecture:
The Values and Benefits of Nature-Based Architecture – Biophilia

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ABSTRACT

Wilson calls biofilia an "innate tendency to focus on life and lifelike processes" (Wilson, 1984, p. 1), an "innate emotional affiliation of human beings to other living organisms" (Wilson, 1993, p. 31), or an "inborn affinity human beings have for other forms of life, an affiliation evoked, according to circumstances, by pleasure, or a sense of security, or awe, or even fascination blended with revulsion" (Wilson, 1994, p. 360). The research in this area is indicating that bringing elements of nature into the workplace, whether real or artificial, is beneficial in terms of employee outcomes. Nevertheless, although investigation into the benefits of biophilia for individual well-being is relatively new, there is clearly mounting evidence that biophilic design can have a positive impact, from reducing stress and anxiety, to improving the quality and availability of respite from work and in increasing levels of self-reported well-being.

INTRODUCTION

Natural objects, shapes, and processes, according to Joye (2007a), have often acted as a source of inspiration throughout the history of architecture. Perhaps the most obvious example of this inspiration is ornament, which often contains representations that are closely similar to, or reminiscent of, the animal and plant world. Besides such literal imitations, some architects, notably Antoni Gaudí i Cornet, drew lessons from the structural forces governing natural structures, resulting in efficient and economically built architecture (Sweeney & Sert, 1960). Recently, there seems to be a renewed interest in the relationship between nature and architecture (Feuerstein, 2002). More specifically, such architecture makes use of digital design software which allows one to easily recreate the curvy shapes and geometry that are characteristic of natural entities (Lynn, 1999); namely, biophilia.

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Biophilia is the deep-seated need of humans to connect with nature. It helps explain why crackling fires and crashing waves captivate us, why a view of nature can enhance our creativity, why shadows and heights instill fascination and fear, and why gardening and strolling through a park have restorative healing effects (Ryan, Browning, Clancy, Andrews, & Kallianpurkar, 2014). Biophilia, as a hypothesis, may also help explain why some urban parks and buildings are preferred over others. Research scientists and design practitioners have been working for decades to define aspects of nature that most impact our satisfaction with the built environment. Furthermore, as new evidence emerges, the relationships between nature, science, and the built environment are becoming easier to understand traditional wisdom and new opportunities.

The design patterns have been developed from empirical evidence and interdisciplinary analysis of more than 500 peer-reviewed articles and books (Ryan et al., 2014). The patterns have a wide range of applications for both interior and exterior environments, and are meant to be flexible and adaptive, allowing for project-appropriate implementation. From a designer's perspective, biophilic design patterns have the potential to re-position the environmental conversation to give the individual's needs equal consideration alongside conventional parameters for building performance that have historically excluded health and well-being. Therefore, this chapter affirms the importance of natural form as a perennial source of inspiration for architecture. Hence, the purpose of this chapter is on the psychological (and emotional) architecture, with an emphasis on biophilia (or the nature-based) and the values and benefits of biophilia. In fact, the main conclusion of this article is that, nature-based forms and organizations in architecture are valuable for human emotional and cognitive functioning in the workplace.

This chapter serves several purposes. First, it is one of many other chapters in this book related and interrelated to topics of architecture, biophilia, and psychology. Second, this chapter challenges and encourages researchers and practitioners to critically question and analyze the situation at hand to prepare for and address the situation in the future from an interdisciplinary paradigm, balancing strengths and weaknesses among disciplines. Third, this chapter introduces the claim that the existence of a correlation and causation of biophilic architecture may have on the psychological and emotional functionality of the workplace, which in turn may be hard to understand by someone who is not familiar with this topic or interdisciplinary topics.

This claim, while it may not necessarily be innovative, is the same claim that architects have been hypothesizing, but often lacks and continues to lack empirical research data to support the claim (Green, 2012); hence, the development of the Leadership in Energy and Environmental Design, or LEED. Fourth, this chapter highlights the weaknesses inherited within the topic itself, there exist a lack of interdisciplinary partnership between the fields of architecture (lacks the strength in research and research methods to yield valid empirical data) and psychology [lacks the interest in researching the practice of biophilia and its correlation and causation in the workplace (often leaving the responsibility up to industrial and organizational psychology and environmental psychology)]. However, there exists a miscommunication, and sometime a lack of communication between, the fields of architecture and psychology (both industrial, organizational, and environmental psychology). This lack of interdisciplinary and communication partnership often resulted in the claim that:

1. There is no relationship between architecture and psychology.
2. The relationship is disjointed.
3. The relationship is confusing.

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EDWARD OSBORNE (E. O.) WILSON AND BIOPHILIA

Jana Krčmářová's (2009) study shows a parallel with American ecologist Edward Osborne Wilson (commonly known as E.O. Wilson). Wilson's concept of biophilia and the thoughts and development of the environmental movement in the United States. In the 1980s, Wilson came forth with the idea that human perception of, thought about, and behavior towards nature are in many cases guided by irrational psychological mechanisms, which in the past were adaptive. According to Krčmářová (2009), Wilson claims that human relationships to other species, or the value that we attribute to them, are still today influenced by the history of ecological relationships with them over the course of evolution of humans. Thus, Wilson came forth with an interesting view on environmental ethics, or the value, which human assign to other species, ecosystems or generally to natural phenomena (Krčmářová, 2009).

According to Krčmářová (2009), Wilson considers these values or assumptions for their acceptance to be a certain extent innate and selected upon. Wilson further claims that humans are equipped with brains and minds which presume contact with nature and only with this contact can humans develop normally. With the loss of direct contact with other species or life in general, psychic deprivation and degradation of the human mind occur. Wilson not only calls for recognizing the necessity for human contact with other species, but also for acknowledging the psychological and ethical heritage, which humans have acquired in the course of co-evolution with other parts of the biosphere.

Concept of Biophilia

Wilson calls biofilia an "innate tendency to focus on life and lifelike processes" (Wilson, 1984, p. 1), an "innate emotional affiliation of human beings to other living organisms" (Wilson, 1993, p. 31), or an "inborn affinity human beings have for other forms of life, an affiliation evoked, according to circumstances, by pleasure, or a sense of security, or awe, or even fascination blended with revulsion" (Wilson, 1994, p. 360). In other words, in the biophilia hypothesis, Wilson concentrates on the fact that the creation of the human cognition "pattern" during the process of evolution was not contributed to by only the abiotic, and/or social environment, but also by the biotic. Furthermore, in the first listed definition from the book Biophilia (Wilson, 1984), it is claimed that the human mind is generally focused on "life and lifelike processes". Thus, biophilia can be understood as "inborn affiliation with the rest of life". Defined like that it has its place within the evolutionary theory of the biosphere (Lovelock, 1972; Lovelock & Margulis, 1974). However, according to the other two definitions, the concept of biophilia can be understood to be "inborn focus on other life forms", that is a complex of cognitive evolutionary modifications of the human mind which directs learning relationships to natural phenomena. It developed under prehistoric sociocultural and natural conditions. This is how evolutionary psychologists or human ethologists, anthropologists and sociologists understand biophilia. It is a complex, or set, of instincts (Wilson, 2002, p. 137), which sometime in the evolutionary past of humankind favored the individual at some level of natural selection.

The original cognitive rules of understanding and dealing with nature have not disappeared, even in today's world of artificial artifacts, in which we can find natural stimuli. Biophilia, as a complex of weak rules of learning, influences our thinking about nature, the landscape and even about art, myths, and environmental ethics. The deeply ingrained cognitive rules have, in Western society manifested themselves, for example, in the popularity of zoos, preferential housing on hills with views of water or in phobias (Wilson, 1984, p. 32). Many of them are fundamentally connected to avoiding danger, or motiva-

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tion for exploring, and exploiting the environment. In traditional societies, these biophilic tendencies are functional, as humans are there to use their environment directly. In Western civilization with humans' technical capabilities, these tendencies however overload nature, for they are not correctly reflected in culture, and thus, they are not even functional. Many of today's rules for treating nature/other species are the result of a long history of intimate contact with nature, and the short period of mechanization of our environment, which have reduced this contact and at the same time, greatly changed the way we view the value of other species (Wilson, 1975a).

History of Biophilia

According to Preheim (2001), it is estimated that humans share the planet with between ten and one hundred million other species (Wilson, 1993). Surprisingly, humans have given names to approximately 1.4 million species, only a fraction of the total (Wilson, 1993). Humans have, however, brought about the extinction of an estimated 10% of the species that existed before humanity arrived on the planet, and it is predicted that another 20% will be lost in the next thirty years (Wilson, 1993, p. 36). One scholar has noted that "[t]he extinction event now taking place rivals the five great extinctions that have occurred in the earth's geologic history, only this time it is humans, not asteroids, that are the cause" (Preheim, 2001, p. 1053). Humanity has begun to recognize this catastrophe and, in some cases, has taken action. The Endangered Species Act (ESA) is one immediate, and potentially powerful response to the extinction of species in the United States (Preheim, 2001).

Unfortunately, the failure of the judiciary to interpret the ESA more expansively has limited the Act's ability to preserve species (Preheim, 2001). This failure is reflected in the court's inability to properly account for humanity's intrinsic connection with nature when determining what constitutes "harm" under the ESA. The inherent connection that humanity maintains with nature, christened "biophilia" by the Harvard biologist Edward Wilson, provides the impetus for an argument that courts should rethink the way in which they have interpreted the ESA. Simply stated, the intrinsic affiliation with nature that exists within the human species calls for an expansion interpretation of the ESA. This expansion would result in a definition of harm that recognizes that species must be protected from the potential, albeit conceivably uncertain, harm that habitat destruction can effect. This Note argues that biophilia provides the foundation for judicial expansion of the definition of "harm" under the ESA (Preheim, 2001).

According to Preheim (2001), the first section contains an overview of biophilia. The doctrine of biophilia intricately demonstrates humanity's connection with the natural world and this connection is a key element of the ESA. The first section also contains an extensive discussion of the recognition afforded biophilia by other disciplines. This recognition is indisputable. The judiciary, by failing to incorporate this theory into the legal decision-making process, is an isolated outpost detached from the realities of the scientific community. The second section provides a detailed discussion of relevant case law under the Act. The ESA provides that no one shall "harm a species that has been listed as endangered or threatened. Much of this section focuses on what constitutes "harm: to a species as defined by the ESA, the Department of the Interior, and courts.

The Supreme Court's decision in Babbitt vs. Sweet Home Chapter of Communities for a Great Oregon is perhaps the most important case in this area of law, and, consequently, this section contains an extensive discussion of Sweet Home. The Sweet Home court failed re recognize biophilia and, in so doing, permitted an overly narrow definition of "take" under the ESA. Had the Court recognized the intrinsic connection between humanity and nature, it would have concluded that "harm" to a species

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can occur in a myriad of ways far short of "significant habitat modification or degradation that actually kills or injuries wildlife" (Preheim, 2001, p. 1055).

The third section, according to Preheim (2001), provides a synopsis of the history of the ESA, including an examination of the legislative history and underlying purposes of the Act. When enacting the ESA, Congress recognized humanity's connection with the nature as a primary purpose for protecting species. While the theory of biophilia was not developed until well after the enactment of the ESA, the belief that humans have an intrinsic connection with the natural world was certainly an extensive part of the dialogue that occurred within Congress prior to passage of the Act. The fourth section finally provides an overview of the limits of biophilia and discusses the new endangered species paradigm that will invariably result from the adoption of biophilia. The very purpose of the ESA provides courts with the latitude they need to introduce biophilia into the legal world, yet, an unconstrained ESA is certainly not the end goal of the biophilia paradigm. Rather, the recognition of biophilia creates a definition of "harm" that includes potential future harm to species, and also incorporate anthropogenic harm into the decision-making process.

This definition also precludes a balancing approach to endangered species protection, based largely on the central purpose of the ESA, and also precludes non-environmental interests from satisfying standing under the Act. The ESA recognizes that species are vitally important, both for biocentric as well as anthropocentric reasons. Biophilia provides a compelling anthropocentric reason for protecting species that should be incorporated by the judiciary. The end result of this incorporation includes not simply increased protection of endangered species, but also an enduring enrichment to humanity (Preheim, 2001).

BIOPHILIA OF ARCHITECTURE: THE PSYCHOLOGY OF ARCHITECTURE

Humans' mental processes, according to Salingaros (2006, 2008), enable human to interact with and adapt to our environment. Humans' instinctively crave physical and biological connection to the world. The human perceptual mechanisms through which these processes work establish our relationship and response to both architecture and the built environment. The basis for this interaction is human nature itself: the end result of the evolution of our neural system in response to external stimuli such as the informational fields present in the natural environment.

Hence, humans, seeking shelter from the elements, are compelled to construct buildings and cities. Historically, the form of those structures arose from within the material logic of their immediate surroundings, and from the spatial ordering processes of their minds through necessity. Utilizing what was at hand to give structure to existence, people instinctively constructed places that provided the constituent information, form, and meaning that their sense of wellbeing required. Design decisions occurred as a natural extension of the neurological processes that make human alive and human.

Not consciously aware of the nature of these processes, according to Salingaros (2006, 2008), humankind simply built its buildings and cities in this manner without question for millennia. Over the course of time, however, the relationship to the physical began to assume a greater complexity through applied meaning: local mythology, symbolisms, and social structures. As the process-of-building was usurped by the process-of-design, architecture as a tectonic expression of innate human ideas about form, space, and surface became more difficult to grasp. Human's relationship to the physical world was further complicated with 20th-century advances in technology and industrialization. This is clearly evident in the practice of architecture today. Following several centuries of refinement and addition to

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the traditional vocabulary of architecture, the design process, once the exclusive domain of the Master Builder, has taken root in a different soil altogether. As architecture shifted from the domain of craft into the intellectual property of the University, the study of architecture began to align itself with other academic disciplines, although incompletely.

While architecture mimicked the academic realm of philosophy, it reinvented itself as a new discipline detached from its own evolution. Over time, architects effectively disconnected themselves from their history, which was henceforth treated more like archaeology: as interesting, but irrelevant to present-day design concerns (Salingaros, 2006, 2008). In the years that followed, architectural design, and the study of design methodologies, were all but served from those processes that had served for millennia to render the built environment as something intrinsically human. Hence, according to MacKerron and Mourato (2013), there are at least three reasons for thinking that experiences of natural environments will be positively related to health, wellbeing and happiness.

First, there appears to be direct pathways by which such experiences affect the nervous systems, bringing about stress reduction and restoration of attention. The existence of such pathways—biophilia—has plausible evolutionary explanations: an innate human emotional affiliation to nature and living organisms in general is proposed as an adaption to our history (Wilson, 1993). Affinities with more specific habitats, including savanna and forest, have similarly been postulated on the basis that these habitats would have provided our hominin ancestors with the greatest reproductive success (Falk & Balling, 2010; Han, 2007). Second, natural environments may be lower in environmental bads that have significant negative impacts on physical and mental wellbeing, which in turn could affect happiness. Adverse health effects of noise and air pollution are well documented. Chronic traffic noise exposure in urban environments can cause severe sleep disturbance, hearing impairment, tinnitus, and raised stress levels, leading to high blood pressure, coronary heart disease, stroke, and possibly immune systems and birth defects (Day, 2007; Gouveia & Maisonet, 2005; Passchier-Vermeer & Passchier, 2000; Welsch, 2006). Third, natural environments might increase happiness by facilitating and encouraging—for practical cultural and/or psychological exercise, recreation and social interaction (Barton & Pretty, 2010a; Morris, 2003).

Researchers have pursued both observational and experimental evidence on the links between physical or mental wellbeing and the natural environment. Observational studies have related averaged wellbeing measures to aggregate environmental characteristics between geographical regions (Engelbrecht, 2009; Mitchell & Popham, 2007, 2008; Vemuri & Costanza, 2006). Researchers have also compared individuals' SWB reports or medical records with the proximity of their homes in natural environments, or with alternative indicators of local environmental quality (Brereton, Clinch, & Ferreira, 2008; de Vries, Verheij, Groenewegen, & Spreeuwenberg, 2003; Kaplan, 2001; Maas, Verheij, de Varies, Spreeuwenberg, Schellevis, Groenewegen, 2009; Rehdanz & Maddison, 2008). Experimental and quasi-experimental studies have investigated physiological and psychological effects of exposure to images of different environment types (Berto, 2005; White, Smith, Humphryes, Pahl, Snelling, & Depledge, 2010) or to short-term interventions bringing subjects into contact with nature (Barton & Pretty, 2010b; Hartig, Evans, Jamner, Davis, & Gärling, 2003; Ryan, Weinstein, Bernstein, Brown, Mistretta, & Gagné, 2010). Researchers have also related health outcomes to frequency of healthcare-seeking behavior to views of nature in controlled institutional settings (Moore, 1981; Ulrich, 1984).

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PSYCHOLOGICAL BENEFITS OF NATURE-BASED ARCHITECTURE

Different psychological subfields study the human relation with nature. For example, according to Joye (2007a), evolutionary psychologists argue for the existence of cognitive modules that are specialized in conceptual and perceptual knowledge about natural entities. Such cognitive devices are claimed to have evolved to handle the survival-related challenges and opportunities that were present in the natural settings in which human ancestors lived (Mitchen, 1996; Pinker, 1994). Scott Atran (1995) argues how cross-cultural similarities in human folkbiologies support the existence of such a system. In particular, Western and non-Western individuals seem to classify nature in similar ways and consistently ascribe essences to the taxonomic types of folkbiologies. Atran's (1995) view is consistent with literature on category-specific deficits, in which people are reported to have deficient perceptual and conceptual knowledge about the category of living things. One of the interpretations of the causes of such deficits is that, under evolutionary pressures, specific neural areas have become specialized in information about living entities (Caramazza & Shelton, 1998).

Perhaps the psychological field that has most profoundly studied the human (affective) psychological relation with natural entities is environmental psychology. This research area draws on numerous empirical studies and is, therefore, less speculative than the just-mentioned modularity thesis. One of the central issues of environmental psychology is how different types of settings can trigger different affective states in individuals. Two important proposals have been advanced with regard to the specific process underlying these emotional states. In the preference matrix, developed by Stephen and Rachel Kaplan, the occurrence of such states is to a large extent the result of cognitively assessing whether a certain informational features are present in a setting (Kaplan & Kaplan, 1989). This contrasts with a central tenet of Roger Ulrich's (1983) psychoevolutionary framework.

According to Kaplan and Kaplan (1989), affective responses toward environmental settings are not mediated by cognition but stem from a rapid, automatic, and unconscious process by which environments are immediately liked or disliked. These fast affective reactions are claimed to be rooted in human evolutionary history and are essentially adaptive: they motivated the organism to quickly undertake actions that contributed to its well-being and survival. Hence, according to the psychoevolutionary framework, survival chances further increased if these emotional reactions had an inherited component: no precious time and energy had to be spent learning what kinds of environments were either beneficial or harmful (S. Kaplan, 1987, 1988; Ulrich, 1983). With regard to the neutral origin of these affective states, some researchers attribute an important role to subcortical areas, especially the amygdala. This is because these structures are also involved in modulating stress-related hormones, it provides an explanation of why certain types of settings have a different influence on autonomic stress responses (Joye, 2007a; Parsons, 1991).

Aesthetic Preference and Structural Landscape Features

The literature states that, in regards to character of the settings or elements that can trigger such immediate affective states, these reactions can be provoked by some typical structural landscape features. Although coming from a different research field, geographer Jay Appleton was one of the first to propose a model addressing this issue (Appleton, 1975). According to Appleton's prospect-refuge theory, human beings' preference for landscapes correlates with two environmental qualities: prospect and refuge. The

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notion of prospect refers to settings or landscape elements that facilitate obtaining information about the environment.

A typical example, according to Joye (2007a), is a hill which aids to visually access and inspect the surrounding area. Furthermore, refuge points to settings that can provide shelter and protection. Ulrich's psychoevolutionary framework lists some other visual cues that are associated with immediate positive affective reactions: complexity, gross structural properties, depth properties, ground surface and texture, absence of threats, and deflected vista (Ulrich, 1983). The predictors in Rachel and Stephen Kaplan's preference matrix overlap to a certain extent with the variable listed by Ulrich. The Kaplan's model (R. Kaplan & Kaplan, 1989; S. Kaplan, 1987, 1988) describes two types of postures toward the environment.

The Aesthetic Appeal of Natural Contents

In addition to the previous structural landscape features, the field of environmental psychology also studies the natural contents that contribute to the aesthetic qualities of settings; namely, calm water features and vegetative elements. The explanatory framework, again, is essentially evolutionary. These elements are liked because they contributed to the survival and reproduction of early humans. Flowers, for example, signaled the presence of food sources and were cues for future foraging sites. They also helped in differentiating between different vegetation types, because plants that are not blooming often look quite similar (Orians & Heerwagen, 1992). Trees protected against sun and rain and offered early humans prospects on the surrounding landscape and retreats from predators (Appleton, 1975; Orians & Heerwagen, 1992; Summit & Simmer, 1999).

These benefits can explain why vegetative elements and settings containing vegetation still cause aesthetic or liking reactions. Different empirical studies, according to Joye (2007a), show that individuals consistently prefer natural, vegetated landscapes over urban settings without vegetation. When urban environments are mutually compared, highest preference is associated with urban settings containing some vegetation, especially trees, or a water feature (Smardon, 1988; Thayer & Atwood, 1978; Ulrich, 1986). Such phytophilia is also clear from the observation that non-natural environments often contain actual vegetative elements or decorative references to natural contents (Eibl-Eibesfeldt, 1989; Heerwagen & Orians, 1986). Although empirical research on preferential reactions toward flowers is scare, some studies shout that these elements are indeed associated with positive aesthetic reactions (Haviland-Jones, Rosario Wilson, & McGuire, 2005; Todorova, Asakawa, & Aikoh, 2004).

Naturalness and Stress Reduction

Besides causing liking responses, natural elements are also found to contribute to the restoration of human individuals. Two major interpretations of restorative responses have been proposed. The first, attention restoration theory (ART), was developed by the Kaplans (R. Kaplan & Kaplan, 1989). Essentially, ART interprets restoration as the recovery of directed attention or the ability to focus. This capacity is deployed during tasks that require profound concentration, such as proofreading or studying. Natural settings have been found to be ideally suited to restore or rest directed attention (Hartig, Evans, Jamner, Davis, & Gärling, 2003; Hartig, Mang, & Evans, 1991).

The second major interpretation of restoration is a part of Ulrich's psycho-evolutionary framework. In this view, restoration applies to a much broader context than attentional capacities (Parsons, 1991; Ulrich, 1993; Ulrich, Simons, Losito, Fiorito, Miles, & Zelson, 1991). More specifically, Ulrich un-

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derstands restoration as stress reduction, and stress can occur when directed attention is not fatigued. Within Ulrich's model, restorative responses are explained by the fact that early humans were often confronted with threatening and demanding situations. When the treat has vanished, the individual is in need of restoration from the stress that has been caused. The benefits of such restorative responses are "a shift toward a more positively toned emotional state, mitigation of deleterious effects of physiological mobilization, and the recharging of energy expended in the physiological arousal and behavior (Ulrich, 1993, p. 99). These restorative responses typically occurred in natural unthreatening settings.

THE VALUES AND BENEFITS OF NATURE-BASED ARCHITECTURE

Although there is solid empirical evidence that humans hold positive affiliations with a specific set of landscapes and natural elements, this does not preclude that some natural features or occurrences also cause more negative and even aversive in humans (Mineka & Öhman, 2002; Van den Berg & ter Heijne, 2005). Another issue is that the experimental outcomes are sometimes difficult to integrate into a coherent, overreaching conceptual framework. Other issues are that differences in nature appreciation are often left in the dark in these discussions (Van den Berg, 2004), and it is still a matter of debate on which sense the genetic component of these (positive affiliations should be understood (Cummins & Cummins, 1999). Nonetheless, whatever the outcome of these matters, the general picture emerging from the previous concise review is that humans are partly hardwired to emotional affiliation with certain classes of natural objects. Some researchers have argued about the affective relations with natural elements and landscapes in terms of biophilia (Kellert & Wilson, 1993; Wilson, 1984). Although the theoretical merits of this term have been questioned (Joye, 2007b), in the reminder of this report the notions biophilic and biophilia will nevertheless be used as synthetic concepts.

The occurrence of biophilic responding stands in sharp contrast with the observation that there is increasingly less contact with nature in Western technologically oriented societies. Wolff, Medin, and Pankratz (1999) found that such an evolution has nontrivial effects on cultural expressions of nature. In particular, they made a historical study of the word use in dictionaries and found that, from the 20th century onward, the use of (folk)biological terms devolved, and their application lost precision. In contrast, several nonbiological terms evolved during this period. Apart from being associated with an impoverishing conceptual framework for natural objects, it is also plausible that reduced contact with nature can be accompanied by a reduced knowledge of the rich variety of forms characteristic of natural entities.

A probable artistic or creative consequence is that the formal curriculum of artists and architects becomes narrower. The reason is that natural form can be considered as a creative or compositional grammar, which can be used for creating artwork, or, as Kellert states, "The aesthetics of nature can function as a kind of monumental design model" (Kellert, 1997, p. 36). The loss of this monumental design model has its architectural counterpart in modern urban settings, which are increasingly governed by Euclidean geometry and stripped of ornament, patterning, detailing, and color. By encouraging architects to integrate natural forms and patterns in their work, they are motivated to study nature's shapes and compositional rules, and this can enrich their creative curriculum.

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Integrating Structural Landscape Features in Architecture

Doubts regarding structural landscape features being meaningfully applied to the built environment were raised, for this is a more difficult issue than applying well-defined natural contents to architecture, because the former features are of a more abstract nature. Furthermore, only very few researchers have addressed this issue and proposed clear guidelines on how to successfully integrate these qualities in architectural settings. First, turn to the type of setting that contains an ideal mix of these structural landscape features, namely the savanna. As evident strategy to imitate savannas is to integrate photographs or projections of savannas in (interior) spaces. Second, more architectural method consists of mimicking key structural features of savannas.

Another structural feature that positively correlates with landscape selection is mystery. Some claim this property can be conveyed by specific design elements: "When appearing around concerns, attached to walls, and hung from ceilings, interesting objects, architectural details or motifs, graphics, video displays and artifacts can create a little mystery and surprise in the workplace" (Hase & Heerwagen, 2000, p. 30). However, the most straightforward way to apply mystery to an architectural setting is by deflected vista. This can be realized by letting the architectural trail bend away, which can lead to curiosity of what might lie beyond the bend, thereby encouraging explorative behavior. Another mode of mystery is called "enticement". Essentially, this notion refers to the situation is which a person is in the dark, from where it can see a partially visible and enlightened area or setting. Such enlightened regions draw attention and trigger explorative behavior. Although mysterious settings can be aesthetically appealing, too much irregularity or surprise can have the result that the layout of the building becomes confusing and nontransparent, ultimately leading to orientation and way-finding problems. Legibility can be enhanced by integrating signalizations and distinctive markings, by offering views on the outside, and by making the building shape more regular (Evans & McCoy, 1998).

Imitating Natural Contents in Architecture: Biomimicry

Imitating natural contents in architecture can be achieved by providing views on the outside environment, by integrating vegetation in built settings, by hanging nature pictures on the wall, by nature-orientated screensavers, and so forth. These interventions are what Keller (2005) called indirect experiences of nature, and they come quite close to the design interventions from the field of evidence-based design (Ulrich, Zimring, Quan, Joseph, & Choudhary, 2004; Van den Berg & Van Winsum-Westra, 2006). It is this sense that the modern built environment sometimes imports some of the icons of habitability that are typical of ancestral habitats. The result is that even architecture that is characterized by non-natural forms can be consistent with the current argument. An alternative to literal imitations is to create architectural designs based on schematic imitations of natural elements. These would no longer be copies but artistic interpretations that still contain some global visual similarities with regard to the original natural object.

One of the central claims of the current study is that such constructions will be accompanied by affective states that are similar to those evoked by real natural contents. Orians and Heerwagen (1992, p. 572) expressed it as follows: "An evolutionary-ecological approach to aesthetics suggests that the incorporation of trees and tree forms, actual or symbolic, into the built environment should have a strong positive impact on people… We predict that the presence of these 'symbolic trees' is associated with positive response to built environments." Further reasons why architectural imitations of nature could trigger biophilic responses are more empirical in nature. First, it can be pointed out that research

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on environmental preferences often uses simulations of nature. The results that are obtained with these stimuli are close to the responses associated with real nature, which suggests that realness does not play a decisive role. Second, symbolic representations of nature have been used throughout the history of art of aesthetic enhancements, which suggests that these can trigger biophilic responses. Third, research indicates that preferences for natural settings can be statistically predicted by underlying geometric characteristics, which lends plausibility to the claim that geometric abstractions from nature can cause the associated affective effects (Hägerhäll, Purcell, & Taylor, 2004).

THE PSYCHOLOGICAL AND EMOTIONAL VALUES AND BENEFITS OF NATURE-BASED ARCHITECTURE: MENTAL HEALTH

The biophilia hypothesis was originally referred to (Wilson, 1984) as an innate tendency to focus on life and lifelike processes, meaning that individuals gain the most satisfaction from processes that mimic the nature of life on many levels, be they cognitive or emotional. Since then, the biophilia hypothesis has been applied to many areas of life, including mental health (White & Heerwagen, 1998). This is largely due to refinements in the theory by people like Wilson (1993) where Wilson stated that biophilia was complex set of learned behaviors and processes based on our connection to nature. These learnings are split into biophilia which are positive learning and approach behaviors and biophilia which are negative learning with avoid behaviors (Ulrich, 1993). Wilson claims the opposite of writers like Fisher (2003) who believe our connection to nature is replaced by technology, but argues that our biophilic feelings atrophy and are integrated into our cultural systems as exemplified by zoos and nature based attractions.

In terms of one's emotions and the reactions of others in a consistent manner (Struening, Perlick, Link, Hellman, Herman, & Sirey, 2001), in contemporary society is clear, biophilic, and biophobic tendencies are a marker of culture (Wilson, 1993) and if one takes the assumptions made by various commentators (Foucault, 1964; Horwitz, 2002; Rind & Yuill, 2012) that mental health is a product of its culture, the connection is even clearer. The problems of mental health are shown to be increasing the world over (Desjarlais, Eisenberg, Good, & Kleinman, 1995), while biophilia as a hypothesis can answer this to a degree, it provides many other answers, namely to do with the origin of many of these conditions that we are experiencing.

Fears and phobias are a cornerstone of mental health (Agras, Sylvester, & Oliveau, 1969) forming the root of many more severe mental health problems (Horwitz, 2002) and altering the way we go about our lives (Kessler, 2003). Biophilia has two main implications for mental health, the first of these being treatments of both biophobia based conditions, but also of other mental health issues (Ulrich, Simon, Losito, Fiorito, Miles, & Zelson, 1991). There are a number of writers who claim the effectiveness of biophilic elements in treatment (Melson & Fine, 2010) such as plants added to setting or animal integration, often at the same time. For this particular application of the biophilia hypothesis, there is an effort to make evidence empirical with well documented studies occurring as opposed to anecdotal evidence (Melson & Fine, 2010). A primary example of this is Melson's 2001 study into dearousal of stress and anxiety patients, his study used therapeutic interviews combined with playing with or watching animals.

Melson found that the animal influences allowed for the levels of stress of anxiety to decreases in the individuals, while also allowing them to learn positive nurturing techniques to apply to themselves as calming mechanisms (Melson, 2001), and suggested that this is at least in part to do with our affiliation to positive animal influences in our biophilic past. Other researchers have confirmed the dearousal

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concept even before Melson. Golletz (1995) showed that biophilia helped to induce relaxation through a passive positivity from natural stimuli, in this case being pictures and sound effects pitted against verbal relaxation or silent resting. The nature stimuli used by Golletz (1995) allowed or a measurable reduction in anger and anxiety through self-reporting methods, showing a perceived difference in natural to human based stimuli, at the very least. With this in mind, Gullone (2000) points out that biophilia allows as to consider out mental health in a more complex way and as such think of more cures, but it has wider implications for the mount of pathologies that are now open to diagnosis (Gullone, 2000), which leads us to the second implication of biophilia on mental health.

As shown above, our environment can greatly influence our mental health, and when considered in the context of our environmental crisis, the implications are dire. It is argued that climate change itself effects our mental health in two distinct ways (Berry, Bowen, & Kjellstrom, 2010), firstly, is physical changes, through changes to the amount of sunlight we get effecting serotonin and other mood regulators (Lambert, Reid, Kaye, Jennings, & Esler, 2002) and lifestyle alternations correlating with increased stress (Norgaard, 2006). Secondly, these changes begin to weaken our sense of community (Berry, Bowen, & Kjellstrom, 2010), with the argument being made that our physical environment and its effects on us are symbiotic with our social environment (Spaargarden & Mil, 1992). In terms of the biophilic implications of this, Maller, Townsend, Pryor, Brown, and St. Leger (2006) suggest that this can be used in a collaborative effort of developers, health and social services as a way of honing our biophilic nature, through more open and greener spaces, into a more positive mental health structure, lest as Wilson (1993) fears, we lose the biophilic part of our mind through lack of stimuli in our everyday lives and lose the part of us he termed our spirit.

FUTURE RESEARCH

In habitat theory, savannas are claimed to be the settings in which early humans spent a substantial part of their evolutionary history, and these seem to display an ideal mix of the previously discussed structural landscape features and natural contents (Van den Berg, 2004). This type of biome can be broadly described as low to intermediately complex settings, having a relatively even and grassy ground surface dotted with scattered trees or tree groups. Savannas contains a high degree of biomass and meat, and these are relatively easily accessible for terrestrial beings. Furthermore, the openness of savannas facilitates detecting predators and game and is conducive of movement and a nomadic lifestyle (Orians, 1980; Orians & Heerwagen, 1992). The aesthetic preference for savanna-type landscapes has been the subject of a few empirical studies.

Balling and Falk (1982) found that young individuals preferred savannas over other biomes without ever being exposed to the former type of landscape. The researchers hypothesize these findings could well indicate an innate (aesthetic) preference for savannas [Synek & Grammer, 1998 (Coss, 2003, for contrasting findings)]. Consistent with the savanna hypothesis, research indicates that people tend to prefer tree shapes characteristic of high-quality savanna: These typically have a low trunk, a broad canopy, and a moderate canopy layering (Orians & Heerwagen, 1992; Sommer & Summit, 1995). Inquiries into the evolution of artists' work (John Constable) show an increase of conspicuous savanna features over time (Heerwagen & Orians, 1993). Furthermore, studies indicate that when artificial changes are made to plants and trees, these increasingly come to resemble savanna-type vegetation (Heerwagen & Orians,

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1993). Finally, areas that are created for recreational or aesthetic purposes often resemble savannas (Orians, 1980).

Within the field of landscape aesthetics, the savanna hypothesis is often taken for granted and has remained mostly undisputed. Nevertheless, Joye (2007a) find it troubling that almost no attention is paid to discussions in the field of paleoanthropology. For example, Wilson (1993) argues how humans' references for nature, savannas in particular, are remnants of paleohominid and early Homo evolution in this type of biome, a view shared by many in the field of habitat theory and landscape aesthetics. In this view, Potts (1998) sketches a more complex view that is supported by scientific environmental analyses. Based on evidence during the evolution of early hominids, there was quite some variation in the environments that were inhabited, ranging from forests to savannas to open-canopy woodlands.

Nonetheless, it could be countered that the true value of the savanna hypothesis does not have any bearing on the finding that humans adapt to and display positive affective affiliations with natural environments. As Kahn (1999, p. 39) points out, "The evolutionary account can hold, but the savanna hypothesis needs to give way to a broader account of genetic predispositions to inhabited landscapes". Furthermore, when it comes to architecture and biophilia, almost no attention is paid to discussions in the field of psychology, specifically environmental psychology, sense and perception in psychology, and health psychology as an interdisciplinary field of study and research.

CONCLUSION

The great management theorist, Abraham Maslow (Maslow & Mintz, 1956), was examining the aesthetics of the workplace, and their impact, as long ago as the 1950s. Maslow's studies found that the quality of office design influenced office workers, with aesthetically pleasing spaces having a positive impact on energy levels and well-beings (Grant, Christianson, & Price, 2007; Tran, 2015). Furthermore, research shows that the presence of natural elements indoors can evoke the same benefits as the outdoor environment (Ryan, Weinstein, Bernstein, Warren-Brown, Mistretta, & Gagné, 2010), supporting the case for biophilic office design. Furthermore, across Europe, research has shown that the simple presence of natural elements in the work environment can act as a buffer against the negative impact of job stress and positively impact general well-being (Velarde, Fry, & Tveit, 2007). Hence, in the work environment, the benefits of nature have also been recognized, with research in Norway, finding that natural elements within an office space, such as plants, can prevent fatigue when completing tasks that demand high concentration or attention (Raanaas, Horgen-Evensen, Rich, Sjostrom, & Patil, 2011).

Similarly, Cooper and Browning (2015) found that across countries, the presence of natural elements was consistently associated with higher reported levels of happiness at work, in comparison to work environments void of nature. In addition, employees working in offices with both internal and external green spaces along with plenty of natural light reported higher levels of well-being, in comparison to those working in environments without these natural features. Cooper and Browning's (2015) study reported levels of well-being and productivity that were 13% and 8% higher, respectively, for those EMEA office workers in environments containing natural elements. However, despite the benefits that natural light and space can provide, it was found that 30% of workers do not work in environments that provide these sense of light and space. Findings such as this should urge organizations and designers can be built or modified to provide light and space and in turn increase levels of well-being and productivity within the workforce.

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The work environment is already an established part of the expected psychological contract between employer and employee and has even become a differentiator for employer brands. Consider the biggest firms in the technology sector—Facebook, Apple, Google—these are all at the vanguard of providing great working environments, of which many are linked to nature through biophilic design and the campus layout of the main offices. With this backdrop of increased awareness amongst employees about leading companies' approach to designing work environments, it is possible to envisage biophilic design as a crucial component in "the war for talent"—how companies attract and retain the most skilled, productive workforces with great competition. Although Cooper and Browning (2015) found over three quarters (77%) of respondents reporting that the design of an office would not affect their decision to work for that company, it is likely that as the awareness of the positive impact of good design grows, Cooper and Browning (2015) will see a decrease in this figure and more people holding a greater expectation of office design that is stimulating and provokes positive feelings.

This is because humans need to be connected to nature can be satisfied through biophilic design in two ways: either a direct or a symbolic connection to nature. Direct connections are sought through natural elements being incorporated into the workplace. But if these are not available individuals can have symbolic connections with nature that differ in that they are mimicries of the natural environment. When design mimics the patterns, forms and textures of nature, this can provide these symbolic connections. The importance of nature contact in the workplace is evident, yet, if organizations are not equipped to provide this contact directly, then it seems that symbolic connections are the ideal and necessary substitute. The findings of Cooper and Browning's (2015) study have identified a common deficiency of nature in the workplace. Of the 3,600 EMEA office workers investigated in this research study, 42% reported having no natural light, 55% reported no natural elements being present, and 7% said they had no view of the outdoor world.

Ultimately, the research in this area indicates that bringing elements of nature into the workplace, whether real or artificial, is beneficial in terms of employee outcomes. Nevertheless, although investigation into the benefits of biophilia for individual well-being is relatively new, there is clearly mounting evidence that biophilic design can have a positive impact, from reducing stress and anxiety, to improving the quality and availability of respite from work and in increasing levels of self-reported well-being. There are clear links between these findings and areas of organizational psychology which merit biophilia as a consideration within organizations' wider well-being strategies. Hence, when it comes to the well-beings (the psychological and emotions) of humans due to architectural design, when it comes to architecture and biophilia, architects must consider the field of psychology, specifically environmental psychology, sense and perception in psychology, and health psychology as an interdisciplinary field of study and research., when designing to increase the values and benefits of nature-based architecture—biophilia.

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KEY TERMS AND DEFINITIONS

Aesthetic Preference: Aesthetic judgements arrived at by people on the basis of a number of factors. Judgments of aesthetic value clearly rely on our ability to discriminate at a sensory level. Aesthetics examines what makes something beautiful, sublime, disgusting, fun, cute, silly, entertaining, pretentious, discordant, harmonious, boring, humorous, or tragic.

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Architecture: Architecture is both the process and the product of planning, designing, and constructing buildings and other physical structures. Architectural works, in the material form of buildings, are often perceived as cultural symbols and as works of art. Historical civilizations are often identified with their surviving architectural achievements.

Biophilia: An innate human emotional affiliation to nature and living organisms in general is proposed as an adaption to our history.

Edward Osborne Wilson: Wilson is the founding father of the concept of biophilia and the thoughts and development of the environmental movement in the United States. In the 1980s Wilson came forth with the idea that human perception of, thought about and behavior towards nature are in many cases guided by irrational psychological mechanisms, which in the past were adaptive.

Evidence-Based Architecture (Design or EBD): A field of study emphasizing credible evidence to influence design. This approach has become popular in healthcare to improve patient and staff well-being, patient healing, stress reduction and safety. Evidence-based design is a relatively new field, borrowing terminology and ideas from disciplines such as environmental psychology, architecture, neuroscience and behavioral economics.

Folkbiologies (Folk Biology or Folkbiology): The cognitive study of how people classify and reason about the organic world.

Imitating Natural Contents in Architecture (Biomimicry): Biomimetics or biomimicry is the imitation of the models, systems, and elements of nature for the purpose of solving complex human problems.

Integrating Structural Landscape (or Landscape engineering): Landscape engineering is the application of mathematics and science to shape land and waterscapes. It can also be described as green engineering, but the design professionals best known for landscape engineering are landscape architects. Landscape engineering is the interdisciplinary application of engineering and other applied sciences to the design and creation of anthropogenic landscapes.

Landscape Aesthetics (Landscape Architecture): The design of outdoor public areas, landmarks, and structures to achieve environmental, social-behavioral, or aesthetic outcomes. Landscape architecture is a multi-disciplinary field, incorporating aspects of botany, horticulture, the fine arts, architecture, industrial design, soil sciences, environmental psychology, geography, and ecology.

Mental Health: Mental health refers to how we feel, think, behave and manage our psychological lives.

Psychoevolutionary Framework [or Evolutionary Psychology (EP)]: A theoretical approach in the social and natural sciences that examines psychological structure from a modern evolutionary perspective. It seeks to identify which human psychological traits are evolved adaptations.

Structural Landscape: Work involved in the construction of external landscape features, and non-habitable structures including the following: 1. Retaining walls of any material that do not form part of a habitable building, 2. Fencing irrespective of the construction material, driveways, paths and other paving of any material, 3. Cabanas, pergolas, decks and non-habitable shelters, 4. Ornamental ponds, water features and other structural ornamentation.

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Chapter 17
Considerations for Setting Up Play Therapy Training Clinics:
Recommended Play Therapy Toys, Materials, and Other Professional Considerations

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ABSTRACT

When setting up a play therapy training clinic, there are many considerations to explore regarding designing a therapeutic space, selecting toys and other materials, exploring the rationale for the toy selection and examining the cultural considerations in play therapy settings. This chapter will review the different types of play therapy clinics and the specific toys recommended based on the fourteen primary play therapy theoretical orientations. General considerations will be reviewed when utilizing art media and other materials, books and bibliotherapy, puppets and puppet theaters, sandtrays and miniatures, and psychotherapeutic games. Recommendations will be made for establishing community and university-based play therapy training sites offering clinical and mock play therapy services. Suggestions will be made regarding the importance of establishing play therapy laboratories in the classroom setting when providing graduate play therapy instruction. Additional recommendations will be made for the 2019 Play Therapy Best Practices published by the Association for Play Therapy.

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INTRODUCTION

Considerations for Setting Up Play Therapy Training Clinics: Recommended Play Therapy Toys, Materials, and Other Professional Considerations

There are many unchartered, yet important, considerations for setting up a play therapy training clinic given the limited available literature. In the process of researching factors to consider when setting up a university-based or a community-based play therapy training clinic for this chapter, the authors reviewed the play therapy literature; reflected upon over their 25 years each of clinical practice in multiple settings including university-based, community out-patient, school-based, in-home counseling, hospital, residential, and inpatient /psychiatric care; and considered their teaching experiences at multiple universities, both at Approved Centers of Play Therapy Education, as defined by the Association for Play Therapy (APT), and universities lacking the approval status.

This chapter will highlight considerations for setting up university-based and community-based play therapy training clinics due to the limited available research on this important topic. Much thought and research are required in order to create an appropriate therapeutic space for providing play therapy services. Play therapy clinics need to create spaces that accommodate various cultural considerations, clinician's theoretical orientations, and even technological considerations. Clinicians must carefully select, acquire, and organize toys and materials in the play therapy room based on evidence-based practices, including the use of art media and other materials, books and bibliotherapy, puppets and puppet theaters, sandtrays and miniatures, and psychotherapeutic games. Specifically, this chapter is divided into five sections: 1) the different types of play therapy clinics, 2) the cultural considerations regarding the play therapy setting and toys, 3) the method for selecting toys and materials; 4) the limitations of this research review; and 5) the recommendations for setting up a community-based and a university-based play therapy training site providing clinical services and services for mock clients.

The APT is the national professional organization that standardizes the field of play therapy and offers national credentialing in play therapy. The organization developed *The Play Therapy Best Practices* as an on-line publication with the goal of establishing clinical, professional, and ethical guidelines for the field (APT, 2016). When researching considerations for setting up a play therapy clinic, the authors reviewed the APT best practices publication as a starting point; however, recommendations for structuring a play therapy room were not addressed in this document. This online publication further did not address the recommended play therapy room size, diverse settings in which play therapy occurs, playroom characteristics, cultural considerations when selecting toys and providing clinical services, the rationale for selecting play therapy toys and materials, and the playroom set-up including the toy organization and display (APT, 2016). The authors then researched available play therapy literature to find appropriate best practices for the field to create recommendations for setting up appropriate play therapy clinics.

TYPES OF PLAY THERAPY CLINICS

Whether one is establishing a university-based play therapy training clinic, a community-based play therapy clinic, or a university-based training site serving mock clients, there are many factors to consider. Before setting up a play therapy clinic or training site, one must consider the location of the clinic (university-based or community-based) and the purpose of the playroom. Some playrooms will be used

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solely to provide clinical services to community members, some may act as a training room for mock play therapy sessions, or some may serve clients and trainees. General recommendations will be reviewed for all play therapy sites, including specific recommendations for university-based, community-based, non-traditional training sites offering clinical services to the community, and university-based play therapy training sites offering mock play therapy services.

General Recommendations for All Play Therapy Clinics

General recommendations for all play therapy rooms, sites, or clinics will be discussed with a focus on the ages of the populations being serviced, the type of services being offered, and the specifications of the play therapy space. Additional considerations will include the recording or observation options, the accessibility of the play therapy clinic or room, and the ability level of all individuals being served.

First, when setting up a play therapy clinic or room, it is important to consider the age(s) of the client(s) being served and the type of services being offered. If clients will be seen in the playroom, it is important to determine the ages of the clients who may receive services (children ages two to 12, adolescent ages 13 and up, and/or adults and other family members seeking family therapy) so that the appropriate toys and materials are present for all populations being served (Landreth, 2012). One should also consider the type of services being provided such as individual, family, or group therapy.

Play therapists will benefit from not only working directly with youth when providing play therapy services, but also from gaining the experience of working with clients' parents, grandparents, and other caregivers to better understand the client and offer assistance to the clients' support systems. According to Gil (2015), the benefits of having the family members join the play therapy session are to offer insight to the play therapist on the family's dynamics, as well as to the family members. The therapist can observe the family's communication styles, levels of cooperation and organizational skills, levels of affective and physical contact, levels of enjoyment while interacting with one another, levels of spontaneous insight, the hierarchies and boundaries, and possible coalitions that may be present.

In order to provide appropriate play therapy services or instruction, there are multiple factors to consider when designing a therapeutic space. Landreth (2012), Kottman (2011), and Carmichael (2006) offered many recommendations for the play therapy space. The room size of the play therapy room should be approximately 12 feet by 15 feet with an area of between 150 and 200 square feet so that the child is never too far away. The room should be large enough to allow the child space to explore the room and toys, and to allow space for multiple children to play, but not too large that the trainee or therapist is unable to observe or track the child because the child is too far away from the trainee or play therapist. When providing group play therapy services, Landreth (2012) recommended a playroom approximately 300 square feet and O'Connor (2000) recommended a play therapy room to be approximately 15 feet by 25 feet.

Further considerations for the room itself include ensuring confidentiality and privacy during the session. The playroom needs to have a door that closes to ensure confidentiality. The room needs to be absent of any windows or inside walls to decrease any possible distractions or interruptions that may occur (Landreth, 2012; Carmichael, 2006). If windows are present in the play therapy room, the windows should be covered with curtains or blinds (Landreth, 2012; Kottman, 2011). The playroom needs to be located away from the main flow of traffic in the building so that caregivers in the lobby cannot hear the child in the session and other clients in the office will not be disturbed (Carmichael, 2006). All sessions, supervision meetings, and consultations should remain private. Sound proof walls may assist

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in preventing others in the hallway or lobby from overhearing conversations, as well as having a white-noise making device that may prevent conversations from being heard outside the play therapy room (Landreth, 2012). If possible, acoustical tiles should be fitted on the ceiling to reduce noise (Kottman, 2011). Further, no client's artwork should be displayed in the play therapy room, hallways of the office, or any other counseling or staff office (Landreth, 2012). All clients' artwork should be viewed as part of their medical record; therefore, displaying any artwork is seen as a violation of the clients' confidentiality and privacy. Also, all artwork from the prior client should be removed from the play therapy room and all toys should be returned to their original location before the next client enters the play therapy room.

Regarding the play therapy room flooring, the initial costs, replacement cost, durability, and ease of cleaning should be considered. Landreth (2012), Kottman (2011), and Carmichael (2006) recommended that the playroom floors be durable and easy to clean, such as vinyl tile squares instead of carpet or solid sheet vinyl. Carmichael (2006) also recommended newer waterproof floors that have a wood appearance but warns against having carpet. Carpet may help keep the noise down in the room, but may be difficult to clean and may restrict painting and sand activities.

Like the floors, the walls of the playroom should be designed with ease-to-clean in mind and have washable enamel (Landreth 2012; Kottman, 2011; Carmichael, 2006) and be stain resistant (Carmichael, 2006). An off-white color (Landreth, 2012), neutral color (Kottman, 2011), or shades of white to cream (Carmichael, 2006) for the walls is recommended so that it provides a cheerful atmosphere, whereas vibrant, dark, or somber colors should be avoided (Landreth, 2012). The play therapy room is supposed to have a neutral and gender-neutral presence so that the room itself does not influence the child's feelings, behaviors, or cognitions. Carmichael (2006) recommended refraining from wall murals or non-neutral colors because this may change the child's mood for behaviors. Also, if artwork or other decorations are displayed in the room, it is recommended that the items need to be displayed at the child's eye level (Landreth, 2003).

Further physical space considerations include ensuring that the room has adequate air conditioning and heating. The lighting in the room needs to be adequate with preferred recessed lighting with protective guards. Recessed lighting, flush mount lights, or fluorescent ceiling lights may be safer if a child were to throw an object toward the ceiling, the light bulbs, or the light fixtures (Carmichael, 2006).

One should also consider the accessibility of the play therapy clinic or room and the ability level of all individuals being served. It is essential that the front door to the clinic, the clinic lobby, the hallway, the door to the play therapy room, and the room layout itself meet the Department of Justice (2010) Americans with Disabilities Act of 1990 requirements. If the site is an older building, renovations should be made to accommodate all clients in the building and the playroom. The toy set-up and the toys themselves should also accommodate the clients in terms of the weight, overall size, and height of the toys and furniture so that the needs of all clients can be met.

Safety considerations in the play therapy room include ensuring the room is both an emotional and physically safe place (Barnes, 1996; Carmichael 2006). Play therapists need to ensure all electrical outlets have outlet plug covers, and all bookshelves are attached to the wall and secured so that if a child tries to climb any large piece of furniture in the room, it will not fall over (Landreth, 2012; Kottman, 2011, Carmichael 2006). The room needs to be checked for sharp corners, objects, protruding nails, or another other possible hazardous material that may harm a child. If windows or window fans are present in the play therapy room, they need to have screens or locks in place to ensure the child cannot hurt him or herself. Space heaters should not be present in the play therapy room due to possible electrical fires or child burn hazards. Play therapists are recommended to contact their local fire marshal if they have any

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concerns about the room itself or the contents in the room (Carmichael, 2006). The chapter authors further recommend that all cleaning and flammable materials are not accessible to the clients, and all food and beverages are not allowed into the play therapy room in case another child may have food allergies.

An optional recommendation is to have water or bathroom access in or connected to the playroom. A sink in the play therapy room, at the child's height, with cold running water may be used for painting, cleanup, and play in the sandbox or sandtray. Hot water is not needed due to potentially burning the child's hands. If a sink cannot be present, the therapist may place a pitcher of water in the playroom for painting and sand play. It is further helpful to have a small bathroom in the play therapy room with a door that closes or a bathroom within close proximity of the play therapy room (Landreth, 2012; Kottman, 2011; Carmichael, 2006).

Another optional consideration is whether or not the play therapy clinic needs recording equipment or observational tools. Landreth (2012), Kottman (2011), and Carmichael (2006) recommended having a one-way mirror so that trainees or therapists can be observed while providing play therapy services. A one-way mirror also allows videotaping of the session, peer reviews, and the possible observation of the parents or caregivers during the play therapy session. It is also suggested to have recording equipment available so that the play therapy sessions can be recorded. Play therapists or trainees can go back and watch the recorded sessions to identify their strengths and areas to work on. Landreth (2012) recommended to not have a video recorder in the play therapy room due to the child possibly altering his/her behavior, becoming more animated, or being distracted by the equipment.

Ray (2011) further discussed the importance of having video-recording equipment in the play therapy space at university-based play therapy training clinics. Ray noted that self-report by play therapy trainees are notoriously inaccurate and audio recordings limit the play therapy instructor or supervisor's ability to observe the child's and the trainee's nonverbal communication. By video recording the play therapy session, the therapist or trainee can also re-experience the session in the presence of the supervisor or instructor, as well as re-connect with the trainee/therapist's and the child's or client's feelings. Enhanced emotional connections may assist the trainee or therapist in increasing his/he level of empathy and understanding of the child or client, as well as improve the trainee/therapist's level of self-reflection and awareness. Further, the chapter authors noted that any other occurrences that may have knowingly or unknowingly influenced the play therapy session, such as environmental factors, either inside the play therapy room or outside the room or hallway can be identified and addressed.

Researchers further provided items and pieces of furniture that may be beneficial in the play therapy room. A chalkboard mounted approximately 21 inches from the floor with a tray across the bottom with colored chalks or a dry erase board with non-toxic erasable markers with different colors is recommended (Landreth, 2012; Kottman, 2011; Carmichael, 2006). A polished metal mirror mounted to the wall may be helpful (Landreth, 2012). Sturdy wooden book shelves at the child's height (the top shelf should be no higher than 38 inches) with a long-lasting finish should be mounted to the wall to allow the display of toys, as well as ensure the child is safe if the child tries to climb in the shelves or on top of the shelves. A sturdy, wood, or hard-surfaced child-sized table and chairs need to be present in the playroom with an adult-sized chair for the therapist (Landreth, 2012; Kottman, 2011; Carmichael, 2006). Fabric chairs for the child or therapist are not recommended due to possible health concerns and the possible difficulty keeping them clean (Carmichael, 2006). A storage container may be present to store additional art supplies or could be used as a small sandbox or sandtray (Landreth, 2012; Carmichael, 2006). Landreth (2012) and Kottman (2011) also suggested having a storage cabinet to store art materials with a countertop to paint and display artwork. Kottman (2011) further recommended having a small desk if a table and chairs

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were not available, a pillow for the therapist if a chair could not be present, and additional furniture to accommodate parents or caregivers if they were to attend the session.

NON-TRADITIONAL PLAY THERAPY SPACES

Many universities and play therapy training programs offer practicum and internship experiences in non-academic settings. These diverse community-based and non-traditional counseling sites may include hospitals, community agencies, schools, churches, and in-home settings. In order to provide appropriate play therapy services, there are many factors to consider when designing a therapeutic play therapy space in non-traditional settings.

In medical settings, toys used in play therapy practice present a challenging cross-contamination issue when used in toy rooms or in portable medical play practices due to the pathogenicity. According to the Occupational Safety and Health Administration (OSHA, 2019), universal precautions are defined as "an approach to infection control to treat all human blood and certain human body fluids as if they were known to be infectious for HIV, HBV and other bloodborne pathogens" (p.1). Universal precautions are always recommended according to the World Health Organization (2007) and the United States Department of Labor (2019) standard precautions in health care. By finding ways to sterilize the toys and materials and by having child-specific toys per session, this can avoid cross contamination. Carmichael (2006) recommended only selecting toys that can be washed in disinfectant. She further recommended not having puppets or stuffed animals in the playroom unless they can be washed or dry-cleaned often.

When providing play therapy services in a community, school, or non-traditional counseling settings, it is important that the agency, school, or hospital supervisor have basic knowledge of play therapy services, the recommended play therapy space, and the play therapy toys required to offer play therapy in a therapeutically conducive environment. Many non-traditional counseling settings may have toys at the site, but they are disorganized or broken. The toys made available may also be considered non-therapeutic based on the rational for selecting play therapy toys. The play therapy space may not be a safe and secure environment. Further, play therapy services may be offered at sporadic locations, for example in schools, playgrounds, empty offices, storage rooms, hallways, and media centers. In these cases it is difficult to ensure confidentiality when meeting in open spaces, and meeting in different places at different times with different toys does not ensure continuity or consistency in the clinical services provided.

In order to offer support to non-traditional counseling settings, the authors recommend that university-based play therapy supervisors offer play therapy workshops and trainings to the community supervisors and staff so that everyone at school-based and community-based agencies will better understand the necessity and requirements of a proper play therapy space. Play therapy supervisors could also offer agency consultations so that when students are placed in these non-traditional settings, if the agency is amenable to setting up a play therapy room, the therapeutic space could be established before the play therapy trainee begins his or her practicum or internship experience.

When play therapy services are offered in non-traditional sites, but the site does not have a play therapy room or the required toys, Landreth (2002, 2012) and Landreth and Bratton (2006) recommended the play therapist bring a play therapy toy tote bag with three primary categories of toys: 1) real-life toys, 2) acting-out aggressive toys, and 3) creative and emotional expression toys. *Real-life toys* include: a small baby doll, a nursing bottle, a doctor kit (with stethoscope), toy phones (at least two), a small dollhouse, a bendable doll family that is ethnically representative of the client's family, play money, a couple of

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domestic and wild animals, a car and truck, and kitchen dishes. Optional toys include: puppets (one aggressive and one gentle), doll furniture (for a bedroom, bathroom, and kitchen), and dress up items. *Acting-out aggressive toys* include: dart guns with a couple of darts and a target, a rubber knife, a rope, aggressive animals such as a snake, shark, lion or dinosaurs, small toys soldiers with two different colors (around 12-15), inflatable bop bag, a mask, and an optional set of toy handcuffs with a key. *Toys for creative/emotional expression* include: Play-Doh, crayons, plain paper, scissors, transparent tape, egg carton and Styrofoam cup or bowl, ring toss game, deck of playing cards, soft foam ball, two balloons per play session, an optional selection of arts and craft materials in a Ziplock bag, Tinker Toys or building blocks, binoculars, and a tambourine, drum or other small musical instruments, and a magical wand (Landreth, 2002, 2012; Landreth & Bratton, 2006).

University-Based Training Site Serving Mock Clients

The purpose of a play therapy training site serving mock clients is to allow play therapy trainees the opportunity to interact with the recommended toys, practice play therapy skills, receive immediate feedback and supervision from both the student counseling cohort and the supervisor, and process the session afterwards. If the playroom or clinic will not be utilized to provide services to real clients, it is important to explore what will be the purpose of establishing a play therapy playroom. Will the room be used for graduate students or play therapy trainees to practice their play therapy skills with each other during role plays? Will the students practice their play therapy skills with a non-clinical population such as friends or family members who may give consent to work with their children or adolescents? Will the instructor role play with students or vice versa to demonstrate the play therapy skills? What type of supervision will be provided if any to monitor the student's progress? Will supervision include live supervision in the playroom, supervision using a one-way mirror, or will an electronic recording device be present to record all sessions and role-plays so that the students will be able to go back and review their sessions at a later date?

It is recommended to have laboratory experiences (i.e. practicum or internships) including: observing play therapy sessions of other trainees; observing the instructor provide play therapy services live or reviewing a recording of a play therapy session; conducting a recorded role play session both with the instructor and fellow trainees; and conducting play therapy sessions with non-clinical populations such as children enrolled in daycares or nursery schools (Landreth, 2012).

For training sites, it is suggested to install electronic equipment to video record the sessions for later playback and viewing. If this is not possible, it is recommended to install a one-way mirror in the playroom (Landreth, 2012). Typically, graduate students enrolled in graduate counseling programs are required to record counseling sessions, review the sessions with their instructor and fellow classmates, and provide a formal case staffing or case conceptualization of their clients. Many university digital recording systems may only retain the counseling session for two to four weeks depending on the system. It is necessary to ensure the recorded sessions are kept for a minimum of four to eight weeks to allow the students the ability to discover themes and patterns of play after reviewing and reflecting upon their play therapy sessions.

It is further recommended by the authors to employ two full-time state licensed Registered Play Therapist Supervisors (RPT-S) to provide all supervision of the play therapy trainees at the university and community-based training sites and to provide graduate play therapy instruction. This number may vary based on the size of the student population and/or university; however, when applying for play

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therapy certification, all graduate play therapy coursework has to be taught by two different play therapy instructors (APT, 2019). Having only licensed RPT-S clinicians provide the play therapy supervision and teach the play therapy graduate courses, ensures a qualified professional has met the requirements for APT and can provide appropriate supervision and oversight for all play therapy instruction being provided. Further, it is important that the play therapy room be set up according to the theoretical-based clinical recommendations. If the play therapy room is not set up correctly, it will be difficult to provide play therapy supervision, address mistakes made, or discuss possible areas of improvement during the play therapy session that may occur when inappropriate toys are present in the room or the toys are displayed chaotically.

CULTURAL CONSIDERATIONS REGARDING THE PLAY THERAPY SETTING

Professional organizations such as the National Association of Social Workers (NASW) *Code of Ethics* (2017) and the American Association for Marriage and Family Therapy (AAMFT) *2015 Code of Ethics* deem multicultural competency and diversity as an ethical responsibility for the practitioner, as does the American Counseling Association *2014 ACA Code of Ethics,* the National Board for Counselors (NBCC) *Code of Ethics* (2016), and the American Psychological Association (APA, 2017) *Ethical Principles of Psychologists and Code of Conduct.* Cultural awareness and service interventions in play therapy education and in supervision of trainees will be described in the section.

Findings from three studies noted play therapy practitioners are predominantly Caucasian females from middle to upper class strata in the United States (Parikh, Ceballos, & Post, 2013; Gil, 2005; Baggerly, 2006; Phillips & Landreth, 1995). It has been theorized that most play interventions and playrooms were geared to Western European approaches representative of the play therapy education and supervision the registered play therapist received (Gil, 2005; Kranz, Ramirez, Flores-Torres, Steele, & Lund, 2005). O'Conner (2005) suggested that discord exists between basic play therapy theory and practice. Further, O'Conner (2005) recommended three ways play therapists may use to learn culturally appropriate skills: by pursuing information about the specific multicultural norms, the play materials used by that culture, and play interventions deemed most appropriate for that multicultural group.

Multiculturalism is a dynamic and real aspect of play therapy today. In the ever-increasing globalization of modern society, more children and families enter play therapy practices from wide arrays of primary cultures or blends of cultural heritages. These clients come with constellations of beliefs derived from their family systems, self-identities, and ways of communicating related to their upbringing by members of their own multicultural group (Post & Tillman, 2015). This shift in caseload composition is evolving. The shift from a predominantly Western Europe extracted demographic is reflected in many play therapy caseloads. By 2050, our multicultural population is likely to increase to 62% of the total US population (U. S. Census Bureau, 2010). Accompanying this shift in population and caseloads, clients and families are expected to come with a wide range of cultural issues including a likely lower socioeconomic status (Abramsky, 2012), cultural differences related to trust, religion and spirituality, language, self-identity, customs (Sue & Sue, 2003), within-group differences (Haidt, Koller, & Dias, 1993), immigration status, (Carmichael, 2006), and multicultural norms. Play therapists have a responsibility to provide informed evidence-based play interventions sensitive to the client's culture (Hinman, 2017; "National Association for," 2017; "Association for Play," 2018) and level of acculturation to their host country (Sue & Sue, 2003).

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To provide services for this anticipated changing demographic in play therapy caseloads, graduate programs need to provide multicultural and additional social justice concepts in a variety of courses prior to graduation (Brubaker, Puig, Reese, & Young, 2010; Burnes & Singh, 2010; Dixon, Tucker, & Clark, 2010). Play therapists first learn about multicultural competency and diversity in their undergraduate and graduate programs, as well as during their clinical experiences in supervised play therapy. Traditionally, graduate school programs incorporate the Council for Accreditation of Counseling and Related Programs (CACREP) and the Council on Social Work Education (CSWE) standards. As a specialty, play therapy education, according to APT, requires specific education and supervised practice in addition to the professional practice license from the applicant's state (APT, 2019). Coverage of multicultural issues in play therapy primarily depends upon the trainee's education and supervision.

Additionally, play therapy training clinics need to consider incorporating multicultural concepts and discussions including social justice advocacy (Baggerly, 2006) in play therapy courses taught at the university level, practicum in multicultural settings, and culturally-informed supervision of trainees by sensitive trained play therapy supervisors (Burnes & Singh, 2010). Such informed discussion during practicum is thought to increase trainee self-assessment of one's own biases, cultural identification, and areas of prejudice (Baggerly, 2006; O'Connor, 2005). Also, professional organizations such as APT should provide continuing education in multiculturally sensitive areas at national and state association conferences (Ceballos, Parikh, & Post, 2012) to best serve play therapy practitioners who work with children and families to keep ahead of the trends.

Play Therapy Settings: A Multicultural Context

In considering respectful services in a multicultural context, the space where play therapy is offered is often ignored or overlooked (Hinman, 2003). The office and playroom set up; however, provide a welcoming experience if selections of culturally specific decorations depict the demographic population served in a respectful manner. Multicultural equipment includes toys, books, games, and furniture.

Play therapists have long understood that play is a developmentally apt way for children to express themselves (Axline, 1969) where it is core to children on a daily basis (VanFleet, Sywulak, & Sywulak, 2010). Various cultures have specific and discreet qualities that play therapists are best served to become familiar with as caseloads reflect multicultural societal evolution.

As a way to familiarize themselves with clients from multicultural backgrounds, play therapists are encouraged to attend community events outside of the therapeutic relationship such as going to religious services, attending synagogues and churches, theater events, community group offerings, and eating in ethnic restaurants (Coleman, Parmer, & Barker, 1993). As well, therapists are encouraged to discover the community supports such as religious groups, social services, and other agencies available to the children and families in their community (O'Connor, 2005).

To provide culturally-appropriate and ethnically-informed play interventions, therapists have embraced approaches to ally or join with families from the early stages of rapport building and assessments (Hinman, 2003; VanFleet et al.,2010). With joining, noticing specific cultural distinctions may be taught both in graduate play therapy programs and in supervised play practicum. In order to effectively practice in a multicultural context, therapists are tasked to understand each child's cultural manifestations such as eye contact, respect for authority, and verbal and nonverbal communication and within-group differences (Killian, Cardona, & Hudspeth, 2017). Specific considerations related to working with African

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American, Arab American, Asian American, Mexican American, Muslim, and Refugee populations in play therapy are specifically highlighted below for considerations.

African American Populations

African American children and families generally do not voluntarily disclose information in the course of treatment, according to O'Connor, which is consistent with their multicultural group values (2005). This makes spontaneous discussion with the play therapist challenging but consistent with cultural norms (O'Connor, 2005). African-American children experience levels of poverty (Patterson, Stutey, & Dorsey, 2018). Odom, Pungello, and Gardner (2012) reported that African American infants and toddler levels of poverty measured by the national poverty levels was 42% where White infants and toddler poverty rates were 15%. Some African American children, according to O'Connor, experience violence and hatred at school and cautioned play therapists against assuming all black children have similar experiences that require interventions in play therapy (2005). He also recommended that clinicians attend to subgroup differences for children from rural and urban areas, for example.

Arab American Populations

Arab American families view therapeutic services as a treatment for a mental disorder (Sayed, 2003). According to the author, families view submission to Allah's will is linked to stable mental health, making mental illness a lack of moral consistency. This culture is more likely to pursue pharmacological therapy rather than talk therapy.

Asian American Populations

When working with Asian-American children and families, use of their name is tantamount to how the family member is tied to their family. For example, the common practice of using a first name in the therapeutic process is acceptable only for the child, but not for the parents. Using their title and last name is preferred (Vargas & Koss-Chioino, 1992). Not all Asian cultures view seeking therapeutic help in the same way. For example, families of Cambodian or Vietnamese descent feel seeking professional help incur a debt. They view their debt owed to the therapist as a great cost. So, these families may wish to know the cost and benefit of services sought and suggested by the therapist. In this culture, therapists have to present a clear treatment approach and expectations as the parents weigh their financial and emotional costs to family (Huang, 1998). When designing and setting up a playroom for Japanese and Japanese-American children, one should consider their cultural identity when selecting items to provide a strong bond between children and their parents. When designing the environment, the therapist is mindful of the client's acculturation process due to within-group differences (Hanson, 2004).

Japanese children and families often enter play therapy services with feelings of shame, as the family's inability to solve their own problems is representative of a parenting failure. In this culture, joining with the client and family is prioritizing confidentiality within the therapeutic relationships. According to Hinman (2003), learning about the family structure and later returning to their feelings of shame aid in conveying how the therapeutic process works. During the process, as trust is being developed, the therapist aids parents by providing therapeutic techniques they may perform at home to facilitate hope and diminish loss of control and feelings of failure by seeking therapeutic help.

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Mexican-American Populations

Kranz, Ramirez, Flores-Torres, Steele, and Lund (2005) provided culture specific setting recommendations for play therapy with Mexican-American children such as painting waiting rooms in bright welcoming colors and using 12 inches by 12 inches red floor tiles. The indoor playroom dimensions were suggested to be approximately 150 to 200 square feet for individual play therapy sessions and approximately 300 to 400 square feet for group play therapy sessions. Kranz et al. (2005) also recommended having culturally appropriately sized small, sturdy furniture, colorful baskets, castanets, and colorful wall coverings. As Mexican-Americans play outdoor games, Moncada (1962) suggested offering an outdoor play yard including a play house structure, tree house with ladder, dirt, a tunnel, fence, table with benches, and basketball with hoop.

Muslim Populations

Muslim families tend to solve their own problems and eschew working with non-Muslim professionals (Baggerly & Abugideiri, 2010). For these children, many of whom have faced oppression, discrimination, and trauma, a move to a new country is fraught with many changes in their family systems and having to adjust to new school and home environment. For non-Muslim professional, Baggerly and Abugideiri (2010) suggested consulting Islamic leaders in the child and family's community to learn about Islam's role in family life. Baggerly and Abugideiri (2010) also suggested including both culturally-sensitive play materials and toys such as dolls with hijabs to create a culturally-appropriate play space for the child and the family.

Refugee Populations

Stauffer (2008) claimed cultural understanding was the key to providing appropriate play therapy interventions for refugee children. Further, to practice responsibly, the therapist must have knowledge of those multicultural considerations specific to the client (Killian, Cardona, & Hudspeth, 2017). For example, the act of seeking therapeutic services is not common with Somali refugees (Killian, Cardona, & Hudspeth, 2017). Refugees who have lived through oppression and prejudice have a bigger need for familiar toys that resemble those of their own culture (O'Connor, 2005). Additionally, when language may be a barrier, the use of Child Centered Play Therapy techniques and interventions have been suggested as therapists put into words what the child is expressing in their use of toys and materials in the playroom (Kottman, 2011). The authors acknowledge the nature of international immigration of refugees and their movement across borders. The United Nations Refugee Agency (UNHCR, 2018) estimated that 68.5 million people have been displaced. Of that number, 25.4 million were refugees with half estimated to be children under age 18 ("Figures at a Glance," 2018). The authors were unable to locate any current measure of refugee children seeking play therapy services at the time of this publication.

SELECTING TOYS AND MATERIALS

When practicing as a play therapist, it is important to explore the rationale for selecting toys and materials; deciding if one is going to provide mostly directive or non-directive play therapy services; deciding on

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one's theoretical orientation and selecting the corresponding toys recommended based on the theoretical orientation; and examining general considerations when using art media and other materials; puppets and puppet theaters; sandtray and miniatures; and psychotherapeutic games.

According to Landreth's *Play Therapy: The Art of the Relationship* (2012) and the University of North Texas Play Therapy Institute training video, *Toys and Materials* (Landreth, 2002), there are 14 considerations when determining the rationale for selecting toys and materials, including: 1. Toys and materials should be selected, not collected.; 2. Do the toys and materials facilitate and create a wide range of creative expression?; 3. Do the toys and materials facilitate and create a wide range of emotional expression?; 4. Do the toys and materials facilitate and allow for expressive and exploratory play?; 5. Do the toys and materials allow for exploration and expression without verbalization?; 6. Do the items allow success without prescribed structure?; 7. Toys should facilitate contact with an adult.; 8. Toys should permit reality testing.; 9. Toys should allow children to express their needs symbolically.; 10. Toys should provide for emotional release.; 11. Toys should allow for insight.; 12. Toys should engage the children's interests.; 13. Toys should allow for noncommittal play.; and 14. Toys should have study construction for active use.

If a play therapy room is present and play therapy services can be offered to individuals in the community or school settings, one must first decide if he/she may predominantly provide directive or non-directive play therapy. The length of treatment provided, and the setting or location of the play therapy services being offered, may determine this. Nondirective play therapy implies that the child is in the lead. According to the *Glossary of Play Therapy Terms* published in the *Play Therapy Magazine* by APT, Schaefer and Peabody (2016) defined nondirective play therapy as being "based on the belief that children have an innate drive towards health and healing, this approach leaves the responsibility and direction of the play sessions to the child." In directive play therapy, the therapist is in the lead. Directive play therapy is defined as "an intervention wherein the therapist assumes responsibility for initiating and structuring the client's play activities in order to promote healing" (Schaefer & Peabody, 2016, p. 23).

Highlighting Toys by Theoretical Orientation

After deciding if one is going to practice predominantly as a directive or non-directive play therapist, one must further decide on his or her primary theoretical orientation when working with children ages two to 12 and adolescents ages 13 and up. According to Carmichael (2006), the purpose of a theory is to provide an underpinning for the interventions a counselor might use with the client. The theoretical orientations may serve as a coat rack that supports the philosophical coats of personality development, major assumptions of the client and his or her support system, the role of the therapist and client, model of pathology, and treatment goals and interventions. The theoretical orientation will determine what categories of toys are required, how many toys are present during the session, how the toys will be displayed, and how will the play therapy room be set-up (Carmichael, 2006; O'Connor & Braverman, 2009).

The primary fourteen play therapy theoretical orientations include: Psychoanalytic Play Therapy, Adlerian Play Therapy, Jungian Analytical Play Therapy, Child-Centered Play Therapy, Gestalt Play Therapy, Relationship Play Therapy, Cognitive-Behavioral Play Therapy, Child Developmental Play Therapy, Ecosystems Play Therapy, Child Parent Relationship Training, Filial Play Therapy, Family Play Therapy, Theraplay, and Prescriptive Play Therapy (Carmichael, 2006; O'Connor & Braverman, 2009). Based on all of the diverse play therapy theoretical orientations, there are similar categories found among the fourteen primary theoretical orientations or approaches with also very distinct differences.

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To ensure a play therapy training clinic center is prepared to adequately teach and demonstrate specific play therapy interventions from different theoretical models, specific toys and materials must be present in the graduate classroom or the play laboratory. The clinical setting also needs to be equipped with the appropriate toys to provide play therapy instruction and to provide clinical play therapy services to children, adolescents, and families.

The recommended toys and set-up for each theoretical orientation will be discussed, as well as general considerations for utilizing art media and other materials; books and bibliotherapy; puppet and puppet theaters; sandtrays and miniatures; and psychotherapeutic games. This will not be an exhaustive discussion of all of the recommended toys and materials. The authors will provide a general recommendation when setting up a play therapy training clinic, preparing a play therapy graduate classroom environment or play therapy laboratory, and offering graduate play therapy instruction on the different theoretical approaches.

Psychoanalytic Play Therapy Toys

Psychoanalytic play therapists select different toys specifically for the child he or she is working with. For each child, the toys are brought to each play therapy session in a private box by the therapist so that the toys are not shared by all of the children. The toys are kept safe from other children and the play is considered private. The box becomes a symbolic container for the child's feelings and expressions and is only shared between the therapist and the child. Children are able to symbolically represent their thoughts, feelings and wishes lending to their interpretative work in play therapy (Klein, 1955; Carmichael, 2006; Lee, 2009).

The materials utilized by a psychoanalytic play therapist include dolls, doll clothing, blankets, dollhouses, and family dolls representing mothers, fathers, and other children. Additional toys include transportation vehicles, domestic and wild animals, animal and people puppets, soldiers, guns, action figure, games, blocks, soft balls for basketball and baseball, a small house, and fences. Art materials may include paper, clay string, Play-Doh, pencils, markers, paints, finger paints, crayons, and construction materials to build things. A sandbox may also be present for younger children. Different toys are selected so that the items can be used in different ways to represent realistic everyday interactions and fantasy play (Klein, 1955; Carmichael, 2006; Lee, 2009). According to Lee (2009), depending on the tolerance level of therapist, the office furniture such as the couch, chair, desk, or bookshelves may also be used as part of the child's fantasy play.

Adlerian Play Therapy Toys

When providing Adlerian Play Therapy (AdPT), Kottman (2011) recommended five basic groups of toys including family/nurturing toys, scary toys, aggressive toys, expressive toys, and pretend-fantasy toys. Family/nurturing toys include a dollhouse, several different ethnically diverse families of dolls (with removable clothing and bendable bodies if possible), baby dolls, a cradle, a soft blanket, baby clothes, and baby bottles. Additional family/nurturing toys include pots, pans, dishes, silverware, empty food containers, and play kitchen appliances such as a sink and a stove. Animal families, stuffed toys, ethnically diverse people puppets, and sand in a sandbox are also included.

The scary toy category includes: snakes, rats, insects, sharks, alligators, dinosaurs, dragons, plastic monsters, and fierce animal puppets such as a wolf, bear, or an alligator. For children who have expe-

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rienced a vehicle trauma, cars, trucks or ambulances may be considered a scary toy. Aggressive toys include a bop bag, weapons such as a play gun, swords, knives, a foam bat, plastic shields, handcuffs, toy soldiers, military vehicles, and small pillows for pillow fights. Expressive toys and materials include an easel and paints, watercolors, finger paints, crayons, markers, newsprint, glue, scissors, tape, egg cartons, feathers, Play-Doh or clay, materials for making masks, and pipe cleaners for crafts (Kottman, 2011).

The pretend/fantasy toy category includes masks, costumes, magic wands, hats, jewelry, purses, a doctor kit, telephones, blocks, and other building materials. Other toys items include people figures, zoo and farm animals, puppets and a puppet theater, a sandbox, trucks, construction equipment, kitchen appliances, pots, pans dishes, silverware, and empty food containers. Kottman (2011) further included a wide range of miniatures to be used in a sand tray as recommended by Homeyer and Sweeney (2017). These toy miniature recommendations will be reviewed in the general sandtray and miniature collection section.

Jungian Analytical Play Therapy Toys

When providing Jungian Analytical Play Therapy, the traditional play therapy room includes a dollhouse, doll family, art center with supplies, wet and dry sand, a collection of miniatures, a water source, nursing bottle, telephones, puppets, small bed, construction toys, and areas designated for construction activities and for board games (Allen & Levin, 1993). Allen (1994) utilized many art and drama activities while providing counseling services. Examples of the interventions include: spontaneous and directed drawings; serial drawings and serial story writing; creative drama involving activity group therapy and developmental drama; and sandplay therapy using eight categories of miniatures. The recommended miniatures include: 1. *People* (domestic, military, fantasy, and mythological); 2. *Buildings* (houses, schools, churches, and castles; 3. *Animals* (tame, wild, zoo, prehistoric, and marine; 4. *Vehicles* (land, air, water, space, and war machines); 5. *Vegetation* (trees, shrubs, plants, and vegetables); 6. *Structures* (bridges, fences, gates, doorways, and corrals); 7. *Natural objects* (shells, driftwood, stones, bones, and eggs); and 8. *Symbolic objects* (wishing wells, treasure chests, and jewelry).

Child-Centered Play Therapy Toys

Landreth (2002, 2012) and Landreth and Bratton (2006) recommended three broad categories of toys including real-life toys, acting-out aggressive-release toys, and toys for creative expression and emotional release when providing Child-Centered Play Therapy. *Real-life toys* include: dolls, a nursing bottle, a bendable doll family that is ethnically representative of the client's family, a dollhouse, doll furniture (for a bedroom, bathroom, and kitchen), diverse puppets with at least one aggressive and one gentle puppet, a couple of domestic and wild animals, a doctor kit (with stethoscope), toy phones (at least two), and a nondescript figure such as Gumby who could represent any person or family member in the child's life. Other real-life toys include a car, truck, boat, cash register, chalkboard, kitchen dishes, groceries, play money, dress up items, and a broom and a dust pan.

The *acting-out aggressive-release toys* include: small toy soldiers with two different colors (around 12-15), alligator puppet, guns (space or dart gun with a couple of darts and a target), a rope, rubber knives, set of toy handcuffs with a key, pounding bench, a bobo or bop bag, a mask, and wild and aggressive animals such as a snake, shark, lion or dinosaurs. Creative and aggressive toys can include Play-Doh that may be used for pounding, smashing, pinching or rolling. Aggressive-release toys may

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also include items that can be destroyed, torn or broken in the play therapy room such as egg cartons, paper and popsicle sticks (Landreth, 2002, 2012; Landreth & Bratton (2006).

Toys utilized for *creative expression and emotional release* include: sand, water, Play-Doh, crayons, easel paints, plain and newsprint paper, blunt scissors, transparent tape, egg carton and Styrofoam cup or bowl, ring toss game, deck of playing cards, soft foam ball, two balloons per play session, an optional selection of arts and craft materials in a Ziplock bag, Tinker Toys or building blocks, a magical wand, and binoculars, a tambourine, drum or other small musical instruments. Landreth recommended to not include in the play therapy room any mechanical toys that may limit the child's creativity (Landreth, 2002, 2012; Landreth & Bratton, 2006).

Gestalt Play Therapy Toys

The founder of Gestalt Play Therapy is Violent Oaklander. Oaklander first published her book, *Windows to Our Children: A Gestalt Therapy Approach to Children and Adolescents*, in 1988. In this book, Oaklander described the process of integrating Gestalt Therapy with play therapy and reviews the necessary toys and activities recommended. Oaklander (1988) selected toys and other materials based on the five senses to appeal to the child's sense of hearing, taste, touch, seeing, and smelling when practicing Gestalt Play Therapy. Oaklander (1988) also recommended music instruments, storytelling, poetry, and puppets to assist the child in creative and fantasy exploration.

Suggested art materials may include paper of all sizes, colored pencils, crayons, pastels, felt-tip pens, finger-paints, a pair of scissors, glue, paste, stapler, paper fasteners, scotch tape, masking tape, hole puncher, and diverse collage materials. Collage materials may include tissue paper, construction paper, gift wrapping paper, old greeting cards, newspaper, paper sacks, corrugated paper, poster board, butcher paper, cardboard cartoons, doilies, wallpaper, magazine pictures from old and new magazines, calendars, date books with images, coloring books, children's activity books, and old story books. It is also useful to have pre-cut images and words from magazines and newspapers (Oaklander, 1988).

It is further recommended to have both soft and rough or hard items, as well as items with various textures. Various textures of cloth are recommended such as cotton, wool, burlap, flannel, silk, and lace. Soft items include feathers, cotton, and furry pieces of material. Rough or hard items include pieces of steel, glass, wood, wool, sandpaper, sponges, and pieces of plastic. Other craft items that may lend to creative building and expression are yarn, string, buttons, ribbons, and mosquito netting. Examples of household, kitchen, bathroom, or outdoor items are aluminum foil, cellophane, orange sacks, egg cartons, noodles and macaroni, plastics, bottle caps, chicken wire, tongue depressors, and cotton swabs. Naturally found and food items include leaves, shells, driftwood, cork, pebbles, and seeds of all kinds. Any other additional items that are lightweight and can be attached, pasted, or fastened to a flat surface in any manner are also considered to be a good collage material (Oaklander, 1988).

Relationship Play Therapy Toys

According to Moustakas (1959, 1997), when practicing Relationship Play Therapy, the number of toys in the play therapy room is not important. The attitude of the therapist and the relationship with the child are considered to be the most important factors of therapy. It is also important that the child be able to play with any toy in the manner he or she chooses without the child feeling pressured to play with a

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specific toy in a specific way. The toys are purposely not displayed in a specific manner to identify their use or context.

Moustakas (1959, 1997) described the toys present in the play therapy room as structured or unstructured items. Unstructured items such as sand, water, paints, crayons, finger paint, paper, scissors, steel vises, tools, and clay allow the child to express pent-up feelings and tension. Structured items such as guns, knives, swords, darts, and a punching toy or bobo allow the child to express hostility. Other recommended toys to express emotions include family dolls and a large dollhouse, dollhouse furniture, puppets, stuffed animals, and other items representing human figures. Cars, trucks, tractors, boats, airplanes, checkers, paper, and pencils allow noncommittal play activities. Additional recommended toys include bowls, spoons, nursing bottles, plastic aprons, telephones, soldiers, shovels, jump rope, masks, blocks, balloons, and a bop toy (Moustakas, 1959, 1997).

Cognitive-Behavioral Play Therapy Toys

When proving Cognitive-Behavioral Play Therapy (CBPT), Knell (1995, 1998, 2009) recommended similar toys to be utilized when providing Child-Centered and Adlerian Play Therapy. Additional items recommended are books to be used in bibliotherapy, child prepared stories and books, stories both made up by the therapist and published, structured workbooks, recordings of stories, music that depicts various moods, board and card games, pictures of faces depicting various feelings, charts, art materials, sculpting materials, dolls, puppets, stuffed animals, and action figures. Additional information regarding the use of puppets and bibliotherapy can be found under the specific play therapy toy selection discussion.

Developmental Play Therapy Toys

Brody (1997) did not have toys available in the play therapy room when providing Developmental Play Therapy. The core therapeutic component of Developmental Play Therapy is a dialogue between the therapist and the child using touch. Toys are considered a distraction to the relationships with the therapist. Brody recommended having a large rug big enough for an adult and a child to sit on comfortably, a rocking chair, a table and chair, a bottle of lotion, and paper with basic art materials such as crayons and pencils (Brody, 1992; 1997; Carmichael, 2006).

Ecosystemic Play Therapy Toys

In Ecosystemic Play Therapy, O'Connor (1994, 2009) described the therapist as the primary material or therapeutic agent of change with limited play therapy toys present. When providing Ecosystems Play Therapy, it is recommended to have three to five toys present at a time during the play therapy session. O'Connor (2009) recommended that three toys are selected based on the child's developmental functioning. One toy is selected based on the child's current developmental functioning. One toy is selected that is below the child's developmental level and one toy is selected that is above the child's developmental level requiring a higher level of functioning. An additional two toys may be selected based on the toys' possible symbolic value to the child based on the child's presenting problems, current situation, or the child's treatment goals (O'Connor, 1994, 2009).

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CPRT, Filial Therapy, and Family Play Therapy Toys

When providing Child Parent Relationship (C-P-R) Training, the same suggested toys utilized in Child-Centered Play Therapy are recommended in the *Child-Parent Relationship Therapy (CPRT) Treatment Manual: A 10-Session Filial Therapy Model for Training Parent* (Landreth & Bratton, 2006; Bratton, Landreth, Kellam, & Blackard, 2006). Landreth and Bratton (2006) cautioned against the use of mechanical toys that may inhibit the children's creativity. When preparing for the filial play therapy in-home session, parents were instructed to arrange the toys on an old blanket or quilt that serves as the boundary for the play area. This blanket would also protect the carpet if spills occurred. Further, a cookie sheet or a similar flat and easy-to-clean surface could be used for drawing on and for play with Play-Doh. After the play sessions were completed, Landreth and Bratton (2006) recommended the parents have a special playtime box to store the toys in.

When providing Family Play Therapy, Gil (2014) recommended using therapeutic games and diverse art supplies to provide family art therapy. These art supplies and craft materials included: pencils, pens, markers, chalk pastels, drawing and construction paper, large poster board, easels and easel paper, scissors, glitter glues, beads, feathers, pompoms, buttons, small tiles, sand, plastic eyes and mouth, and additional craft materials. She further recommended having sandtrays (one wet and one dry) with many diverse miniatures. She also suggested that clinicians should have approximately 30 diverse and similar puppets to conduct family puppet interviews.

In Filial Therapy, similar to Child-Centered Play Therapy, the toy selection is comparable (VanFleet, 2014). Playrooms contain toys that facilitate expressions of feelings including aggressive toys, such as dart guns that do not look similar to real guns, a bop bag, flexible rubber knives, and ropes. In playrooms, a full array of nurturing toys including dollhouses, nuclear family figures, infant dolls, puppets, food-making and food-eating toys, water, and bowls are found. Games and toys used to build and construct allowing competition, cooperation, and mastery are also seen in filial therapy playrooms along with blocks, play money, and toss games. Expressive art materials such as sand, crayons, paint materials, and markers as well as dress-up clothing, toy medical kits with masks, round out many filial playrooms.

VanFleet (2014) encouraged filial therapists consider three aspects when deciding to include certain toys in their playroom: a) is the item safe, b) does it's use facilitate children's feelings, and c) does it provide the child with avenues for imagination or projection? Further, VanFleet (2014) encouraged the use of less elaborate and costly playroom materials, suggesting instead use of moderate-cost useful toys that parents may find in their own homes. As older children frequent filial playrooms, VanFleet (2014) recommended expanding this toy list to include more toy options. She recommends board games for child-family play outside of the filial playroom. In filial therapy, home toy kits are recommended for parent and children. Additionally, VanFleet (2014) made "loaner toy kits" (p. 25) available for families who lack funds, including items from each toy area.

Theraplay Toys

Theraplay, founded by Dr. Ann Jernberg, focused on increasing attachment between Head Start mothers and their children. Theraplay is highly adaptable and does not use traditional play therapy toys. Activities are created to maximize the emotional and physical connection with caregivers, children, and the therapist. Materials such as cotton balls, nerf balls, ping pong balls, balloons, bean bags, beans, straws, bubbles, bubble wands, water pistols, plastic garbage bags, band-aids, small books for balancing, small pillows,

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large floor pillows, beanbag chairs, scarves, chairs or hoops, small hand towels, and a blanket are used in the activities. Art and craft materials provided are Play-Doh, felt pens, finger paints, white drawing paper, newspaper, construction paper, crepe paper strips, and paper towels. Snacks are also provided such as apples, seedless grapes, or other piece of fruit, raisins, slices of watermelon without seeds or with seeds for spitting out, potato chips, pretzels, M&M and other small candies, doughnuts, popsicles, Jell-O, popcorn, lollipops, licorice, bubble gum, soda, and a baby bottle or juice cartoon filled with juice or milk. Hygiene, hair and make-up products are also provided including lotion, shaving cream, liquid soap, baby powder, hair brushes and combs, hair ribbons, ties, headbands, clasps, and barrettes. Dress up items may include necklaces, bracelets, sunglasses, hats, neckties, and make-up for older children (Munns, 2000; Carmichael, 2006).

Prescriptive Play Therapy Toys

When providing Prescriptive Play Therapy, toys and play therapy activities were selected and provided based on the individual child's presenting problem or symptom, diagnosis, and/or goal for treatment to create a comprehensive, tailor-made treatment program. Play therapy toys and materials may include paper, drawing materials, books, videos, dollhouses (multiple houses if working with children whose parents are separated or divorced), and miniatures representing the child's family members (Schaefer 2001; Gil & Shaw 2009).

Highlighting Specific Play Therapy Toys and Materials

Art Media and Materials

Many play therapists may use art or employ art-based activities during their play therapy session; however, they may not consider the possible health hazards that may occur by the actual art media itself and the unsafe storage practices of media and other art supplies. Further, play therapists may use inappropriate art materials based on the client's age, medical background, or ability. They may overlook the therapeutic qualities of the art media and may not consider the importance of selecting a least to most controlled media referred to as the Media Dimension Variables (Graves-Alcorn & Green, 2014).

MDV). When processing the art activity, play therapists may also not consider the kinesthetic, sensory, perceptual, affective, cognitive, symbolic, and creative level of the media referred to as the Expressive Therapies Continuum (Landgarten, 1987; Kagan & Lusebrink, 1978; Lusebrink, 1990; Lusebrink, 1992; Graves-Alcorn & Green, 2014).

Safety Considerations of Art Media and Other Materials

When reviewing the recommended toys and materials for the primary play therapy theoretical orientations, thirteen theoretical orientations recommended art materials. These play therapy approaches included: Psychoanalytic (Klein, 1955; Carmichael, 2006; Lee, 2009), Adlerian (Kottman, 2011), Jungian Analytical (Allen & Levin, 1993; Allen, 1994), Child-Centered (Landreth, 2012), Gestalt (Oaklander, 1988), Relationship (Moustakas, 1959, 1997), Cognitive-Behavioral (Knell (1995, 1998, 2009), Child Developmental (Brody, 1992; Brody, 1997; Carmichael, 2006), Child Parent Relationship Training (Landreth & Bratton, 2006; Bratton, Landreth, Kellam, & Blackard, 2006, Filial (VanFleet, 2014), Family (Gil,

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2014), Theraplay (Munns, 2000; Carmichael, 2006), and Prescriptive Play Therapy (Schaefer 2001; Gil & Shaw 2009). The categorizations or qualities of the art materials were not discussed possibly due to the scarcity of evidence-based literature in the field of play therapy. By play therapists becoming more aware of the safety considerations of art media and materials and the media dimension variables, play therapists can better prepare for their sessions and provide directive or non-directive art activities to better meet the needs of their clients.

When providing art materials to clients, it is important to be aware of the properties of the materials, abilities of the clients, as well as possible safety precautions when using certain materials. The chapter authors have noted possible safety considerations based on their personal and professional practice. Safety considerations of art materials include being mindful of the expiration date of paints, aerosols, and glue. Some art materials may also be flammable and cannot be stored in direct sunlight or rooms with elevated temperatures. Some materials must be stored in open, ventilated rooms due to possible toxic fumes. When using markers, it is also preferred to use washable and non-toxic markers and dry erase markers (Carmichael, 2006).

When working with art media and sand, the play therapist must always consider possible medical problems the client may have such as asthma, allergies, diabetes, or other chronic illnesses. Clients who are sensitive to dust or may have any respiratory problems may not be able to use chalk (CDC, 2019; Carmichael, 2006) or play with sand. Non-dust play sand is always recommended. Also, many materials may carry a Proposition 65 Warning that indicates any exposure to chemicals that may cause cancer, birth defects, or other reproductive harm. Materials such as silica and some paints have cancer-causing agents that result in a Proposition 65 Warning (Office of Environmental Health Hazard Assessment, 2019).

Many clients with severe asthma or allergies cannot tolerate smells found with certain paints, aerosols, markers, dry erase markers, Play-Doh, plasticine, clay or other materials that may have a strong odor (CDC, 2019). Further, many odors of art materials may linger in the room for an hour or hours; therefore, the play therapist should not only consider the needs of the current client they are working with but also future clients. Clients with major chronic illnesses may be very hypersensitive to certain smells, both art materials and food. If clients ingest any hazardous materials, the therapist needs to have a safety protocol in place with access to a fresh water source (CDC, 2019).

When working with children or clients who present with self-harming thoughts or behaviors or have a history of substance abuse, blunt scissors should be available, however all sharp objects (Rubin, 1999) or other hazardous materials, such as toxic markers, aerosols, X-ACTO knives or detailed knives, box cutters, or a cut-off wire or wire, should be removed. When working in an individual and group setting, the play therapist should ensure the return of all art materials and supplies by having an updated inventory list available and count all items before and after distributing the supplies to the clients.

Selection of Art Media

According to Landreth, toys should be carefully selected and not collected (2012). When using art media and other materials, media should also be purposefully selected. According to Wadeson (1980), art media should be purposefully selected based on the needs of the client and the goals of the session. When determining what art media to use in session, the therapist should consider the amount of space needed to complete the activity, how much preparation is required to set up the art media in the play therapy room, and how much time it will take to clean up after the session. If the client presents with difficulties either holding or controlling the media or has problems with gross and/or fine motor control

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such as young children or senior adults, it is recommended to use media that can be easily manipulated lending to more control. A sufficient variety of media and colors are needed, as well as an adequate size and amount of paper, canvasses, and other media such as clay or plasticine. Too much media can be overwhelming to clients; however, too little media can be restrictive and frustrating to clients. Wadeson (1980) suggested that when therapists are choosing art media, they should be aware of the possible feelings and reactions the media may elicit, as well as the properties of the media.

Media Dimension Variables (MDV)

According to the Media Dimension Variables, this concept was developed based on four factors including: "a) the reinforcement value of making art is inherently a therapeutic process; b) all individuals can be creative to some degree; c) dimensions of art media are discernable and can be classified; and d) media dimensions can be therapeutically applied." The continuum of least controlled media to most controlled media is referred to as the Media Dimension Variables (MDV). Beyond classifying materials as least to most controlled media, other aspects of the physical properties of the media were examined such as the media's fluidity, malleability, indestructibility, expansiveness, unpredictability, and adaptability. Three variables were delineated to include: a) structure, b) task complexity, and c) media properties. Unstructured activities or goals were left up to the client and the instructions were simple such as "Paint anything you wish." Structured activities provided little choice by the client with specific directions provided by the art therapist. Easy to complete tasks were classified as having a low-complexity versus complicated level. More difficult to complete tasks were classified as having a high-complexity level (Graves-Alcorn & Green, 2014, p. 4-5).

Art materials and media were either categorized as less restrictive and fluid in nature or more restrictive and complex in nature. Least controlled materials or media are soft, aqueous, malleable, and easy to manipulate. Examples of fluid media include finger paints, watercolors, soft or wet clay, soft plasticine, polymer acrylics, oil pastels, and thick felt markers. More controlled and restrictive materials are hard, brittle, slightly pliable to nonmalleable, and difficult to manipulate. Examples of more restive media include hard or highly gorged clay, hard plasticine, metal, wood, poster boards, heavier papers, collage materials, lead pencils, colored pencils, and felt markers. The medium based on more controlled or least controlled properties can heighten or lower the client's affective state, influence the freedom of expression, and can circumvent defenses (Graves-Alcorn & Green, 2014, Landgarten, 1987)

Expressive Therapies Continuum (ETC)

The Expressive Therapies Continuum (ETC) describes a systems-oriented approach to the expressive therapies. The ETC consists of three hierarchical levels, including the kinesthetic/sensory (K/S), the perceptual/affect (P/A), and the cognitive/symbolic level (C/S). These levels are based on "the sequence of increased complexity in cognitive and emotional development." The fourth level is that of creativity which can cross all of the levels. A reflective distance that "denotes the time span between the impulse or stimulus and the reaction to it" characterizes each level of the ETC. The reflective distance increases with the consecutively higher levels of the ETC from the first level of the kinesthetic/sensory to the cognitive/symbolic level (Landgarten, 1987, p.395; Kagan & Lusebrink, 1978; Lusebrink, 1990; Lusebrink, 1992; Graves-Alcorn & Green, 2014).

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The *kinesthetic* component focuses on releasing energy and expressing it through bodily action such as pounding clay or scribbling on paper. The *sensory* component focuses on inner sensations and tactile experiences, including interacting with different media such as exploring finger-paints. The *perceptual* component focuses on the formation of schematic forms and representational images. Examples might include focusing on the formal elements of a form, color, or pattern. Experimenting with different media, such as highly structured media (pencils and markers) versus fluid media (watercolors and paints), allows the person to perceive the media differently and to enhance the *affective* component by applying intense color or using fluid media, thereby enhancing the expression of one's affect. The *cognitive* component emphasizes the analytical and logical thought required for information processing. The s*ymbolic* component emphasizes the metaphorical and intuitive nature of the art process whereby one can view problems differently and enhance problem solving and decision-making skills. The *creative expression* can be experienced on all three levels and can enhance all three components, thus encouraging new experiences though perceptual openness and enhanced receptiveness to inner and outer stimuli (Landgarten, 1987; Kagan & Lusebrink, 1978; Lusebrink, 1990; Lusebrink, 1992; Graves-Alcorn & Green, 2014).

Books and Bibliotherapy

Many play therapists use modern and older fictional and non-fictional books in play therapy. Bibliotherapy, as defined by Carmichael (2006), is the use of books, structured workbooks, stories, and recordings that address a specific topic. According to Knell (1995, 1998), bibliotherapy has been used as an adjunct to Cognitive-Behavioral Play Therapy. Children's literature offers messages and morals, but also serves as a storytelling approach. Many children's books may address specific clinical issues such as divorce, relocation, dying, or other traumas. By reading a story in which the character is experiencing the same problem as the child, the child may experience the sense that he or she is not alone and that other children may have experienced the same problem as the child. Secondly, bibliotherapy allows children to see that they are not alone in their feelings and if the character has learned to cope with whatever the presenting problem may have been, so can the child learn to cope with the problem or event. Finally, stories describing characters dealing with possible problems or traumas also provide a means of desensitizing the child to the presenting problem.

In many stories used in bibliotherapy, a message is conveyed more indirectly with the hopes that the child will learn something through the book characters through an indirect form of psychoeducation. The characters in the story will model for the child healthy ways of coping with life events. Many play therapists may also write a children's story particularly for a child dealing with a stressful event. The story may be read to the child several times over multiple sessions and sent home with the child so that the caregivers could continue to the read the story. The child may then be able to personalize the story and utilize the same healthy coping skills described in the story by the main character (Knell, 1995).

Selection of Books

Oaklander (1988) specifically recommended the use of fairy tales and folk tales to help children tap into the basic universal emotions of love, hate, fear, rage, loneliness, isolation, worthlessness, and deprivation. Children are able to gain meaning from the stories based on the individual person, as well as at various moments in the person's life. Regarding suggesting a list of recommended books to use in bibliotherapy, there are many different types of books and resources that may be helpful. Suggested

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topics by Pardeck and Pardeck (1994) included: changing role models, blended families, separation and divorce, child abuse, foster care, adoption, and childhood fears. Doll and Doll (1997) provided a list of recommended novels, picture books, poetry, and audiovisual materials to address building friendships for fourth-graders. Stanley (1999) further offered a recommendation of fiction, nonfiction, self-help books, and poetry with sample reading plans to address 36 diverse topics.

In Davis' (1996) *Once Upon a Time: Therapeutic Stories that Teach and Heal*, 108 therapeutic stories with a variety of themes were provided in twelve categories. These categories included: 1) stories that empower and treat symptoms of trauma and Post-Traumatic Stress Disorder; 2) stories that empower and treat symptoms of child abuse; 3) stories that develop healthy emotional reactions, thinking, perceptions, beliefs, self-image, and social skills; 4) stories to aid in the disclosure of traumatic experiences and/or abuse; 5) stories for children who must testify in court proceedings; 6) stories to reduce and eliminate nightmares; 7) stories for children who have not followed a normal developmental path; 8) stories to help with death, loss and illness; 9) stories to help with problems related to parents, siblings, adoption, foster care, and divorce; 10) stories for adolescents and adults; 11) stories for school-related problems; and 12) modern day fairy tales.

Kottman and Meany-Walen (2018) provided a list of recommended books to address 14 diverse topics in the publication, *Doing Play Therapy: From Building the Relationship to Facilitating Change*. These topics included: 1) maladaptively perfectionistic children; 2) children whose parents are divorcing; 3) anxious children and children with specific fears; 4) children who struggle with problem solving; 5) children with low self-esteem/self-confidence or need help with self-doubts/believing in themselves; 6) children who have experienced trauma; 7) foster and adopted children; 8) children being raised by grandparents; 9) children who steal and/or lie; 10) children with ADHD/impulsive behavior; 11) children who are uncomfortable about being different/struggle with belonging; 12) children with social skills and friendship issues; 13) children who need help with recognizing and expressing feelings; 14) angry and aggressive children; and 15) children with behavior problems.

Additionally, books about counseling and specifically play therapy may be helpful for clients to understand the process of counseling. The authors recommend Nemiroff and Annunziata's picture book published in 1990 entitled *A Child's First Book About Play Therapy,* Rashkin's (2005) book entitled *Feeling Better: A Kid's Book About Therapy,* and Zilberstein and Abel's (2014) book entitled *Calming Stormy Feelings: A Child's Introduction to Psychotherapy.*

Puppets and Puppet Theaters

Puppets are recommended in almost every play therapy theoretical orientation and are a staple in the field of play therapy. According to Landreth (2012), puppets can promote a wide range of feelings for children so that the child and the puppet may express a negative or positive feeling. Puppets provide a safe way for children to express their innermost emotions and thoughts without feeling threatened or judged. Children may also need a safe place to hide or escape from the therapist. The puppet theater allows the child the space to hide from the therapist and gain emotional distance and separation if needed.

Use of Puppets

Puppets can be used in both directive and non-directive therapy. They can be used in the assessment process as part of a structured or semi-structured interview (Knell, 1995) or as a clinical intervention

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with either only the child playing with puppets or the child and the therapist playing with the puppets simultaneously (Gil, 1994). According to Oaklander (1988), it is easier for the child to talk through the puppet than it is for the child to say something directly to the therapist or caregiver.

The therapist can also utilize puppets for modeling purposes in CBPT. The therapist, through the voice of the puppet, can model adaptive coping skills for the child. As therapy progresses, the child may then incorporate these skills into the child's stories and puppet play. Eventually, the child may integrate the coping skills discussed and learned into his or her daily routines at home or school (Knell, 1998).

Selection of Puppets

Carter and Mason (1998) found the following guidelines useful when selecting puppets: 1) Choose puppets which are easy to manipulate for both children and adults; 2) Choose puppet figures that do not carry universal symbolism; 3) Choose puppets that will fit in both children's and adult's hands; 4) Choose puppets that are soft and cuddly as opposed to firm and rigid; 5) Choose puppets that are washable or can be dry cleaned; and 6) Choose puppets with personality that engage the child's and the therapist's imagination and can express a diverse range of feelings and behaviors. Bromfield (1995) also recommended choosing puppets with mouths to enhance verbal expression to allow additional behaviors such as eating, licking, sucking, and biting to occur. The chapter authors recommend choosing puppets with mouths and tongues to make it is easier to manipulate the puppets to kiss, sing, yell, whisper, cough, and yawn. If the child may be experiencing inappropriate touch, a medical illness, or needs to express a secret or intense feelings, having well-defined mouth movements will allow the child to express more verbal and nonverbal information through the use of puppetry.

Based on the work of Irwin (1993), Carter and Mason (1998), and Sweeney, Baggerly, and Ray (2014), it is recommended to have a wide range of puppets with at least 15 to 25 puppets. Gil (1994) recommended having at least 30 puppets present to include duplicates of selected puppets. When providing group therapy to more than five children, it is suggested to have more than a five to one ratio of puppets to children.

The puppets need to represent a wide range of affects including neutral, friendly, and aggressive puppets. The selection needs to include real and fantasy puppets, realistic and ethnically diverse family puppets, and royal family puppets including a puppet to represent mothers, fathers, children, a queen and king puppet, and a princess and prince puppet. Occupational puppets are recommended to include doctors, nurses, policemen, and teachers. Symbolic puppets are recommended to include a ghost, witch, devil, skeleton, and pirate. Animal puppets are recommended to include both wild or predatory or domestic or tame animals (Irwin 1993; Carter & Mason, 1998).

Gil (1994) recommended having duplicates of selected puppets to symbolically represent blurred boundaries, sibling rivalry, or a lack of differentiation among family members. When working with children with abuse or neglect issues, children may need to retreat symbolically when sharing their thoughts or feelings. Additional recommended animal puppets may include a turtle puppet with a shell so that the turtle can retreat and hide. Other recommended hand or finger puppets utilized by the authors include an armadillo, clam, or snail with a shell for hiding or other animal or people puppets that are housed or can hide in a tree, house, shelter, box, or can. Gil (1994) further recommended possible aggressive or neutral puppets such as a tarantula, other spiders, or sharks that may have the ability to intimidate others and can make a quick entrance and exit. Other aggressive puppets used by the chapter authors

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include puppets with large teeth such as a monster, dinosaur, alligator, crocodile, tiger, lion, wolf, bear, Tasmanian devil, piranha, or barracuda puppet.

Gil (1994) proposed having a caterpillar puppet that can turn into a butterfly to represent a state of metamorphosis, a fairy godmother who can grant wishes, a judge who can make decisions, police puppets who can maintain the law, and reversible puppets who can be turned over to uncover another character. Additional cultural considerations for a puppet selection may include having an indigenous healer, priests, or mariachi puppets. The chapter authors recommend having puppets available to represent family pets such as a cat, dog, bird, fish, rabbit, guinea pig, gerbil, hamster, ferret, hedgehog, small turtle, lizard, and a snake. Additional family puppets to be considered may include having a grandmother, grandfather, or a senior or aged puppet to represent an older family or community member. Many children often come into therapy to deal with grief or loss issues. They may need specific people or animal puppets to represent the family member or pet they have lost. They may further need religious or spiritual puppets such as a priest, minster, or angel to help them deal with their loss.

The authors further suggest having people puppets that represent the children and families we serve with puppet clothing and other items to represent the child's family heritage. It is also recommended by the authors to have animal puppets from the child's geographical background such as a Tasmanian devil or a camel puppet so that the child may experience a closer connection to his or her home environment. The authors also suggest having selected puppets from popular fairytales and storybooks including an elf, gnome, unicorn, genie, troll, jester, magician, dragon, monster, alien, and prehistoric animals such as a sabretooth tiger, mastodon, or wooly mammoth for the purpose of fairytale and folktale enactments. Please see *Appendix A* for a list of puppet artists and retailers listed alphabetically.

Basic Skills of Puppet Use

Carter and Mason (1998) acknowledged that many play therapists may be apprehensive to use puppets due to possibly appearing foolish in front of their clients. Hand puppets are noted to be the most popular type of puppet due to their ease of use and weight. When therapists are using puppets in counseling, there are some points to remember when using hand puppets. A puppet should hold the interest of the audience and should look directly at the audience. Many puppeteers or therapists make the mistake of having the puppet either look up towards the ceiling or down towards the floor. When using puppets, it is recommended to keep the puppet moving; do not keep the puppet still and staring into space. It is also important that the movements of the puppets should mimic human-like movements such as talking and walking. When talking using the puppet, one should manipulate only the lower jaw, not the upper jaw or both. The therapist should keep the upper jaw fixed since all humans and most animals only move the lower jaw. To wrinkle the face of the hand puppet, the therapist can move the thumb to emphasize different emotions. When practicing with puppets, the therapist can practice in the front of a mirror tailing, walking, or singing. The child will be more likely to respond to the puppet if the puppet acts more lifelike and engaging with the child.

Further, if the play therapist can take a puppetry course or workshop and learn more about the manipulation of hand and rod puppets, the therapist will have an additional avenue to emotionally and physically connect with the caregivers and children served. By using rod puppets, the puppets are not only able to establish an emotional connection with the child, therapist, and/or caregivers, but also a physical connection with other people or puppets through the use of hand or foot rods. For families that may have difficulty expressing physical intimacy or appropriate physical boundaries, connection,

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or contact among the family members, the caregivers and children may be able to initiate and receive physical contact in a safe and appropriate manner.

Sandtrays and Miniatures

Sand and some variation of a use of sandtray in therapy is another common approach utilized among various play therapists of diverse theoretical orientations. Sandtray as defined by Homeyer and Sweeney (2017), is "an expressive and projective mode of psychotherapy involving the unfolding and processing of intra and inter-personal issues through the use of specific sandtray materials as a nonverbal medium of communication, led by the client or therapist and facilitated by a trained therapist" (p. 5).

Based on the clinician's theoretical orientation, one may practice from a variety of recommendations including, but not limited to, The World Technique (Lowenfeld, 1939,1950), The World Test (Buhler, 1951); The Picture World Test (Buhler & Manson, 1956); Sandplay Therapy (Bradway, 1979; Kalf 2004), Sandrama (Toscani, 1998); Sandplay-Worldplay (De Demenico, 2000), or Sandtray Therapy (Homeyer & Sweeney, 2017). Sandtray containers may vary by number, size, color, shape, and type of sand based on diverse theoretical orientations. The above play therapists and researchers are merely a partial list of contributors associated with the use of sand and sandtray as an assessment tool or as the primary clinical intervention; however, having an extensive sandtray miniature collection is required to assist the client in exploring one's thoughts, feelings, behaviors, and wishes.

Selection of Sandtray Miniatures

Different types of sandtrays may be used, along with various types of miniatures lending to diverse theoretical interpretations, and distinctive forms of processing the activity (Lowenfeld, 1950; Buhler, 1951; Buhler & Manson, 1956; Bradway, 1979; Allan, 1994; Toscani, 1998; De Demenico, 2000; Kalf, 2004; Sweeney, Baggerly, & Ray, 2014; Homeyer & Sweeney, 2017). According to Lowenfeld (1950), miniatures are viewed as the words, symbols, and metaphors for the client's nonverbal communication. The figures can be used to express thoughts, beliefs, feelings, and desires that may be too overwhelming or challenging for the clients to express in words. It is recommended that therapists have a great number and a wide variety of miniatures with multiples of many objects. The size of the miniatures should vary with some miniatures being smaller than others so that not all of the miniatures are in scale with one another. The composition of miniatures should also vary. The miniatures may be made of wood, plastic, and metal with different shapes, colors, weights, and textures. There should include a wide array of category of miniatures including people, animals, buildings, vegetation, boundary structures, natural items, fantasy, spiritual/mystical, landscaping, household items, vehicles, and additional miscellaneous items.

Lowenfeld (1939; 1950), a British pediatrician who was first documented using sandplay as a counseling technique, recommended clinicians possess people miniatures including: 1) Ordinary: farmers, workers, policeman, country/city (sitting and standing); 2) Military: soldiers, guns, tanks, some from county not known to children (some lying down); and 3) Special: circus, witches, gnomes, and other cultures. The miniature collection should also include *houses* (both large and small, shops, stations, churches, schools). Tree sizes should vary with large and small variations, as well as bushes, hedges, and jungle trees. A large quantity of fences should be included in the miniature selection with gates and different types of bridges. The *animal selection* should include wild animals (both timid and fierce

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animals with wild birds), and tame animals such as farm animals and birds, horses, and other domestic animals. The age (both young and old) and the sex of the animals should differ.

Transport miniatures may include: 1) Road (most usual on child's country's roads), 2) Rail (open and closed rail cars and coal cars), and 3) River and Sea (ordinary and military). Street signs should include gas pumps and telephone boxes. Lastly, a *miscellaneous category* should include garden equipment, flowers, domestic equipment such as vacuums, school desks, lavatories (interior thought), planks, blocks, broken parts of objects and people, sticks, and stones (Lowenfeld, 1950).

Homeyer and Sweeney (2017) offered suggestions for intentionally selecting sandtray miniatures and not just collecting miniatures. Many sandtray miniatures are made from plastic; they are both durable and inexpensive. Plastic miniatures are easier to select; however, the miniatures should be diverse in size, type and composition. Sandtray miniatures should be small so that they can fit in the sandtray; however, the miniatures do not have to be to scale as found in railroad miniatures. It is also important to have some miniatures such as predatory animals or creatures (e.g. rats, spiders, snakes) to represent a power differential between the client and a possible perpetrator. The miniature people figures should be representative of the client's world with varying ethnicities and occupations. The vegetation should vary with different trees, bushes, and grass. Diverse living accommodations such as single-family housing, multi-family housing, and apartment buildings should be included. The buildings and structures should reflect regional and geographical differences. The miniatures should also vary based on a variety of materials such as natural materials (e.g. wood, minerals, rock, sea shells) either shaped or in the original or carved form. It is also important to have heavy and light items that may be textured.

Homeyer and Sweeney (2017) published a suggested list of 300 required miniature toys in 11 categories. These categories are listed below: 1. *People* (diverse families, babies with different poses if possible); bride and groom; occupational figures (police, firemen, construction workers, etc.); 16 or more army solders; and astronauts or knights; 2. *Animals* (four different dinosaurs, and zoo animals (lions, giraffes, zebra, and elephants), domestic animals such as cows, horses, sheep, insects, spiders, snakes, and sea animals; 3. *Vegetation* (trees, plants, and flowers); 4. *Buildings* (houses, school, lighthouse, castle fort, teepee, or jail); 5. *Vehicles* (cars, trucks, airplane, boat, helicopter, police car, ambulance, and other rescue vehicles; 6. *Fences and Signs* (fences, traffic signs, and barricades); 7. *Natural Items* (sea shells, vegetation, twigs, rocks that are plain and polished, Fools gold, and crystal; 8. *Fantasy* (wizard, fairy godmother, dragons, monsters, cartoon figures, and space aliens); 9. *Spiritual Mystical* (angels, cross Buddha, Madonna, Star of David, and menorah) and small mirrors; 10. *Landscaping and Other Accessories (*wishing well, bridges, treasure chest, treasure, gold coins, cannon, and various flags); and 11. *Household Items* (furniture, tools, garbage can, mailbox; windmill, and food).

Psychotherapeutic Games

There are many therapeutic games that may be useful in therapy, both currently and no longer manufactured or published. Dr. Richard Gardner's first developed therapeutic game, *The Talking, Feeling, and Doing Game* (Creative Therapeutics, Cresskill, NJ) was first developed in 1968 and later published and made available to mental health professionals in 1973. Since then, there have been approximately 100 additional therapeutic games published. Shapiro (1993) published *The Book of Psychotherapeutic Games: A Review of the Most Popular Games Used in Psychotherapy* to describe 70 psychotherapeutic games. He describes each game according to five primary categories with additional subcategories. The categories are as follows: 1) age considerations of the players; 2) numbers of recommended players;

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3) types of games; 4) who the game is designed for such as mental health professionals, mental health professionals with at least a master's degree, parents, teachers, or a general audience; and 5) the major theme of the game or the recommended theoretical orientation. For the major themes or theories, classifications were determined by the editors and not by the original authors.

Each game may address a specific skill such as communication, cooperative, diagnostic/therapeutic, skill-oriented, theory-oriented, and theme oriented. Communication games are designed primarily to teach and/or stimulate communication skills. Cooperative games demonstrate the benefits of cooperation among the players with no winners or losers. Everyone wins the game together. Diagnostic/ therapeutic games a have a broader purpose of diagnosing and treating the problem. Skill-oriented games teach specific psychological and/or social skills. Theory-oriented games indicate a specific theory of psychology or counseling. Theme oriented games are designed to address a specific psychoeducational problems or concerns (Shapiro, 1993).

LIMITATIONS

When conducting the literature review for this chapter, the chapter authors either found limited information on certain topics or a vast amount of information on other topics that were well researched and published. Therefore, the authors chose to provide limited, more general, or detailed information based on the available research gathered. The authors also reflected upon over 25 years each of clinical practice in multiple settings and over 15 years each of teaching experiences at multiple universities and other professional settings teaching diverse art and play therapy, community mental health and substance abuse counseling, marriage and family therapy, and human services and social work coursework. Many recommendations were based on professional practice, teaching, and supervisory experiences. The authors attempted to review multiple considerations to explore when setting up university-based and community-based play therapy clinics offering clinical services to the community, as well as many considerations when establishing a university-based play therapy training site providing mock play services to play therapy trainees. Acknowledging the current fluid nature of global immigration, the authors were unable to locate recent professional peer-reviewed data reflecting children and adolescent refugees seeking play therapy services.

Recommendations

Due to the limitations of this chapter, the chapter authors have made several recommendations related to considerations when designing a play therapy space or clinic. There is still more room for further research on the multicultural refugee needs and settings. In the community-based agencies, the authors recommend play therapists to consider the multicultural groups they serve by providing a milieu consistent with their demographic groups' cultural norms and values when setting up their play therapy clinics.

It is further recommended that university and community-based settings provide opportunities for direct clinical experiences to work with children, adolescents, and families under the direct supervision of a licensed professional who is a qualified Registered Play Therapist-Supervisor (RPT-S). If an RPT-S is not available at community-based sites, it is recommended to have an RPT-S from the university-based training site provide on-site supervision and trainings for the agencies or sites.

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Mock play therapy experiences are helpful at university-based sites; however, play therapy trainees need as many opportunities as possible to work with diverse clinical populations. Further, it is necessary to create play laboratories in the classroom setting when providing graduate play therapy instruction for play therapy trainees, as well as ensure the university-based play therapy training sites are well equipped with play therapy toys and materials to correspond to the primary fourteen play therapy theoretical orientations or approaches discussed in the chapter. It is also recommended that all play therapy clinics have the basic play therapy toys and supplies to include: art media and other materials; books for use in bibliotherapy; puppets and puppet theaters; sandtrays and miniatures; and psychotherapeutic games.

It is also suggested that when APT updates the Association for Play Therapy publication, *The Play Therapy Best Practices*, in 2019, these areas reviewed in this chapter are included: a) recommendations for toys and materials based on diverse theoretical orientations, cultural sensitivity, and specific considerations for popular materials; b) play therapy space and technology; c) considerations for specific settings and multicultural practice, d) the need for consistent play therapy supervision by a RPT-S for all students completing a practicum or internship placement either at a university setting or off-site community-based setting; and e) the need and possible benefits for a consistent playroom laboratory in all graduate classroom settings. By developing and sustaining quality play therapy clinics and training sites, as well as conducting research in our field to guide our clinical practice, this will promote the field of play therapy and ensure we are providing the most efficacious treatments according to *The Play Therapy Best Practices.* In light of the ever-evolving nature of global immigration, studies are needed to reflect emerging needs, interventions, and trends of children and teens who are refugees seeking play therapy services.

CONCLUSION

This chapter presented the required toys based on one's theoretical orientation, and the therapeutic space necessary to provide quality play therapy services based on the available research and the authors' professional experiences within the field of play therapy. A detailed discussion about toy selection specific to the wide-variety of theoretical orientations provided information necessary for both trainees and supervisors designing and practicing in university and community-based play therapy clinics. The authors presented considerations for most-represented multicultural groups including play space, toys, and values to be acknowledged when working with children, adolescents and their families. Trainees and play therapy supervisors face a myriad of issues in today's play practices. Having current information is more than helpful. It is critical to providing best practice to our children, adolescents, families and groups.

Presently, there is limited research and/or practical application literature available regarding prudent and effective preparation and set-up of a play therapy training clinic. Many perspectives and considerations went into the development of this chapter, as well as review of the existing research and literature. In addition, using a filter of having over 25 years of teaching and therapeutic application in a variety of settings, the authors reflected upon their personal experiences and offered a pragmatic direction that may be followed by those who wish to establish their own play therapy training clinic using this as a guide.

The chapter offers guidance to creating an appropriate therapeutic space for providing play therapy services. Emphasis is placed on the importance of cultural sensitivity and accommodating for the various client cultural therapeutic needs, setting up for clinical theoretical orientations that are appropriate and match the specific client populations, being mindful of safety concerns, and discussing technological

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and/or mechanical enhancements that better serve the clients' needs. Given this, clinicians are guided to be mindful and intentional when they select, acquire, and organize toys and materials in the play therapy room based on evidence-based practices, including the use of art media and other materials, books and bibliotherapy, puppets and puppet theaters, sandtrays and miniatures, and psychotherapeutic games.

A discussion was provided on the required toys based on theoretical orientation, the therapeutic space necessary to provide quality play therapy services from the available research, and the authors' professional experiences within the field of play therapy. A detailed discussion about toy selection specific to the wide-variety of theoretical orientations provided information necessary for both trainees and supervisors designing and practicing in university and community-based play therapy clinics. The authors presented considerations for most-represented multicultural groups including play space, toys, and values to be acknowledged when working with children, adolescents and their families.

Trainees and play therapy supervisors face a myriad of issues in today's play practices. Having current information is more than helpful and critical to providing best practice to our children, adolescents, families and groups. The authors make suggestions and recommendations that illuminate and pave the way for needed research in the future and open discourse between clinicians and researchers that may positively heighten the play therapy experience and provide more efficacious treatment outcomes.

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APPENDIX

Puppet Artists and Retailers (Hughes-Brand, Clifton, & Brand, 2019)

Puppet Artists and Retailers Listed Alphabetically

- **Alex Paper Bag Puppets:** https://www.alexbrands.com/product/arts-crafts/paper-bag-puppets/
- **All Hands Productions:** https://www.etsy.com/shop/AllHandsProductions?ref=search_shop_redirect_
- **Darice Foam and Sock:** https://www.joann.com/darice-foam-and-felt-kit-12pk-bug-finger-puppets/1619980.html#q=puppets&start=1
- **Folkmanis Puppets:** https://www.folkmanis.com/146/home.htm
- **Ikea:** https://www.ikea.com/us/en/search/?query=puppet
- **Kaplan Toys:** https://www.kaplantoys.com/shop/puppets
- **Lakeshore:** https://products.lakeshorelearning.com/search#w=puppet
- **Manhattan Toys:** https://www.manhattantoy.com/search?q=puppets
- **Melisa and Doug:** http://www.melissaanddoug.com/our-toys/puppets-and-puppet-theaters/puppets/
- **Oriental Trading Company:** http://www.orientaltrading.com/web/search/ search Main?keyword=puppet
- **The Puppet Factory:** http://www.thepuppetfactory.com/puppets/pc/home.asp
- **Stage Struck Puppets:** https://www.facebook.com/StageStruckPuppets/
- **Sunny Toys:** https://www.sunnytoys.com/ecommerce/index.html

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Chapter 18
Attention Perception and Social Cognition:
Bridging the Gap Between the Physical and Perceived

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ABSTRACT

Perception is the basis of being human. It warrants everything we know and everything there is to be known. This chapter explores the perceptual system that leads to the exploration and interpretation of qualities of urban space. The chapter challenges the disciplinary tradition of regarding perception and cognition as being one and establishes that systems of perception and cognition play an equally important role to enable this construct of 'place'. By means of an inter-disciplinary review and knowledge transfer, the chapter reimagines the dimension of perceptual simulation in urban design by constructing a process map to understand the complexity of the workflow from subjective perception to social cognition. The chapter further advocates the need for design to incorporate cognitive affordances to better shape physical reality. The process map and framework is intended as a reference for understanding sensory stimuli in urban design practice to aid efficacy and to reinstate the importance in recreating and bridging the physical and perceived realities.

INTRODUCTION

Urban Design has long been concerned with the psychological construct and perception of space. While perception deals with the multiple means by which people sense information from their surrounding environment; cognition, the psychological construct of that information deals with how the information is identified, organised and interpreted. Psychology transacts these two concepts as independent faculties that exert influence on one another. The tradition of Design as a discipline to understand people's perception with regards to their environmental experience has not acknowledged the nature of these individual

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systems and explicitly interrogated how perceptual representations and cognitive representations interact; and have been more inclined to argue against the existence of this bifurcation (Gieseking et al, 2014). Understanding the analogies between sensory perception and cognition from the spatial dynamics point of view is hence under explored. The systems of perception and cognition play an equally important role to enable a construct of 'place'. While the importance and the need for design to incorporate perceptual simulation to better shape physical reality is established with interdisciplinary work in ecological psychology and environmental psychology. It is paramount that some basic assumptions and disciplinary divides that currently exist are inquired systematically and bridged to enable a more holistic approach to the creation of desirable urban futures.

The concept of affordance as explained by Neisser (1994) distinguishes three modes of perception: Direct perception/action, that enables perception and action effectively on the environment; Interpersonal perception/reactivity, that which triggers social interactions with other users, and Representation/recognition, by which we identify and respond appropriately to familiar objects and situations. Spatial perception theories have not engaged with the modes of perception and concept of affordances in design stimuli. Thus a holistic approach to urban design is needed to positively reinforce the potentials of urban perceptual simulation. This requires an understanding of the relationship between people and place from both the modes of perception and cognition. Methodological investigation of the perceptual and cognitive process is needed to establish an informed approach to simulation of places through design. This chapter responds to this identified theoretical gap and aims to bring together the different disciplinary understandings on perception and cognition, its relationship, and map the dynamics of interaction between the two to further stretch its understanding to inform the relationship dynamics between people and place.

The chapter provides an interdisciplinary inquiry into theories of perception and cognition in disciplines of psychology, philosophy, Neuroscience, and, looks into concepts of affordance, perceptible, percept and socio-cultural schemas that form the building blocks of the interaction between the physical and perceived world. The chapter further illustrates the relationship between urban structural components and perception that lead to cognitive comprehension. The understandings that emerge from the review are presented as a process framework that embeds the spatial determinants of perception. The proposed framework reimagines the dimension of perceptual simulation in urban design by providing a conceptual and operational mapping of perception as a process. The proposed framework is intended as a reference for understanding sensory stimuli in urban design practice to aid efficacy and to reinstate the importance in recreating and bridging the people/place relationship. In place making, promoting people/place relationship can contribute to increased sense of belonging, social integration, cohesion, and inclusion.

Perception: Constructing the Urban Narrative

The mutual relationship between the psycho-spatial aspects of our environment has intrigued philosophers, psychologists, geographers, architects, and neuroscientists. The process of which includes sensing information from /about the environment, the perceptual and cognitive representation of the information as enabled by the information, and arriving at certain choices and judgments (Garling and Golledge, 1989). For a unified disciplinary overview, Moudon (1992) offers a useful framework to categorize research areas in urban design namely as image studies, environmental-behaviour study and studies that focus on place creation. Sitte's (1889) work was influential in elucidating experiential issues in the built environment. Research on cognition and ecological perception (Gibson, 2014) further opened up understandings of the subjective experience of the city. Seminal work of Lynch (1960) and Appleyard (1979) uncovered and

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advocated visual legibility of spatial components that make up a city. Hall (1966) introduced the concept of social distances that opened up exploratory avenues in design literature than sought to enhance social integration and inclusion. Much of the work in environmental psychology observed people's response to their subjective perception of the environment and its consequence, construction of a subjective judgment of the environment (Bosselmann, 1998, 2012; Arnheim, 1977; Altman et al, 2012; Thiel, 1997; Whyte, 1980, Gehl 2011). This tradition of research has argued that appearance of the physical environment is made of less aesthetic singularity, but of the perceived quality as evaluated by people who experience it (Sanoff 1991, Nasar 1998). Identifying and understanding the environment is considered a primal ability (Lynch, 1960) with sensations such as shape, colour, motion, light, smell, sound, and touch. The dominating literature has paid more attention to vision as the dominating sense, but there has been a recent shift in the rhetoric that stress environment is not just perceived visually (Carmona, 2010). Thus studies have emerged to understand the perceptual systems that interpret qualities of urban space which includes visual, Auditory, olfactory, gustatory and tactile features.

In summary:

- **Visual:** The visual sensory apparatus is considered key to how space is experienced; however at city scale, the sensory perception is more on a horizontal plane at pedestrian eye level (Gehl, 2013). Architectural expression is a strong and vital visual cue in identifying the functional aspect of the urban environment as they can capture the attention of the observers given their sturdy presence. Critics have been tough on this approach as the aesthetics driven architectural symbols to contribute to 'homologation of places (Sepe, 2013). Landry (2006) regards 'grey' as a canvas on top of which the city presents itself, where vistas are characterised by the sheer volume of traffic and signage.
- **Auditory:** Each city is characterised by a sound of its own and is often not designed in. Studies have established that the 'all surrounding' acoustic space has higher perceptive factor than visual perception that is more 'sectoral' in nature (Porteous, 2015). The acoustic character has the ability to accentuate space than the objects that make up space. With its transitory, fluid nature and the imperative nature of its presence, as unlike visual the ear lids don't shut on instinct, it has a strong social presence. The homogenization of visual component is criticised to affect the urban soundscape where the specific sound quality is replaced with noise pollution from 'petrochemical roar' of the car (Landry, 2006). Given the profound impact, auditory perception can exert, it makes a compelling case for sound design to be engineered into the urban environment than regarding it a residue effect.
- **Olfactory:** Neuroscience has established that smell is directly involved in thought and cognition, as it possesses a sub conscious association with emotion, thus has the ability to evoke a reaction. Research has established that emotions such as happiness, surprise, anger, anxiety, sadness, and disgust are triggered by stimulants such as breeze, coffee, disinfectant, burnt smell, musty odour an vomit respectively (Heuberger et al, 2001). Literary authors often employ smell as an identifiable characteristic attribute of a place and use it as a means to describe the place, like "with a mixture of brine and rust, cities with a stale, mouldy smell" (Barbara and perliss, 2006). The increasing atmospheric pollution with garbage, landfills, and where air pollution has reached hazardous levels in cities like Shanghai, Mumbai and Delhi the smellscape design is of paramount importance. The lack of strong official policy concerning smellscape is a serious threat to the environment (Sepe, 2013) and lead to hazardous environmental conditions that threaten human livelihood.

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- **Gustatory:** This is concerned with the sense of taste and linked to the survival instincts of human primacy. The perspective aspects have strong links to cultural habits and behaviours of the city's inhabitants as Individuals use elements of an environment to construct their own individual identity (Diaconu et al, 2001). The nutritional, sensory and health fostering aspects of food and taste are regarded as a means of socio-cultural communication (Durrschmid, 2015). The globalised supermarkets and hypermarkets have modularised this experience thus homogenising the cityscape experience.
- **Tactile:** The relationship of tacile preceptors is intimate compared to other sensory perceptions as it has much to do with the human interaction with the texture and materiality of the environment. This has the capacity to alter and impact the overall perception of an environment. As they deal up- close with elements like road texture, handrail, pavement, seating, building facade reflections on steel, glass etc. These confer unique identity and vitality to the environment and have the potential to initiate social interactions. Porteous (2013) argues that the sensuous experience of city walking is comprised by standardised approach to design.

The human impulse to interpret and compose their own urban narrative is thus enabled by the sensory stimuli. The sensory stimuli with five senses as discussed above are not the only means with which the world is perceived. Recent research explorations have identified up to 33 sensory systems ranging from vision, smell, sound, taste, touch, trigeminal perception, somatic pain, balance, cutaneous pain, heat, cold, muscle behaviour, blood temperature, blood pressure and kinaesthetics (Durie, 2005). The sensory systems can lead to conscious perceptions as well as unconscious perceptions and neuroscience has vested interest in stretching this understanding further. Though people have their own dominant mode of perception, the identity and experience of an environment is multisensory and it is very important for the design process and policy narratives to pay ample attention to the sensory quality of cityscapes.

Having established the importance of sensory stimuli, the overview of rhetoric that further demonstrates the importance of sense-scape design has been dominated by studies that exert a lot of importance on aspects of perception and engaging less with how the sensory information that is perceived is processed to produce a narrative. The next part of the chapter examines the concepts of perception and cognition in urban design, and attempts to map the dynamics of interaction between the two to further stretch its understanding to inform the relationship dynamics between people and place.

Perception vs. Cognition

To reiterate, perception and cognition are referred to as the "the internal mental processes by which individuals sense, perceive, interpret and make a decision about their environment" (Gold, 1980). The discipline of environmental psychology has been inclined to operate on the paradigm that considers the concepts of perception and cognition as one. Proshanky (1976) detected that the terms were employed interchangeably; a historic overview of the literature does suggest that the tradition has continued, (Gieseking et al, 2014) and the distinctiveness of these concepts has arguably been taken for granted. Though this can be seen as a reductionist approach, the argument given is that the distinction between the two terms is more of a 'heuristic device' than a fundamental dichotomy in the sense-making process and that by means of its function; perception in itself is a cognitive process. (Gold, 1980; Yadav, 1987). This chapter attempts to challenge this paradigm/ assumption with which environmental psychology as a discipline operates and explores to understand the analogies between sensory perception and cognition

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from the spatial dynamics point of view. The spatial reasoning for the self is how an individual acquires, codes, stores, recalls and decodes spatial information (Stea and Downs, 1970) about the relative location and characteristic attributes of the everyday spatial environment. The knowledge gained on perceptual-cognitive processes can enable the creation of responsive environments through policy, planning, and design (Garling and Golledge, 1989). The relationship between self/space is hence of paramount significance, and there is a need to ensure that we operate with un-edited understanding when it comes to designing the socio-spatial systems for the individual cognitive system. As Wachowicz et al (2003) argue, people have their own accumulated definition of reality based on relevance and perceptions of social, cultural, economic and political factors, and there is a need to further inquire the relationship between the social-spatial system and the individual cognitive system. A socio-spatial system encompasses elements that make a society comprising of cultural, economic, social and political systems, whereas, the individual cognitive system is made up of values, desires, and ideas of individuals.

The next part of the chapter provides an interdisciplinary overview that examines the concepts of perception and cognition to establish the distinctiveness of these concepts and further maps the dynamics of interaction between the concepts to steer the shift in how these concepts must be understood and interpreted in urban design.

INTERDISCIPLINARY OVERVIEW

Key Understandings From Psychology, Philosophy, Cognitive Psychology and Neuroscience

Psychology understands perception as the consciousness of particular material things present to sense (Angell, 1906). This is enabled by stimulus from the environment that present as neural signals and referred as sensation. The discipline of psychophysics deals with the study of the relationship between physical stimuli and its experience; and regards these concepts as distinct processes with which people/place interaction takes place where sensation leads to perception. Kant (1998), in philosophical lens, interprets perception as a process that exhibits the reality in space and in the absence of which no power of imagination can invent and produce that experience (Guyer and Wood, 1998). This demonstrates that perception is an exploratory and active process; and, that which is perceived, is not a sequence of static images but flowing scenes of the environment. Studies in psychology have further reinforced that in perception 'the whole is more than the sum of its parts' (Kubovy and Van den berg, 2008), this shows that the understanding of sensory information through perception is a follow through process. Neisser (1976) defined this concept of cognition as the act of knowing, acquisition, organisation and use of knowledge and the process where by the input of information is transformed, reduced, elaborated, stored, recovered, and used. In line with the understandings from Psychology and Philosophy Neuroscience provides evidence that perception and cognition as functions, are carried out in/by different areas, within the physical architecture of the brain, Tacca (2011, 358) argues that "To claim that perception and cognition are tightly related makes sense only if one can explain how those systems, which are individuated in different brain areas and process different types of information, communicate".

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Theories of Perception and Cognition

Neisser (1976) model of perception is the interplay of schemata, environmental information, and perceptual exploration. Schemata refer to past experiences and expectations, if the environmental data that exists does not connect or pair with the schemata then perception does not occur, and in instances, schemata could respond and be modified in the interactions systems between the physical and perceived environments. The top-down and bottom-up theories of perception play a vital role in guiding how information is sensed and processed. The top-down is a data-driven approach where sensation leads to perception, and through to cognition and behaviour. The top-down approach is when conceptual data from previous experience leads to perception through to cognition and behaviour.

In philosophy, the theories of perception are presented as direct realist, the representative theory of perception, and idealism. Direct realism is built on the ideology of the existence of an objective world independent of perceptions. The representative theory presents a thesis that the sense data in our minds is representative of the environment. The idealistic theory advocates that all experiences are mental representations and that there is no objective environment that exists beyond perception and that the essence of existence is perception. The various theories presented in psychology and philosophy open doors to understanding the perception as a process and product. It is important for the designer to understand the underlying exponential possibilities when perception as a process is designed into the environment with sensory data.

Cognition as a concept, is much more complex and has perplexed numerous disciplines and hence has a multitude of literature and this process of cognition is key to a human understand the self and space around them. Quine (2013) defined the qualitative content of experience as qualia. Various traditions from Aristotle (350 BC) have proposed various process and means by which the mental process of cognition manifests. Locke (1689, 1975) proposed a theory of 'how we come by any knowledge' stressed on the role of perception and sensation. In the era of artificial intelligence, cognition has gained a lot of research attention in an aim to recreate the human cognition. The human intellect stores memory information for places, objects, and events in complex ways. Piaget (1936) in his cognitive theory argues that schemas are the building blocks of knowledge, and defined schema as 'a cohesive, repeatable action sequence possessing component actions that are tightly interconnected and governed by a core meaning' (Piaget and cook, 1952)

The role of visual-spatial manifestations has been acknowledged since the Greek civilization (Yates, 1966). Cognitive research (Cooper and Lang, 1996) has progressed to decode the properties of visual spatial representations and their relationship dynamics between human behaviour and space. The representation of thus formed knowledge in the process of cognition are too complex and rich to be contained in a single form of representation (Kosslyn, 1980, 1994) such as only verbal, visual or auditory cues. Bringing in this understanding to environmental psychology, means that when spaces are designed with the sensitivity to the kind of human cognition they may contribute to, it is important to acknowledge its complexity. It is also clear that implying only one sensory mode such as visual or auditory may simplify the design, which can lead to a compromise in the environmental experience.

The concept of distributed cognition, Hutchins, (1991) argues is not only an internal mental process and knowledge, and that cognition is distributed across objects, individuals, and tools in the environment. This is very relevant to environmental psychology as it pivots on information processing, concept of space and extends boundaries of the space to incorporate knowledge in the mind of the users. It proposes that human thinking is enabled by the coordinated use of knowledge structures in the mind of the individual,

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in the environment and other individuals. Given the inter-relationship, the concept of affordance is the instrument that initiates interaction. Gibson (2014) defined it as what environment offers humans; they offer cues to the operation of things and arise from direct perception. These perceived affordances could be physical, logical, and cultural (Norman, 1988) and have been widely applied in design especially in interior design, graphics design, the design of interfaces. This concept of affordance embodies interaction between user and environment based on how the user will perceive the environment. Norman (1986) categorised affordance as being cognitive, physical, perceptual and functional and how design can enable interaction between user and environment with these affordances. Distributed cognition is hence achieved based on combining affordances that are physical, perceptual, cognitive and social for multiple users. To enable perception and cognition, taking into account the theories of top-down and Bottom-up processes, as perception is the first step to cognition, and attention is the first step to perception (Derrberry and Tucker, 1994). The spotlight of attention focuses on the amount of sensory information at any given dimension of space and time.

It is important to identify and understand general patterns of perception and cognition common to people or particular social groups. The overview of inter-disciplinary understandings from the range of disciplines, present cognition as a very complex process, neuroscience presents explicit arguments that differentiate perception and cognition as two different processes. Thus understanding people/place relationship to further nurture it can be holistic only when environmental psychology factors in the cognitive process and not stifle the knowledge by only studying perception. The next part of the chapter reimagines the people/place relationship by taking into account the learning that comes from this inter-disciplinary overview.

Place and Perception: Subjective Perception to Social Cognition

The inter-disciplinary understanding of perception as a concept reveals that the act of perception is, in essence, the interface between the physical and physiological world. Though there are multiple sensory stimuli that lead to cognition, the existing studies on urban space include visual, Auditory, olfactory, gustatory and tactile sensorial stimulations. Neuroscience and Cognitive psychology establish that contextual stimuli create sensorial signals, which the perceiver receives, and through the process of cognition, they are interpreted as meaningful representations; and these collectively become the experiential interpretation of the external reality. The theories of perception in psychology suggests that the process of perception can be bottom-up or top-down; the former is the format where sensory input leads to way to cognition to influence social behaviour and the latter is where meaning is imposed based on pattern recognition or template matching (Marr, 1982; Triesman & Gelade, 1980). In both processes of perception, higher order cognition is involved in informing the intentions and further actions of the perceiver.

The studies in environmental psychology, particularly in urban design has been inclined to simplify this complex process and represents this complex psychological process as a linear flow diagram, (see Piga and Morello, 2015; Jalali and `Massoud, 2015). The process mapping does not capture the complex, multiple modes, means and mechanism of perception as a process. The understandings also do not engage with how subjective perception relates to the concept of social cognition. The interdisciplinary review established that distributed cognition (Hutchins, 1991) is the act of knowledge and cognition is distributed across objects, individuals, and tools in the environment and that this is key to enable social cognition. Social cognition as a function and reflection of the collective understanding that a society exhibits with its socio-cultural schemas is vital for social belonging. If social cognition is designed in to

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the urban fabric, an enhanced people/place relationship can contribute to increased sense of belonging, social integration, cohesion, and inclusion.

The theoretical understandings from inter-disciplinary review have paved way to reimagine the understanding of this relationship between people and place/ perceived reality and physical reality. This is done at two levels; the first is a process map that brings together the concept of distributed cognition in mapping the process of subjective perception to social cognition without compromising its complexities in line with the psychological theories of top-down and bottom-up modes of perception. The second layer of simulation takes a closer look at the apparatus and interface that enables the process of perception and takes into account the contextual force fields that add symbolic meaning to the sensory information that is received from the environment.

Figure 1. Process map: subjective perception to social cognition

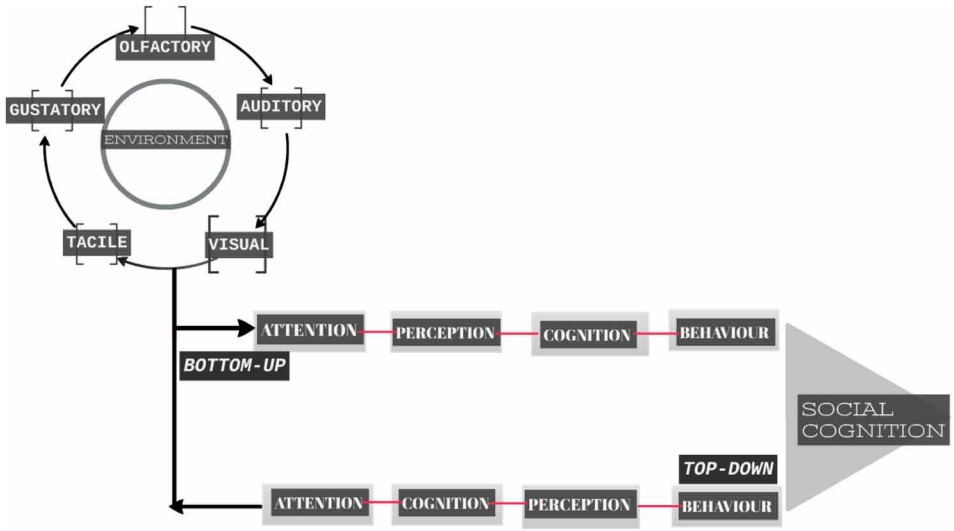

Figure 1 is a visual representation of the people/place relationship that is broken down into its components. The Environment denotes the urban space that interacts with human senses through the visual, auditory, olfactory, and gustatory and tacile senses. The Bottom-up mode of perception is initiated by attention to the sensory information from the environment; the sensory stimulus leads to perception or processing of the sensory information. Cognition contextualizes, understands and interprets the information as responses or actions that guide human behaviour. The top-down processing as governed by the inherent cognitive system has a particular understanding of the urban environment guides perception and leads to instinctive cognitive actions that can be unconscious in nature. This has the capacity to focus or attend to a particular or preferred type of sensory stimuli. The top-down processing mode scrutinises the sensory information to respond to certain awareness threshold (Posner, 1994). The phenomena of distributed cognition initiated by the various sensory perceptions in both the modes of perception lead to social cognition. This process map encapsulates the people/place relationship by highlighting the various layers and conceptual work flow of psychological activities involved in the process of perception.

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While the conceptual workflow represented by Figure 1 can be useful to understand the overview of activities that are involved in establishing the people/place relationship, a holistic understanding must also include the operational workflow of these activities. The disciplines of Neuroscience, philosophy and cognitive psychology have looked at the nature of the brain and how it comprehends its external realities. It is important for environmental psychology and urban design to understand such operational dynamics that ties the perceived and physical world. The operational layer of understanding investigates the apparatus and interface to outline the line of interaction between the physical and perceived realities. The line of interaction takes into account the differentiation between the physical and perceived environment and accommodates the contextual force fields of socio-cultural norms /meanings/values systems that add symbolic meaning to the sensory information received from the environment.

As noted earlier, internal structures and schemas of long-term memory govern cognitive operations and the schemas are activated when new sensory information is received from the environment. The conceptual understandings initiated by the schemas are hence fluid in nature and constantly evolve as the perceiver is exposed to various environmental experiences. The working memory of the brain to process is limited and hence the cognitive system relies on perceptual and interaction patterns that are part of long-term memory and schemas to provide expectations and arrive at generic understandings about a situation and environmental condition (Still and Dark, 2013). This implies that when the cognitive system is in action, the sensory information processing represented by schemas enable a user's perception of an interface: a reflection of a representation as it arises out of contributions from both environmental and cognitive domains. This interaction between environmental and cognitive domains that is the physical and perceived world, as the cognitive theory explains is initiated by Affordance. The presence of affordance in an environment can be cognitive, physical, perceptual and functional (Norman, 1986) and offers cues to the operation of objects present in the environment (Gibson, 2014). This can be conceived as a first step that initiates perception. Affordance and the concept of Attention hence have a cause-effect relationship, where affordance is the caused by the environment that leads to user's attention.

This concept of affordance embodies interaction between user and environment and affords to manifest as stimuli that strike perceiver's sensory receptors. These sensory receptors as noted earlier can be visual, auditory, that is can manifest as an ophthalmic object or sound wave from the environment. The stimulus and carrier for the stimulus enable sensation to take place. Understanding the nature and occurrence of visual, auditory, olfactory, gustatory and tacile stimulus, stimuli and carrier may be switched. The affordances can either be the stimuli or/and carrier, (visual object/sound wave). When the stimulus carried from affordance reaches the sensory receptors, the neurological system interprets the stimuli and the complex neural paths transmit the sensory information to the brain.

The sensory information that reaches the brain is perceptible. The perceptible go through the rigour of cognition where the sensory information is interpreted in the context. The Schema referred as the long-term memory is made up of socio-cultural meanings and values make the perceptible intelligible. Figure 2 is a visual simulation of this process that traces the line of interaction from affordance to conceptual understanding of the context. The figure represents a conceptual line of interaction on a canvas that depicts and distinguishes physical and perceived reality as parallel realities divided by a surface (depicted as fluid the black line). The surface has sensory receptors that receive information from affordances present in the physical environment. The perceptible that reaches the brain is a yet to be processed sensory information. The socio-cultural schemas (represented as the yellow line in Figure 2) orient and interpret the perceptible as percepts. The socio-cultural schemas can be made of diverse layers

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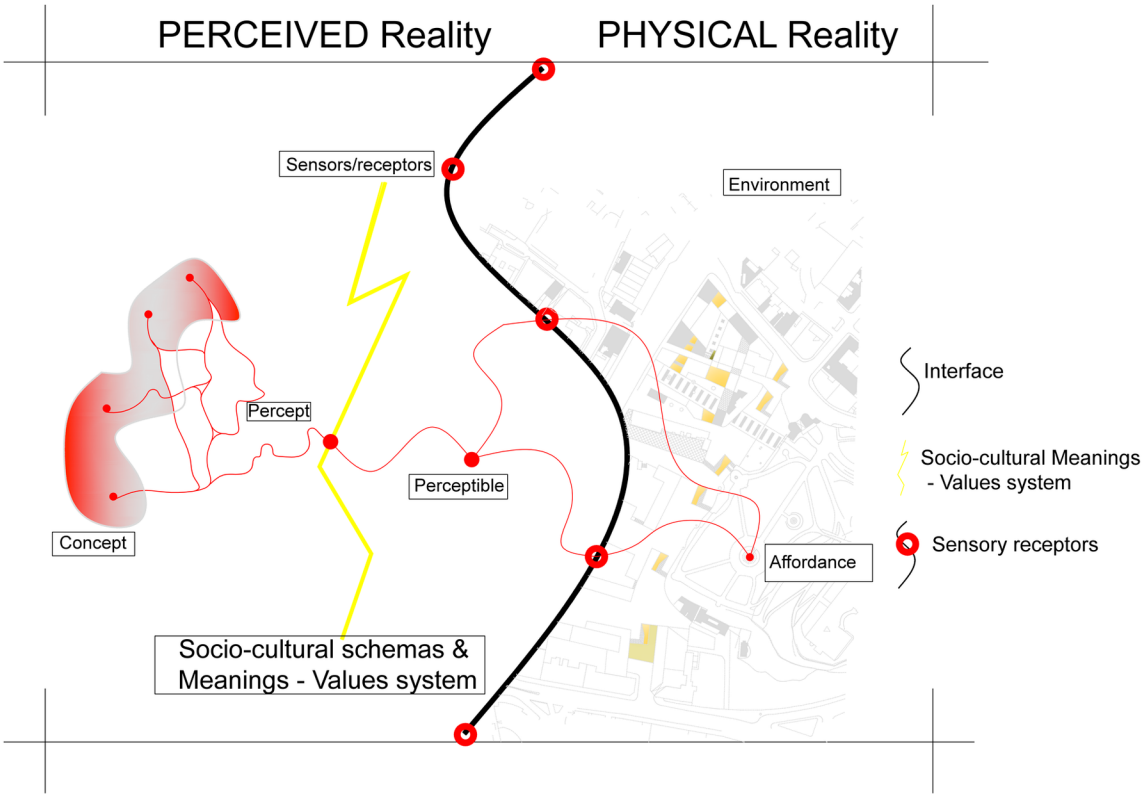
Figure 2. Visual simulation of the line of interaction: perceived reality and physical reality



of concepts and depths. The dimensions of time, space, and geographic orientation provide meaning to how the perceptible are given significance.

The coveted Neuroscientist Vilayanur Ramachandran (much known for his work in behavioural neurology interprets this process as, when sensory information reaches sensory receptor, like the eye ball, the information is transferred to the visual area of the brain and message is transferred to temporal lobe where the object is identified and analyzed. A part of the brain, named 'amygdala' gauges the significance of the object being looked at, a signal is then sent via spinal cord to prepare the body to take action. Amygdala gauges the value, meaning and emotional significance of the objects in the external world. The process is similar with other sensory perceptions like sound and smell.

This understanding from Neuroscience establishes that the socio-cultural system of meanings and values provides perceptible their significance by assigning purpose and value. The practical action that follows in human behaviour is thus in the interpretative importance provided by the socio-cultural lens (governed by amygdala). Figure 2 represents a perceptible passing through this matrix of a social-cultural lens to become a percept. The processed information that is percept is what the user apprehends and is aware of. For example, the presence of a sound wave of chiming bells can imply the presence of a religious institution in proximity such as the church or temple and it is important to note that the socio-cultural conditioning has caused the association of chiming bells with a church and not a corporate business park. The perceptible as a particular form of colour, sound, motion, and object has no identity and significance, the socio-cultural matrix makes the perceptible of colour, sound, motion into vibrant,

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dynamic, and lively environments. As Figure 2 represents repeated reinforcement of a relationship between perceptible and percept leads to conceptual understandings to take shape, the concept of where the perceived blue object above becomes the sky. The intuitive awareness offered by the socio-cultural schema and the system of embedded meaning and values is key to for any environmental affordance to be made sense by the user of the environment. The sculpted body a of socio-cultural schema is hence instrumental for this process of perception to produce an urban experiential narrative, as the operational dynamics represented in Figure 2 informs that the socio-cultural matrix turns percept into concepts. Urban design hence has the necessity to understand and deal with the relationship between perceptible and percept to enable interaction between user and environment with these affordances.

BRIDGING THE PHYSICAL AND PERCEIVED: SPATIAL-SCHEMA

The inter-disciplinary understandings of the concept of perception and cognition have led to a knowledge-transfer of conceptual and operational dynamics of workflow between the people/place relationship, that is the perceived and physical world relationship. Given the understanding, the concepts of affordance, perceptible, percept and socio-cultural schemas form the building blocks of the interaction between the physical and perceived world, the socio-cultural lens allows for the crucial interpretation to take place between physical and perceived objects, where by meanings become the socio-cultural interpretation of perceived objects or perceptible. The social reality of human interactions with the physical world is there by made of such meaning and values. This signifies that urban design, as a task must design 'affordances' in the environment that carry meanings and values and not just spend its effort in initiating perception as a process with empty affordance that don't translate into socio-cultural meanings and values.

An affordance with content and value can establish connections with the socio-cultural space in the perceiver's mind, where meanings are nothing but a socio-cultural expression that reflects fundamental beliefs, properties, conditions of the complex interactional dynamics between the physical and perceived reality. And simplifying the urban systems with affordance cues that are stimulating with no inherent value and meaning can create a compromised experience of the physical environment in the perceivers mind.

Conceptualizing Enriched Urban Design Affordances

The concept of design affordance is not new to design literature, however it is sparingly discussed and employed in the discipline of urban design. Clarke and Uzzel (2002) explored the concept of affordance for adolescent needs of social interaction in the physical environment. Given the understandings from the inter-disciplinary review and the mapping of process from Subjective perception to social cognition along with the simulation of the lines of interaction between perceived and physical reality, it is clear the design affordances act as triggers present in the physical environment. Understanding the concept of socio-cultural schemas further revealed that there is a need for affordances to be enriched with meanings and values to stimulate interaction between the perceived and physical environment. As Norman (1999) suggests, "Sloppy thinking about the concepts and tactics often leads to sloppiness in design. And sloppiness in design translates into confusion for users" (p. 41). In product design, perceived affordances offer intuitive instructions for people to use simple things. Given the significance, the concept of affordance must be further explored in the context of urban design, as You and Chen (2007) state, "the concept of affordance challenge designers to avoid the reliance on symbols and cultural conventions in design.

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Instead, it encourages them to utilize possible intuitive actions that can serve as function in the process of user-product interaction" (p. 29).

To pave the way for further explorations in research, a basic categorisation of design affordances can be conceived to correspond to the nature of sensory receptors known. This leads for design affordances to be visual, auditory, olfactory gustatory and tacile in character. By embedding meaning into the design affordance and not letting the sensory stimulus a by-product of a not-well thought through design, enriches the design affordance to enable and foster well-reinforced people/place relationship and hence bridge the physical and perceived environment in meaningful ways.

Having established the conceptual and operational work flow of perception as a process and the potential of enriched design affordance to enable meaningful interactions between physical and perceived environments, the next part of the chapter will feed this learning and further illustrate the relationship between the layers of urban structural components, their relationship to perception that lead to social cognition.

Spatial Determinants of Perception: Urban Components Framework

The two basic questions that present to understand spatial determinants of perception are; how is space represented as a perceived environment in the mind? And what are the urban structural components that make up the physical space/city? Firstly, Spatial perception as noted, is the cognitive ability that enables the awareness of a relationship between the self and environment, both from the egocentric and allocentric frames of reference. An allocentric frame of reference is one where the location of another entity is in reference to other objects, independent of oneself and in contrast egocentric reference frame is a spatial frame that denotes the location of another entity in reference to oneself. This processes of spatial comprehension is also regarded as extroceptive (a relationship between the objects with in environment) and interoceptive (self and environment).

Given the subjective nature of the egocentric frame of reference that involves the interoceptive relationship between self and environment, this spatial frame warrants the self to directly interact with design affordances. The allocentric frame of reference is a result of percept that establishes the relationship between one object to another in the environment. This means that the spatial determinant of perception can follow either allocentric or egocentric frame of reference. The percept that reaches the perceived reality zone in the brain can then interpret, understand and structure objects on allocentric and egocentric frames of references.

To address the second question, what are the urban structural components that make up the physical space/city it is important to understand the basic morphological features of the city. The urban morphology is regarded to be in constant flux and that no city is ever designed complete (Lynch, 1960). The historical layering of the urban components are arguable reinforcements that positively bind people's perception (Lynch, 1972, Carmona et al, 2003) Change is an essential order of life, and so it is in urban city too, as it constantly renews itself to accommodate the ever-changing/ evolving economic, political, social (Dovey, 2001) and technological systems that go into the making of the contemporary city. This is true of the physical urban fabric as it flexes itself to accommodate these activities. The physical environment provides stimulation of interest at three scales, which are conceptualised as a silhouette (complexity of the outline), form articulation (three-dimensional modelling) and surface texture (Stamps 2013). The structural aspects of the physical urban fabric, with regards to scale and size of the various elements that make the city can be conceptualised as a whole city, a specific district or parts of the city.

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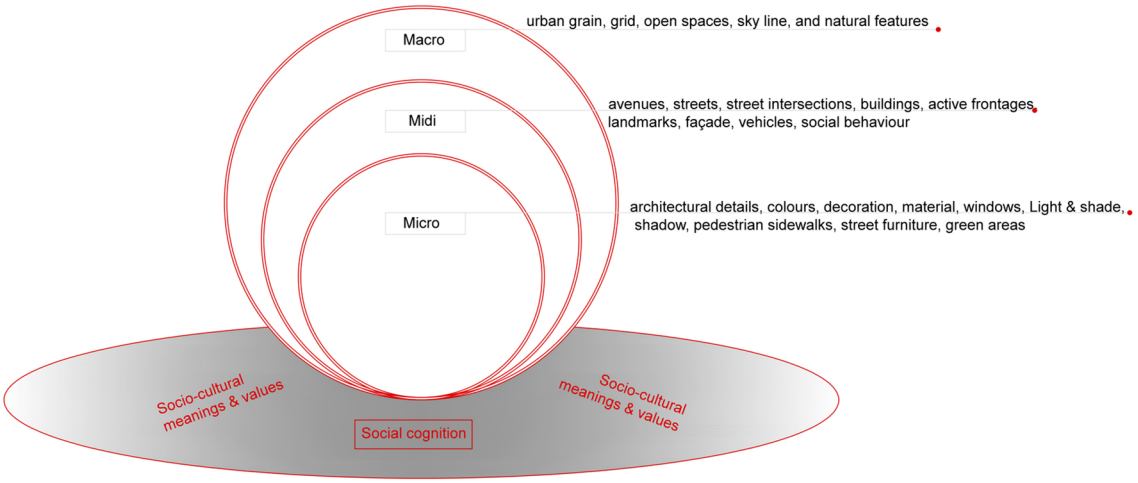
The human interaction with the city can be at corresponding three levels; from a distance for a whole city view, with in the urban fabric and close confrontation with urban components (Macro, Midi and Micro levels of interaction with the city). The spatial features that determine perception (Figure 3) at the three levels of people/place interaction are:

- **Macro:** The spatial features at the macro level of a cityscape comprises the composition of the urban grain, grid, open spaces, sky line, and natural features.
- **Midi:** The spatial features at the midi level of a cityscape comprises avenues, streets, street intersections, buildings, active frontages, landmarks, façade, vehicles, social behaviour.
- **Micro:** The spatial features at the midi level of a cityscape comprises architectural details, colours, decoration, material, windows, Light & shade, shadow, pedestrian sidewalks, street furniture, green areas.

Figure 3. Spatial determinants of perception



The stimulus offered by these spatial components have the to potential to generate positive aesthetic experience (Nasar, 1994). When spatial components are designed as enriched affordances it can simulate aesthetic pleasure at subconscious as well as cognitive levels of perception when the perceiver can assign a value to derived meaning from the sensory information (Weber, 1995). A collective experience can lead to social cognition where sensory and cognitive appraisals of the environment are aligned with the schema that can relate the environment around socio-cultural meanings and value. The recognition of the environment in association with the memories of people can create a significant impact on the landscape of the city (Baqayi et al., 2011).

The social life of cities is a by-product of the multiple layers of perceptions coming in contact with each other. The 'Cloud gate' at Millennium park Chicago (Figure 4) is an example that depicts this philosophy of multiple perceptions coming together and the artistic public space design reflects all that is around it at the three levels of people/place interaction: Macro (The Chicago skyline); Midi (streetscape); Micro (Pedestrians, architectural detail). While this example is a literal depiction /reflection of the grandeur

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Figure 4. Cloud Gate at Millennium Park, Chicago

of the city of Chicago; spatial configurations embedded with socio-cultural meanings foster a sense of belonging and aid social interaction. The meaning of spaces inform people how they themselves use the buildings and spaces, thus bridging the perceived and physical with design affordances at the three conceptual levels of macro, midi and micro can enable social interaction leading to social cognition. Social cognition as the collective understanding that a society exhibits with its socio-cultural schemas is vital for social belonging and lead to tangible people/place relationship and hence increased sense of belonging, social integration, cohesion, and inclusion.

CONCLUSION

Philosophy has long wanted to understand means and mechanism with which the self-interprets the realities of the external world. Together with disciplines such as psychology, Neuroscience and cognitive psychology the studies on this complex mental process of comprehending external realities have progressed significantly. Environmental psychology and urban design have interest in how the physical

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environment is perceived interpreted and experienced in the user's mind. While there have been studies that focus on smell and sound scape designs in the last few years, a holistic review of the approach to studying perception had been stagnant. Moreover, environmental psychology operated from the paradigm that regarded perception and cognition as one and the same thing. This chapter challenged the existing notions and traditions and provided an interdisciplinary overview of the concepts of perception and cognition from Philosophy, Psychology, cognitive psychology and neuroscience. The learning from literature established that perception and cognition are unique processes that take place in different areas of the brain and that the construct of a place is warranted by cognition. The key understandings from the review led to the construction of conceptual process that mapped the workflow from subjective perception to social cognition in the bottom-up and top-down perception modes. The operational workflow of the interactional dynamics between the perceived and physical world was simulated as a visual representation.

The line of interaction reinforced the importance of socio-cultural schemas of meaning and values. It also established that sensory information is inherently meaningless and that there is no behaviour value in sensory information and that the socio-cultural schemas establish the relationships, thus cognition as a process, actively discovering relationships and associating relationships with meaning and value. The mapping led to the conceptualisation of enriched cognitive design affordances as these have the potential to establish perception stimuli indicators, which can positively underpin design values, and characteristics that can bridge the gap between the perceived and physical environment. Perception being the lens through which reality is viewed as it relates to objects and people the chapter further uncovered the spatial determinants of perception in the urban structural components. The framework illustrated the relationship between the micro, midi and macro layers of urban structural components, with regards to spatial configuration, their relationship to perception that can lead to social cognition. This collective social understanding that a society exhibits with its socio-cultural schemas is vital for social belonging, enabling social interaction, wellbeing and social cohesion. This framework incorporates that city is the product of set of perceptions of the physical environment and reinforces the importance of design affordances at spatial levels. This understanding calls for a paradigm shift where sensorial design approach is integrated into the spatial design process. The sensorial design approach is the realm where enriched design affordances can be realized and created. The design 'affordances' in the environment that carry meanings and values and not just spend its effort in initiating perception as a process with empty affordance that don't translate into socio-cultural meanings and values. The need for this paradigm shift opens further research paths to pin down on sensory stimuli and cognitive design affordances for urban components at the identified Macro, Midi and Micro spatial levels. .

Given the necessity for a more holistic approach, that incorporates sensorial design approach at various spatial levels, research is needed to establish theoretical guidance that identifies the perceived meanings, memories, and values, people attribute to urban structural components. As philosophers advocate, the sense of self and purpose is imparted from meanings and values and make the core of being in humans, the same is true for our cities. The sense of the city is the collective representation of perceptions, which the city can afford its people and it is of paramount importance for design and policy to ensure the physical and perceived realities are bridged appropriately and sufficiently.

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KEY TERMS AND DEFINITIONS

Affordance: The intuitive reasoning of how a particular object must be used as informed by the object or the context where the object is present.

Cognition: The process or action of receiving/retrieving information and going through conscious reasoning through sensory perception, thought processing, or experience.

Mental Representation: External reality as interpreted by the mind.

Percept: The component that has been perceived.

Perceptible: That which can be identified and apprehended by the senses to further interpret it.

Perception: The identification, organization, and interpretation of information received through senses.

Social Cognition: The concept of people acquiring and processing observations about other individuals during social interactions and social situations.

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Chapter 19
Yogic Care for Neurodevelopmental Rehabilitation:
Bringing Life Into Treatment, Management, and Prevention

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ABSTRACT

Recent biological and behavioral studies indicate that several unhealthy alterations in ways of living (i.e., consumption-pattern, leisure activities, sleep routine, postures, breathing, stress-level, and use of high-tech gadgets) may be related with aggravation and augmentation of neurodevelopmental disorders. In this backdrop, it is important to recognize that yoga offers holistic knowledge for correction in lifestyle to not only prevent but also manage and alleviate neurodevelopmental disorders. Unfortunately, clinicians have been relying in their practice rather heavily on intrusive and pharmacological interventions and avoiding the use of sustainable techniques. Therefore, in order to increase awareness and promote its use in clinical settings, present work is ventured on the understanding effectiveness of and challenges in utilizing yogic practices for neurodevelopmental rehabilitation. It also identifies priorities for future research and action to amplify applicability of yogic lifestyle in hospitals, clinics, and other public health centers.

INTRODUCTION

In last few decades, Neurodevelopmental Disorders (NDD) has emerged as one of the greatest threats to public health. Persons with developmental deficits in speech, use of language, scholastic progress, social skills, communication and intellectual ability, constitute a substantial chunk of human popula-

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tion throughout the world. In a study, only among children of 4000 families in six regions of India, the prevalence rate for NDD ranged between 10-18 percent (Silberberg, Arora, Bhutani, Durkin, Gulati, Nair, & Pinto-Martin, 2014). Autism Spectrum Disorder-which is only one specific disorder under the NDD- has been globally estimated to occur in one person in every 160 persons (Elsabbagh, Divan, Koh, Kim, Kauchali, Marcín,... & Yasamy, 2012); while prevalence rate for many other NDDs in many low-income countries remains unexplored (Hossain, Ahmed, Uddin, Chowdhury, Iqbal, Kabir,... & Hossain, 2017). Additionally, if we take full life course perspective into our account, then incidences of developmental deficits in the central nervous system and their consequent malady for human life, would present a much grim scenario.

In many countries, traditionally, persons lacking developmentally relevant capacities are socially ostracized and face inhumane stigma. While some peoples suffering from NDD have normal abilities to live independently but many others need life-long care and support. As a result, many families and communities have to carry a substantial degree of emotional and financial burden (Dykens, 2015). Due to lack of skilled health professionals, infrastructure, and financial constraints, a majority of developing and lower-income countries are not capable to provide appropriate health and education services to those, who are afflicted with these disorders and caregivers. In this context, with support from more than 60 nations, World Health Organization has sought to promote sharing of sustainable and cost-effective strategies to strengthen and expand integrated healthcare services for mental health and disability (Grupp-Phelan, Harman, & Kelleher, 2007).

Furthermore, although, we lack clear picture about causes of NDD, a number of pre-natal and environmental risk factors have been recognized. For long, previous studies have noted that childhood, in the modern age, has become susceptible to much vulnerability due to the unhealthy lifestyle of parents before and after conception (Dykens, 2015; Sampson, Streissguth, Bookstein, Little, Clarren, Dehaene, ... & Graham, 1997; Talge, Neal, & Glover, 2007). Also, many unhealthy alterations in lifestyle have been found to be major contributors in the development of social, behavioral and communicative disorders (Mattson, Allison, Fontana, Harvie, Longo, Malaisse, ... & Seyfried, 2014; Mattson, 2015; Singh & Misra, 2012, 2015, 2016). In this context, several agencies have articulated the urgent need to outline relevant cost-effective strategies.

We can also easily interpret following multiple aspects which denote for suitability of yoga in the care of persons suffering from developmental disabilities.

- First, it harmonizes multiple aspects of mind-body functioning (Singh, 2017).
- Second, being convenient to learn and practice, both for patients and healthcare providers, it can be adopted in any rehabilitation settings, comparably easily than any other therapy for management and treatment of NDD.
- Thirdly, yogic care involves little financial investment because it does not require a huge financial expenditure for purchasing equipment and training yoga therapists. It can be easily used in resource-deprived countries also (Chuang, Soares, Tilbrook, Cox, Hewitt, Aplin, ... & Torgerson, 2012; Hartfiel, Clarke, Havenhand, Phillips, & Edwards, 2017).
- Fourth, as evidenced in several studies for supplementing role, yoga can be integrated with any other therapy (Desikachar, 1999; Kalyani, Venkatasubramanian, Arasappa, Rao, Kalmady, Behere,... & Gangadhar, 2011).
- Fifth, because of holistic effects, it can resolve multiple concerns related to physical, mental, social and occupational domains (Jeter, Slutsky, Singh, & Khalsa, 2015).

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- Sixth, being substantially free from any potential side effect, yogic care can be used for neurodevelopmental rehabilitation without minding much about negative repercussions of rehabilitation.

As observed, in view of several limitations of psychiatric, developmental, psychological and community interventions, the efficacy of yogic care for preventing, managing and providing cure from NDD, yogic techniques can be particularly relevant for neurodevelopmental rehabilitation (Dykens, 2015). Against this backdrop, this chapter discusses several dimensions of yogic care for facilitating neurodevelopmental rehabilitation.

In the first section, it orients towards an understanding of major challenges and issues of prevailing primary, secondary and tertiary rehabilitation services to address developmental deficits. Then, in next section, it provides a layout of opportunities found in potentials of yogic techniques as envisioned by popular experts of yoga and also summarizes major reviews on the effectiveness of yogic wisdom to address disorders related with the nervous system. In the third section, challenges of using yogic knowledge for rehabilitation of persons afflicted with NDD have been elaborated. In the following section, the author describes directions for research and actions for imbuing yogic care. Lastly, the author concludes with major highlights of this chapter.

CURRENT SCENARIO OF NEURODEVELOPMENTAL REHABILITATION: CHALLENGES AND ISSUES

Traditionally, resource-demanding interventions (i.e., drugs, psycho-educational, developmental and behavioral) are being utilized to address developmental deficits in communication, speech, language and scholastic performance. Some recommendations for systemic changes in the environment, to assuage disability, are also in focus. But, their delivery in any setting is marred by several challenges. A majority of these reside in financial, biological, systemic, environmental, cultural and contextual repertoire of dominating perspectives.

Most of the psycho-educational, developmental and behavioral interventions have been experienced to be resource and labor-intensive. Large randomized controlled studies have highlighted financial complications of behavioral rehabilitation (Rappley, 2005). In consequence, the paucity of healthcare professionals, and lack of resources for effective service management impede access to rehabilitative care in different countries. In vast parts of the world, mental health experts, psychologists, and psychiatrists are variably placed in rural and urban areas, with greater density in capital or metro regions.

The biomedical model had remained occupied in tracing specific etiology, underlying pathological processes, and their particular effects. Although, this model has held center stage it paid limited attention to the relevance of individual actions, the role of environment and individual perceptions in accounting for their developmental traces of mental health (Bury, 2004; Foucault, 1973). Initially, confined to morbidity and mortality, it had reduced all causes of developmental deficits to the biological territory. Recently, ill-effects of such conceptions have been widely recognized. Many negative side-effects of drugs in the prevention, management, and treatment are being substantially noticed. For instance, it has been found that treatment of ADHD by using drugs induces a decrease in appetite, headache, problems falling asleep, irritability and abdominal discomfort (Elia, Ambrosini, & Rapoport, 1999; Greydanus, 2005).

Freud's insistence on explaining any disability through unconscious conflicts is beginning to lose its credibility (Palombo, Bendicsen, & Koch, 2009). Psychological overemphasis on only individualistic

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view of disability and disorders is being challenged by the contrasting emergence of evidence of the effect of parent's lifestyle and environment on the shaping of the development of the child. Realizing the limitations of existing popular perspectives, the biopsychosocial model had broadened its ambit of understanding of disease and disability by dynamically adding the influence of psychological, social and behavioral factors to the biological factors. Currently, lay notions of disease and disorders, as explored and recognized in several scholarly studies, have emerged to challenge mainstream views of rehabilitation with their notion of 'reserve stock' to be invested in by adopting health behavior, or diminished by self-neglect or unhealthy behaviors (Blaxter, 1990).

Henceforth, many mechanical, artificial and materialistic changes in contemporary life have begun to be noticed to explain spurt in the prevalence of developmental disabilities. These changes are altering not only the pattern of everyday life but also shaping the micro-level contexts such as home, school, and work setting. A plethora of living choices (i.e., fast foods, cold drinks, alcohol, pornography etc.) offered by persuasive media and market is interfering with the mind-body functioning of a majority of the world population. Cut-throat competition glamorized by globalization and disturbances in traditional customs of leisure, consumption and daily life are creating constraints in multiple spheres of development. Prominently, inappropriate living choices (e.g. unhealthy dietary habits, intake of fast food, irregular sleep, less physical activity etc.) have been realized to contribute to developmental delay but unfortunately, these issues are not getting space in neurodevelopmental rehabilitation settings.

A majority of neurodevelopmental rehabilitation services and networks, in developing and low-income countries, are based on service-delivery models originated from research evidence of developed countries. Consequently, they are less affordable and ensuring their applicability becomes a huge challenge in any other setting. Furthermore, the genesis of NDD in childhood had received greater attention but a full-life course perspective has been ignored.

While the prevalence of NDD is higher in developing countries but most of the rehabilitation strategies have been derived from studies in developed countries and thus operate with cultural incongruence. Therefore, development of culturally-sensitive and socially-contextualized knowledge, for addressing these conditions, is becoming important. Recently, several healthcare agencies have realized the need for locally relevant knowledge.

It has been noted that non-specialist service providers and parent-mediated interventions are more effective in dealing issues of developmental disability. It has also been realized that there is a need to ensure greater participation of persons with developmental disorders and their families. In short, we find that in the process of neurodevelopmental rehabilitation role of ingredients of life have been avoided. Despite several pieces of evidence indicating the role of consumption patterns, sleep-related habits, daily routine habits, spiritual practices, their use in neurodevelopmental rehabilitation remains rather minimized.

POTENTIAL OF YOGIC CARE

Traditionally, yoga has been viewed as a set of practices which not only pacifies physical and psychological turmoil and confusion but also induces calmness, harmony and balance in the body (Saraswati, 1996). Maharshi Patanjali, who is believed to be the first person to summarize theory and practice of yoga in his most famous treatise-yoga sutra, outlines controlling and transformation of mind as the goal of yoga (Iyengar, 1993). Although in modern times, physiological aspects of yoga have been over-emphasized, if we try to explore rather deeply then we find that yoga had evolved with a variety of contours. It included

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not only postures, deep breathing practices, cleansing techniques, daily routine instructions, dietary restrictions, and habits for the spiritual uplift, but it evolved also as a set of cognitive and affective techniques to deal with problems in many other spheres of life (Acharya, 2008; Cornelissen, 2004). While doing so, it does not view the existence of individual as confined in one's physical realm but mutually dependent on the societal and environmental contexts (Aurobindo, 1917).

Several studies, in last few decades, have indicated towards multiple routes for the utility of yoga to prevent the occurrence of risk factors responsible for delay or defects in the central nervous system. According to a review of independent prospective studies, by reducing the stress level in pregnant mothers, the risk for attention-deficit/hyperactivity, anxiety, and language delay in the offspring can be substantially prevented (Talge, Neal, & Glover, 2007). Yoga-based practices can be useful as an add-on treatment for socio-occupational functioning (Behere, Arasappa, Jagannathan, Varambally, Venkatasubramanian, Thirthalli,... & Gangadhar, 2011), caregivers relationship with patients (Harrison, Manocha, & Rubia, 2004), improving mood-disturbance, anger, resilience, fatigue, negative stress-response behaviours and concentration on the task in children (Herbert & Esparaham, 2017; Jeter, Slutsky, Singh, & Khalsa, 2015).

Based on the yogic perspective of life and evidence-based knowledge, following techniques are being elaborated as follows:

Regulating Dietary Habits

Dietary regulations occupy major space in yogic life. Food items have been categorized into three types according to notions of their effects on the human mind (Aurobindo, 1917). Sattvic category, which quietens the mind, consists of organically grown sweet potato, cow milk and other milk products, wheat, barley, gram, dates, fruits, coconut, pumpkin and maize. Rajsic food items induce egoism, aggressiveness and excess of activity. It includes salt, pepper, tea, coffee, garlic, sugar, cold drinks, chocolates and other spicy, dry and bitter food preparations. In a third category called-Tamsic, different types of liquor, chips, meat, pickles and preserved food items have been experienced to result into dullness. In yoga, the act of eating food is required to be preceded by devotional actions and mood so as to induce calmness to facilitate proper digestion. In addition, appropriate chewing of each morsel, not to eat anything in between two meals during a day, eating only when feeling intense hunger, eating regularly and drinking enough amount of water are some important habits. Over-indulgence in eating and not eating at all during the period of intense hunger - both were suggested to result in serious health problems. Regarding the quantity of food, yogic instructions to fill half of the stomach with food, one fourth with water and remaining one fourth to be left for aeration are relevant for better digestion. In order to facilitate appropriate growth during different developmental trajectories, Yoga also emphasizes on the practice of rational fasting to promote vigor, vigilance, and well-being.

Recently, yogic notions of diet have been supported by psycho-biological studies. In modern studies, intake of protein-rich food has been found to be associated with an increase in awareness while of carbohydrate to lack of fatigue and vitamins to experience vigor (Benton & Donohoe, 1999). In neurological studies, intermittent fasting and intake of vegetables and fruits have been found to increase resistance to neuro-generative disorders (Mattson, Allison, Fontana, Harvie, Longo, Malaisse, ... & Seyfried, 2014; Mattson, 2015). In particular, fasting has been noted to be of great importance for the prevention of developmental problems in old age because it reduces intake of free radicals and increases production of neurotrophic factors and protein chaperons. Several yoga therapists have been reporting anecdotal evidence for the effectiveness of yogic dietary habits for ameliorating developmental delays in the ner-

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vous system. In one such article, fasting was reported to treat several neuro-generative disorders such as palsy, mental retardation and the age-dependent emergence of concerns of anxiety, depression, and loneliness. In another article, intake of tea or coffee was reported to be related to the developmental lagging of nervous system. However, it remains to be seen that whether these anecdotal findings may stand to empirical scrutiny.

Synchronising Sleep

Sleep is considered as one of three important foundations of health in equivalence with diet and sexual restrictions (Charak Samhita, 11/35). The period of sleep was recommended to be regulated in synchrony with daily natural events (e.g., sunrise, the appearance of stars). Particularly, 'Ayurveda' recommends sleep during early hours of the second quarter of the night till the onset of the fourth quarter of the night. Regular sleep during this period of the night is said to improve fitness, stamina, digestibility and self-esteem and serve several restorative functions of the body (Rigveda, 10/127; Charaka Sutra, 21/38). Remaining awake during the night was stated to increase physical illnesses. The second important suggestion was about getting up early in the morning. Early rising was conceived to have medicinal value for many diseases. Multiple effects of morning rise such as in enhancing gaiety, optimism, positive body image were especially emphasized (Ashtanga Hridaya, Sutrasthana, 2/3).

Some recent biological studies have validated Ayurvedic realizations about sleep. Positive changes in the biochemical constitution such as increased secretion of health-enhancing neuro-peptides (i.e., corticosteroids and hormones (i.e., melatonin) have been demonstrated to be associated with the timing of sleep in synchrony with sun-rise and sunset (Buschkens, Graham, & Cottrell, 2010; Roeser, Obergfell, Meule, Vögele, Schlarb, & Kübler, 2012). However, in the modern age, urbanization and technological predominance seem to have badly affected the practice of appropriate sleep habits resulting in several developmental complications.

Daily Routine and Positive Leisure

Regular pursuance of daily routine activities (i.e., bathing, massaging, physical exercises), positive leisure and religious behaviors (i.e., prayer, chanting religious mantras) have been widely mentioned in different yogic texts. Bathing was recommended to be performed daily for overcoming fatigue and sweat and promoting physical stamina (Ashtanga Hridaya Sutra, 2/16-18). Positive effects of oil massaging of children to prevent excessive sweating, fatigue, and increase flexibility, strength and fitness were eloquently recognized. Physical exercises were considered of great value for their positive contribution to improving digestion, physical fitness and strength (C.S., Sutrasthana, 7/ 31-32). Engagement in violent, addictive and sexual activities was suggested to be highly harmful during adolescence (C.S. 7/29). The sexual restriction was greatly recommended for gaining multiple positive effects of Yoga (Kathopanishada, 11/5). Chanting of mantras is a major religious behavior recommended in yogic tradition. Particularly, 'Om' is of major importance considered as 'syllable' of the God in different religions. In a study, chanting of 'Om' has been found to be correlated with deactivation of the limbic system and stimulation of vagus nerve and thus indicating for the potential to treat emotional reactivity and stress (Kalyani, Venkatasubramanian, Arasappa, Rao, Kalmady, Behere, ... & Gangadhar, 2011).

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Postures

We find an astounding variety of structured postures in several spiritual texts of India (Desikachar, 1999). The effect of postures in the calming restlessness of mind was of special significance for spiritual seekers (Yoga Sutra, 1.2). The postures (Asana) were particularly meant for effortless, relaxed and poised sitting in meditation (Yoga Sutra, 2/46-48). Yoga Sutra did not provide any more description of categorization and classification of postures (Iyengar,1993). But some other texts indicate about manifold forms of postures developed from minute observation of different creatures and their species-specific concomitant physical or mental capacities (Dhayanbindupanishad, 42). During later ages, multiple forms and series of postures were invented to alleviate psycho-physiological imbalances in body and mind. Effects of yogic postures operate through internal massaging of specific muscles, neural ganglions and organs of the body and in turn results into the improved functioning of the human nervous system, muscular system and circulatory system (C.S., Sutrasthana, 28/7, Acharya, 2008).

Postures play a facilitative role in ensuring proper absorption and distribution of nutrients to the different organs of the body. Rao (2002) contends that by attention to coordinated breathe and body movements, awareness of emotional blockages goes on to increase. In a study among children aged 5-16, diagnosed with ADHD, the practice of loosening kriya, postures, kapalbhati, Ujjayee, anuloma-villoma, and nadanusandhan resulted into a significant reduction in severity of symptoms (Hariprasad, Arasappa, Varambally, Srinath, & Gangadhar, 2013).

Breath Regulation (Pranayama)

Next to postures (Asanas), regulation of breath (Pranayama) is considered of crucial significance for increasing mental acumen. It was intuitively realized by yogic sages that particular forms of conscious breathing are related subsequently to specific kinds of mental experiences, cognitive abilities and states of human wellness. It came also to their experience that alleviation of many negative effects and reestablishment of harmony between human body and mind can be possible through breath-regulation (Y.S., 2/52; Prasnopanishad, 2/10-11). The spine and spinal muscles are a source of action and lungs are receiving instruments of breathing technique. There are three components of all breathing practices: inhalation, exhalation and retention (Iyengar, 1993, p., 30). In some types, deep breathing is practiced through both nostrils; in some others forceful expulsion of breath is undertaken and in other types, alternate breathing from nostrils is carried out. In some other techniques, certain divine syllables are mentally repeated in consonance with inhalation, retention or exhalation of breath. There are also some highly advanced practices in which there is no actual breathing but merely conscious visualization of receiving vital energy. These breath taking practices increase muscular strength of lungs. Increased availability of oxygen enhances functional capacity of different internal organs of the body. Especially, the positive effect of deep breathing (Pranayama) on purification of the nervous system, increasing concentration and mental vigor was considered of special importance (Shvetashvaropanishad, 2/9).

In congruence with yogic realizations, several recent clinical studies have identified less utilization of lungs and consequently reduced intake of oxygen as a major source of multiple ailments (Gupta, Gupta, Sood, & Arkham, 2014). The practice of alternate nostrils breathing (Anuloma-Viloma Pranayama) and Kapalbhati pranayama are viewed as special value during initiation of deep breathing practice (Saraswati, 1996).

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Yognidra

Yoga Nidra, a classical yogic technique prescribed for psychophysical relaxation (Hatha Pradipika, 1.32; Gherand Samhita, 2.4; 2.19), is a state between sleep and awakening. In this state, relaxation is induced in simultaneity with mental alertness and experiential journey of different parts of the body (Desikachar, 1999). This technique is practiced by inculcating imagery, awareness of breathing and abdominal movements. It has a revitalizing impact on human existence (Brihadarakyopanishad, 4/3/18). It's regular practice develops self-control, attention and concentration and helps in overcoming stresses of life and gaining composure (Y. S., 2.54-56). As a result of widening recognition of Yognidra, its' different offshoots i.e. iRest, divine sleep have become popular in western countries.

Through its' practice, autonomic nervous system and the endocrine system gets harmonized resulting in greater energy, relaxation and strength. Many previous studies have noticed significant changes in the sympathetic activity in practitioners of Yognidra. It stabilizes glucose level (Amita, Prabhakar, Manoj, Harminder, & Pawan, 2009), blood pressure, heart-rate (Monica, Singh, Ghildiyal, Kala, & Srivastava, 2012) neural activity, and functioning of the hypothalamus and thus indicates for its potential benefit in anxiety, depression and different types of disabilities (Kim, 2017) (Vempati & Telles, 2002). Other concomitant changes such as increase in ATP and frequency of alpha and delta brain waves during Yoganidra may be linked positively with the nourishment of several parts of the human body (Dusek, Otu, Wohlhueter, Bhasin, Zerbini, Joseph,... & Libermann, 2008). Research evidences have corroborated for its great effect in reducing negative thought patterns and unhealthy habits (Pence, Katz, Huffman, & Cojucar, 2014). In patients of combat-related post-traumatic stress disorder, use of Yognidra only for eight weeks has shown promising potential to reduce rage, anxiety, emotional reactivity and increase relaxation, peace, self-awareness despite the intrusive memories in veterans (Stankovic, 2011).

Meditation

There are a variety of meditation techniques. These include focusing fixed attention on present moment or a fixed stimulus such as one's breathe, use some imagery or observing one's own thoughts rather than suppressing or engaging with them. Meditation has found to yield a positive contribution to well-being among a wide range of healthy people and persons with mental problems (Murphy & Donovan, 1999; Shapiro, Schwartz, & Santerre, 2002). In short term, it leads to a reduction in arousal by inducing changes in heart rate, respiration, skin conductance, cortisol levels, and by increasing alpha waves. In long term, it has been found to lead to increased health, cognitive functioning, creativity, empathy, and in the management of conditions such as hypertension, chronic pain, anxiety, and depression. Merely, 20 minutes a day of guided meditation for few weeks has been found to produce favourable changes in inflammation, ageing, and energy production (Bhasin, Dusek, Chang, Joseph, Denninger, Fricchione, ... & Libermann, 2013).

CHALLENGES AND ISSUES IN RESEARCH AND PRACTICE OF YOGIC CARE IN NEURODEVELOPMENTAL REHABILITATION

In mainstream research and practice of neurodevelopmental rehabilitation, pharmacological and to some extent behavioral approaches are highly emphasized. But, there is minimal availability of evidence-based

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knowledge on content and process-oriented aspects of yogic care (Salmon, Lush, Jablonski, & Sephton, 2009). As a result, although persons are utilizing yoga on their own to overcome several developmental disabilities and anecdotally reporting their effects but yogic approach for neurodevelopmental rehabilitation is largely invisible in hospitals and clinics. Taking into account existing scenario, this section recapitulates challenges in research and practice of yogic neurodevelopmental rehabilitation. In particular, it provides a snap of methodological limitations and practical constraints.

In last few decades, many studies have been conducted to explore and evaluate the promising possibility of yogic practices for neuro-developmental rehabilitation (Behere, Arasappa, Jagannathan, Varambally, Venkatasubramanian, Thirthalli,... & Gangadhar, 2011; Hariprasad, Arasappa, Varambally, Srinath, & Gangadhar, 2013; Harrison, Manocha, & Rubia, 2004; Hartfiel, Clarke, Havenhand, Phillips, & Edwards, 2017; Jeter, Slutsky, Singh, & Khalsa, 2015). Some attempts for randomized control trials have also been made (Chuang, Soares, Tilbrook, Cox, Hewitt, Aplin, ... & Torgerson, 2012; Jeter, Slutsky, Singh, & Khalsa, 2015). In popular academic view, RCTs are considered as 'perfect' scientific approach to validating effects of yoga. But, due to the impossibility of double-blind trials mental health associated effects are difficult to evaluate in an absolute sense (Mason, Tovey, & Long, 2002; Cornelissen, 2004). This is because any yogic practice has its own ontological and epistemological premises and also there is a gap in basic paradigmatic assumptions between science and yoga as a method. Moreover, yoga involves a variety of practices. Recently, different versions of Yoga, claiming for their supremacy have evolved. Across these different styles, there is the lack in uniformity in content and procedure and thus complicating any endeavour for the comparative assessment for standardization and replication (Mason, Tovey, & Long, 2002). Also, in any intervention, there may be plausibility of abundance of participatory bias that can influence the outcome either in positive or negative manner for or against its practitioners. Further, the settings in which the published studies are conducted, vary from laboratory, residence, clinics, yoga studios, to university campus. Outcome measures also vary considerably across studies.

Moreover, in any experimental study, a researcher faces an arduous task of separating effect of yoga from physical exercise. According to yogic philosophy, if any action is performed with awareness and particular intention then and only then it becomes Yoga; otherwise it remains merely an exercise (Saraswati, 1996). In such a scenario, a researcher is likely to be perplexed with the task of invoking a particular type of attitude in practitioners participating in a research.

Yoga consists of immense variety. It is like a vast sea of practices which can subsume almost any practice blended with an attitude of intention, awareness, and relaxation (Iyengar, 1993). Now the question before us is how can we empirically evaluate the effect of Yoga? Should we use it as a whole system or stand-alone practices? Yoga emphasizes on the experience of self by one-self (Aurobindo, 1917). Then, to what extent, neutral observation of the effect of yogic practices can actually provide real glimpse of yoga for mental health? Yoga is based on the basic idea of holism and continuity of existence but not on the broken idea of a dichotomy between body and mind (Aurobindo, 1917). But, existing research findings are based on reductionist notions and explanations. Conventional studies have mostly been merely limited to capturing of certain biochemical alterations and self-report of subjective experiences. Lack of detail in specifics of yogic intervention is frequently noticeable in different empirical studies (Salmon, Lush, Jablonski, & Sephton, 2009).

According to the yogic theory of human mind, these subjective experiences constitute a lower level of human existence and the effect of Yoga operates through qualitative alterations in different sheaths of consciousness and transgressing ordinary states of the mind (Cornelissen, 2004). As espoused in yogic tradition, the mind is of four layers. The deepest layer is Chitta, the transformation of which is

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related to experiences of divinity, mystical union, beauty, and space and time transcendence (Iyengar, 1993). Scientific studies are often caught in the puzzle of measurements of subtle changes at uppermost level-body; While, effects of Yoga are conceptualized to operate through body's undetectable nadis or energy vortices (Desikachar, 1999). Due to paradigmatic fixation to ritualistic to the Newtonian scientific inquiry, experiences at other levels of being are either rejected or sometimes believed in ambiguity (Cornelissen, 2004).

To gain benefits of yoga, a person needs to be motivated to practice. According to yogic theory, with an increase in motivation, benefits of yoga are maximized (Iyengar, 1993). Now the problem for researchers is related to increase motivation among subjects for participation in yoga to measure effects. If researchers get involved in motivating subjects then how will they be able to avoid intrusion of biases due to direct engagement of experimenter? And if not, then how to overcome effect of drop-out rate in any experimental research on yoga. Also, in view of the individual variation in motivation for participating in yoga, researchers remain perplexed about the relevance of generalized statements for the outcome of engagement in yoga.

A researcher does not act in oblivion but in the midst of contextual influences and pressures. The act of interpreting particular forms of yoga is often given varied orientation by socio-political debates and controversies (Saraswati, 1996). In such a backdrop, a researcher often gets baffled with the task of what to research and what not to research. The researcher himself/herself may be preoccupied with a certain type of perception due to his training in the particular type of research and disciplinary tradition; which may further prevent from unearthing culturally sensitive mechanisms underlying practice of Yoga. Therefore, we need to have a re-look towards our priorities of research in future.

FUTURE RESEARCH DIRECTIONS

There is need to strengthen research endeavors to address several issues and challenges of rehabilitation efforts through yogic interventions. In order to advance evidence-based knowledge, effective methodology for research on the effectiveness of yogic care needs to be undertaken. In view of holistic effects of yoga, research endeavors also need to undertake mixed-method approach. In view of Yoga being a set of multiple practices, effectiveness of isolated practices needs to be investigated. In addition, holistic modules of yogic lifestyle also need to be assessed for managing and treating individual disorders. In any such research endeavor, the collaboration would be needed in between yoga experts, psychologists, psychiatrists, and anthropologists.

Since, Yoga was developed in a particular historical and social context, several sociological issues related to the application of yoga in different types of settings need to be properly understood. Although Yoga as a term was developed in India, there can be multiple practices in different religions which can be clubbed under yogic care but any such endeavor needs to pay appropriate attention also to several issues related with faith. Also, we will need to work upon effective models for delivery of yogic care in different therapeutic settings.

For long, scientific method has been used to assess the effectiveness of Yoga. In this pursuance, whatever aspects of Yoga would have been scrutinized objectively has been accepted and denial mode has been adopted for all other aspects. As a result 'half-baked' truths are commonly noticeable (Carnelissen, 2004). But, if try to fathom deep into process and content of Yoga by using it's own method, then it can provide much more relevant knowledge.

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CONCLUSION

This chapter has highlighted multiple issues and challenges for neurodevelopmental rehabilitation and effectiveness of yogic care for the same. It has also underlined challenges involved in yogic neurodevelopmental rehabilitation. In view of several lifestyle changes, yogic lifestyle and practices offer promising possibility to reduce the cost of services for prevention, management, and rehabilitation. Since, the practice of any particular component of Yoga also requires enough attention to balancing life style, daily routine affairs of living related to diet, sleep, daily routine habits cannot be segregated apart. In view of racial and communal perceptions for yoga, any such effort involves careful scrutiny and consideration of relevant yogic practices in different religions and countries.

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KEY TERMS AND DEFINITIONS

Daily Routine and Positive Leisure: This term denotes ordinary activities of life in the transaction with daytime and seasonal variation.

Dietary Habits: It refers to habits related to ingestion.

Meditation: This term is defined as concentration towards any object/situation with full awareness and relaxation.

Neurodevelopment Disorders: These disorders indicate developmental deficits in the development of the central nervous system.

Posture: It denotes a particular bodily position influencing physical and mental aspects of health.

Pranayama: Ordinarily, this word is used for breath-regulation but in actual yogic terminology, this term means for controlling and harmonizing vital force of the body.

Yoga: This term refers to a perspective of life/therapy/a cluster of spiritual practices as ingrained in Indian traditional systems of knowledge.

Yognidra: In order to maintain harmony in the body, this practice involves loosening of each part of the body with full awareness and successively relaxes the body.

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Chapter 20
Vojta-Therapy:
A Vision-Based Framework to Recognize the Movement Patterns

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ABSTRACT

This paper proposed a novel computer vision-based framework to recognize the accurate movements of a patient during the Vojta-therapy. Vojta-therapy is a useful technique for the physical and mental impairments in humans. During the therapy, a specific stimulation is given to the patients to cause the patient's body to perform certain reflexive pattern movements. The repetition of this stimulation ultimately makes available the previously blocked connections between the spinal cord and brain, and after a few sessions, patients can perform these movements without any external stimulation. In this paper the authors propose an automatic method for patient detection and recognition of specific movements in his/her various body parts during the therapy process, using Microsoft Kinect camera. The proposed method works in three steps. In the first step, a robust template matching based algorithm is exploited for patient's detection using his/her head location. Second, several features are computed to capture the movements of different body parts during the therapy process. Third, in the classification stage, a multi-class support vector machine (mSVM) is used to classify the accurate movements of patient. The classification results ultimately reveal the correctness of the given treatment. The proposed algorithm is evaluated on the authors' challenging dataset, which was collected in a children hospital. The detection and classification results show that the proposed method is highly useful to recognize the correct movement pattern either in hospital or in-home therapy systems.

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1. INTRODUCTION

Vojta-therapy (VT) is a useful technique to treat the disorders in the central nervous and musculoskeletal system, and is very effective for small babies of less than 6 months. The patients suffering from such diseases are unable to make some specific movements in their different body-parts, in the normal manner. VT is based on the principle of Reflex Locomotion (RL), that is, the patient's central nervous system can be activated by giving the correct simulation, assuming that it is still partially intact. RL is a combination of Reflex Creeping in prone lying position and Reflex Rolling from supine and side lying positions, which enable the elementary patterns of movement in patient. The various lying positions of a patient during the therapy are shown in Figure 1.

Figure 1. Example of child's lying positions during the therapy process. Reflex creeping (a) prone lying position, and Reflex rolling (b) supine lying position and (c) side lying position. Photo courtesy: Red Cross Children Hospital, Siegen, Germany.

According to Prof. Dr. Václav Vojta (a child neurologist from Czech Republic, who introduced this treatment), one can observe motor reactions occurring throughout the patient's body when a specific stimulation is given to him/her, while lying in one of the above mentioned positions. Therefore, the therapists exploit a combination of 10 different zones on a patient's body by putting light pressure on this area and resistance to the current movement (e.g., the tendency to rotate the head during reflex creeping) to cause the patient's body to perform certain reflexive movement patterns. The repetition of this stimulation many times ultimately make available the previously blocked connections between the patient's spinal cord and brain, and the patient is able to perform similar movements without any external stimulation. VT has been effectively used to treat various diseases like cerebral palsy, peripheral paralysis of the arms/legs, hip joint dysplasia, problems in breathing, swallowing and chewing functions[1].

VT can be applied to the patients of any age group but it is extremely effective for young babies of less than 6 months because most of the developmental changes take place in the early stage of a child's life. For a treatment to be successful; the therapy session of 5-20 minutes should be performed several times in a day or week and this process can last for several weeks or months. Therefore, the therapists explain the goal and objective of the therapy and recommend an in-home continuation of the therapy as well. The therapy program is then determined in regular intervals in accordance with a child's improve-

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ment. During the therapy, children may start cry, causing the parents to be discomfort about their child's well-being. Resultantly, they stop the treatment in claiming that it is not beneficial. At this age, however, crying is an appropriate means of expression for the young patients, which after a short familiarization period, becomes less and less intense. An automatic vision based system is required to analyze the accurate movements of a patient (i.e., correct treatment), during the therapy session. The aim of home-based therapy evaluation is to provide an accurate in-home therapy alternative to in-hospital therapy. The therapy process at home is not only helpful for the quick recovery of a patient but also quite useful for those who do not have access to a local hospital offering said treatment. Moreover, the frequent visits to the therapist's clinic add an economic burden as well.

In this paper, we proposed a novel computer vision-based method for patient's (i.e., child) detection and accurate recognition of the movement patterns in his/her body parts during VT, using Microsoft Kinect camera. The proposed method works in three steps. In the first step, the child's head location is detected in the depth images using the sum of square differences (SSD) and cross correlation (CC) based matching algorithms in an efficient way. The detected head locations are fitted into a 3D head model for verification. We apply a region growing algorithm on verified locations to extract the entire child's body region from the background. During the therapy, a specific movement can be observed in the upper and lower limbs of a child when a particular stimulation is given to him/her, lying in one of the aforementioned positions. Second, various features are computed to capture the movements in upper and lower limbs of a child. Third, a multi-class Support Vector Machine (mSVM) is used to classify the accurate movements, which ultimately leads us to the correctness of the given treatment. The proposed method is evaluated on our challenging dataset, which was collected in the children hospital. The dataset contains more than 15,000 RGB and depth frames, captured from Microsoft Kinect camera. Experimental results show that the proposed method performs rather well and is highly useful for at home-based therapy systems. Some preliminary result of this research is reported in (Khan, Helsper, Yang, & Grzegorzek, 2016). However, this paper contains the detail of data capturing process, additional diagnostic experiments and in depth discussion of the proposed method.

2. RELATED WORK

Several researchers have been effectively used the computer vision and image processing techniques in physical rehabilitation either using sensors-based (Arteaga et al. 2008; Rado, Sankaran, Plasek, Nuckley & Keefe, 2009; Shih, Chang & Shih, 2010) or vision-based (Chang, Chen, & Huang, 2011; Da Gama, Chaves, Figueiredo & Teichrieb, 2012; Bryanton et al., 2006; Exell et al., 2013; Chang et al., 2012; Gao, Zhao, Qiu, Yu & Chang, 2015; Tokunaga, Tamamizu, Saiki, Nakamura & Yasuda, 2017) methods.

Rado, Sankaran, Plasek, Nuckley and Keefe (2009) introduced an unsupervised patient rehabilitation method with the help of marker based motion tracking of knee movements using infrared optical tracker. They detect the errors in movement and showing to the user how to perform the movement correctly. However, the use of such marker sensors need of extra equipment and suffers from the reduction of tracking efficiency due the high incidence of motion blurs (Da Gama, Chaves, Figueiredo & Teichrieb, 2012). Industrial motion sensors have been utilized as a physical rehabilitation tool (Arteaga et al., 2008; Shih, Chang & Shih, 2010). However, these methods require wearing a number of sensors on the human body, causing discomfort. Virtual reality and motion-based games have also been exploited for rehabilitation (Jack et al., 2000; Arteaga et al., 2008). Admittedly, the evidence indicates that these methods provide

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an interactive, engaging, and effective environment for physical therapy, but they require expensive hardware and software. They are generally designed to suit a very specific group of patients and cannot be useful in cases of newly born babies because they cannot interact with such systems.

Vision based methods can track movements using either color-based or depth-based imaging. Color-based method usually use a specific color marker attached to the patient's body-part (Hondori, Khademi, Dodakian, Cramer & Lopes, 2013). On the other hand, depth-based systems either make the use of skeletal tracking or computer vision based algorithms to detect and track human body from the sequences of depth images (Da Gama, Fallavollita, Teichrieb & Navab, 2015; Khan, Shirahama, Farid & Grzegorzek, 2016). With the invention of a very low cost device, i.e., Microsoft Kinect, a new tool is now to be considered in similar rehabilitation, as well as in assessment and monitoring systems. A Kinect camera is quite cheap and can be extended far beyond gaming (Han, Shao, Xu & Shotton, 2013). It consists of RGB camera, a 3D depth sensor that provides the distance information of object from camera, and a pivot which can be tilted either up or down direction for sensor adjustment.

Several researchers have utilized the Kinect as assistive technology at ambient assisted living and rehabilitation places. Chan, Chen and Huang (2011) developed a Kinect-based rehabilitation system to assist the therapists in their work to treat the children suffering from motor disabilities. They used the motion tracking data to analyze the rehabilitation standards and to allow the therapist to view the rehabilitation progress. Bryanton et al. (2006) proposed a system for in-home rehabilitation using Dynamic Time Warping (DTW) algorithm and fuzzy logic. The evaluation is performed on the trajectory of joints and the time duration in the completion of designated exercise. Exell et al. (2013) utilized the skeletal tracking information to analyze the rehabilitation in the upper limbs. Chang et al. (2012) proposed a system that used the motion tracking of 6 upper limbs for rehabilitation. For validation they used the outputs of OptiTrack[2] as ground truth and compared them to the outputs of Kinect. In the article by Da Gama, Chaves, Figueiredo and Teichrieb (2012), the authors proposed an interface for adults to monitor the correct description of therapeutic movements. The recent surveys on various therapy techniques for rehabilitation using Kinect are presented in (Da Gama, Fallavollita, Teichrieb & Navab, 2015; Mousavi & Khademi, 2014). All of the above mentioned techniques used skeleton information from Kinect, which either could not be made available in the case of little babies or which was problematic if some body parts were occluded. Moreover, due to the nature of VT, some of the patient's body parts are always occluded, as shown in Figure 7.

Compared to the aforementioned methods, the proposed algorithm does not require any statistical learning, motion information, and is computationally inexpensive. The proposed algorithm exploits only depth information for child's detection using a fast template matching algorithm and used the segmented body region in combination with visual information to classify the accurate movements in their various body parts. The rest of the paper is organized as follows: Section 3 describes the overview of the proposed method. The patient's body segmentation and detection is presented in Section 4 and Section 5 contains the method for feature computation. The data capturing process and experimental results are reported in Section 6 and conclusion is drawn in Section 7.

3. OVERVIEW OF THE PROPOSED METHOD

The proposed method works in three steps. The short description of each step is given below and the detail implementation is explained in succeeding sections.

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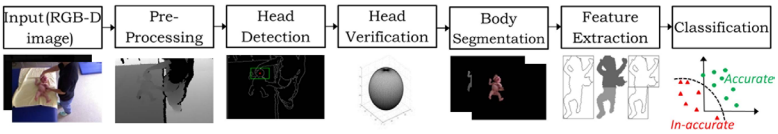
In the first steps, the child (i.e., patient) is detected from the depth image using the location of his/her head position. In a given depth image from Microsoft Kinect camera, we reduced the noise and smoothed the array for later process. The edges information in the depth data is utilized to locate the candidate positions of the child's head region. The proposed method scans across the whole image and exploits the relationship between the sum of squared differences (SSD) and cross correlation (CC) based matching algorithms, to locate the possible regions of the child's head. Each of the detected head regions are then verified through a 3D head-model fitting technique, which utilized both the edge and relational depth change information from the original depth image. After verification, a Region Growing algorithm is applied on the detected head location to segment the child's body region from the captured scene. We performed the calibration of depth and RGB images using the camera's extrinsic and intrinsic parameters to segment the child's body region from RGB image as well. Later, this visual segmented information is utilized to identify the child's lying position during the therapy process. In the second step, various features are computed in the segmented child's body region to capture the movements in upper and lower limbs. Third, in the classification stage, a multi-class support vector machine is used to classify the accurate movements in the child's body region during the treatment. A block diagram presenting the complete process is shown in Figure 2.

Figure 2. Overview of the proposed method



4. PATIENT'S BODY DETECTION AND SEGMENTATION

4.1. Depth Data Pre-Processing

Prior to start detection process we need to remove the noise from depth data. The 3D depth sensor in Microsoft Kinect provides the depth information of the scene as a two-dimensional array, known as the "depth image". Each pixel in a depth image represents the distance of the corresponding object from the camera. For visualization and compression, the depth values are normalized in the range 0-255. The depth sensor in the Kinect camera can capture the distance information in the range 0.8-3.5 meters. The pixels out of this range are filled with the offset value 0 and can be viewed as random black dots in the depth image. These missing pixels, considered as noise, and must be recovered to effectively use the depth data in image processing techniques. We recover these missing pixels from the neighboring pixels by applying nearest neighbor interpolation algorithm. This process converts the discrete data into continuous and recovers the depth value of missing pixels, however it may introduce some noise in the depth image. The noise can be removed by using order statistic filter (Khan, Shirahama, Farid & Grzegorzek, 2016). To overcome this problem, we used the median filter and tested it with various sizes to remove the said noise and found the best results are obtained with a 5x5 size median filter. The reason for choosing the median filter is that it preserves the edges in the depth image, which are very important to the later stages of the proposed algorithm.

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4.2. Child's Detection

The next task after the aforementioned pre-processing (i.e., recovery of missing pixels) is to locate the position of the child's body region in the depth image. The edges information of the depth image is utilized for this purpose. A Canny edge detector is used to find all the edges in the depth image. Since the small edges do not contribute in head detection and therefore can be dropped to reduce the computational cost and the disturbance from the irregular objects in the surrounding. The edges smaller than a predefined edge length Ω are dropped.

The proposed detection algorithm starts by locating the position of child's head and the binary template used for this purpose is shown in Figure 3c. For the child's head detection, the proposed template is traversed over the entire edge image from top-left to bottom-right. The matching measure is determined on each pixel of the edge image which lies under the template. For the matching, we utilized the SSD and CC based matching algorithms. Let us define the edge image as E and template image T with size *MxN*. The equation of SSD can be written as:

$$S\left(x,y\right)=\sum_{i=0}^{M}\sum_{j=0}^{N}\left(E\left(x+i,y+j\right)-T\left(i,j\right)\right)^{2} \tag{1}$$

where S represents the sum of squared difference, computed at (x,y) position of E and i,j representing the x,y locations of pixels in T. SSD can also be viewed as the Euclidean distance between image patch E and template T. Expanding Equation (1) yields,

$$S\left(x,y\right)=\sum_{i=0}^{M}\sum_{j=0}^{N}E^{2}\left(x+i,y+j\right)+\sum_{i=0}^{M}\sum_{j=0}^{N}T^{2}\left(i,j\right)-2\sum_{i=0}^{M}\sum_{j=0}^{N}E\left(x+i,y+j\right)T\left(i,j\right) \tag{2}$$

In Equation (2), the first term is the sum of squared values in the edge image, the second term belongs to the template image and the third term is twice the correlation between the image patch and template. Note that the term $\sum_{i=0}^{M}\sum_{j=0}^{N}T^{2}\left(i,j\right)$ is constant. Let us assume that the term $\sum_{i=0}^{M}\sum_{j=0}^{N}E^{2}\left(x+i,y+j\right)$ is approximately constant (Goshtasby, Gage & Bartholic, 1984), so the remaining term (i.e., cross correlation) is,

$$CC\left(x,y\right)=\sum_{i=0}^{M}\sum_{j=0}^{N}E\left(x+i,y+j\right)T\left(i,j\right) \tag{3}$$

where CC represents the cross correlation. It can be easily observed from Equation (2) that the Euclidean distance between the patch of edge image and template decreases as the correlation (i.e., similarity) between the image patch and template increases. This also provides an intuition to use correlation to measure the similarity. However, one should be careful while using a correlation to measure the similarity in intensity images because the correlation is high on the locations where the image intensity is high, even though they are not very similar. To overcome this problem, the normalized cross correlation can

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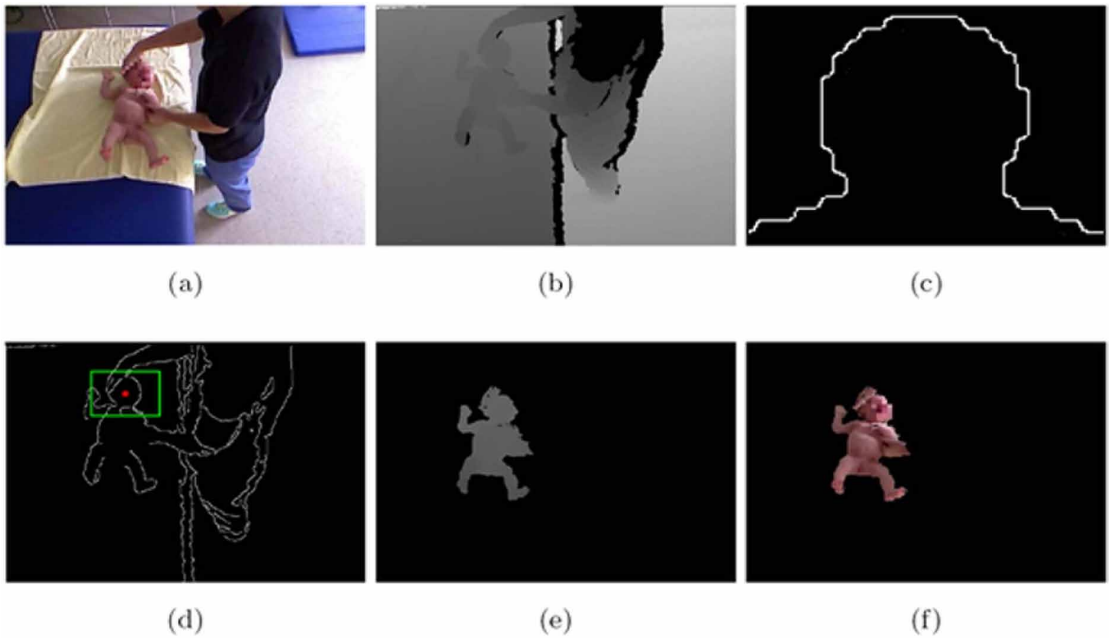
Figure 3. Example of child's detection (a) original color image (b) pre-processed depth image (c) binary template used for head detection, (d) detected head's location after verification (e) and (f) segmented child's body region in depth and RGB images respectively.



be used but this is not a problem in our case, as the proposed detection algorithm exploiting only binary images which contain the edge information (i.e., E(x, y) & T(i, j) ϵ {0,1}). The regions of the image where the correlation is high are the places where template and image match well.

The cross correlation can be computed by taking the inner product of image patch E and template T. This calculation is computationally quite expensive (Khan, Shirahama, Farid & Grzegorzek, 2016). For a search window of size MxM and a template of size NxN require $N^2(M-N+1)^2$ additions and $N^2(M-N+1)^2$ multiplications (Lewis, 1995). In order to reduce the computational overhead, we compute the cross correlation in frequency domain using the Fourier frequency transformation (FFT) and correlation theorem. The theorem states that multiplying the Fourier transform of one function (i.e., our edge image) by the complex conjugate of the Fourier transform of the other (i.e., the head template) gives the Fourier transform of their correlation. That is,

$$CC\left(u,v\right) = \mathfrak{F}^{-1}\left(\mathfrak{F}^{*}\left(E\left(x,y\right)\right)\mathfrak{F}\left(T\left(i,j\right)\right)\right) \tag{4}$$

where $\mathfrak{F}$ represents the Fourier transform, $\mathfrak{F}^{*}$ represents the complex conjugate and $\mathfrak{F}^{-1}$ is the inverse Fourier transform. The computational cost in frequency domain with the same aforementioned search area and template size is, $12M^2\log_2 M$ real multiplications and $18M^2\log_2 M$ real additions (Lewis, 1995). Although there is no difference in the detection results of the proposed method either in computing correlation in spatial domain or frequency domain, it is shown in (Lyon, 2010) that correlation computation in frequency domain is 2.5 to 12 times faster than in spatial domain.

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The size of the head varies from child to child and also depends on the distance of the child from the camera during the therapy. Although the distance and angle orientation of the camera from the table surface (where the patient is lying for treatment) is pre-defined to capture the best quality data with minimum occlusion of the therapists, we apply the proposed matching algorithm in a multi-resolution fashion which makes the algorithm robust to scale in change. Three different sizes of templates are exploited with a sampling rate of $\frac{1}{4}$ for pyramids construction, to detect head location in depth image. Using the above mentioned method, few locations with high correlations are marked as a possible child's head. However, all the detected locations do not necessarily contain the child's head. Therefore, the detected locations are verified through a 3D head model fitting technique. A 3D hemisphere model is used for verification of the detected head regions. We exploited the 3D head model fitting technique proposed by Xia, Chen and Aggarwal (2011) for this purpose. Figure 3d shows the results of human head detection in Figure 3b; the detected heads are shown in green rectangles and the red dot represents the matching locations.

4.3. Child's Body Segmentation

Once a detected child's head is verified, the entire child's body region can be extracted from the background. Since the depth of child's head location in known, we can extract the whole child's body by selecting the same depth pixels from the original depth image. However, this may also extract some false alarms, that is, few other pixels having the same depth values but not lying on child's body region. This problem can be handled by applying a Region Growing algorithm on the detected head location instead of selecting the same depth values directly. A Region Growing algorithm is applied on the verified head location to extract the child's body region from the depth image. The Region Growing algorithm compares the similarity of a pixel to its neighboring pixels and grows itself by including them in the region if the similarity difference is lower than the pre-defined threshold (Khan, Shirahama, Farid & Grzegorzek, 2016). Resultantly, we segmented all the pixels from the depth image belonging to child's body region, as shown in Figure 2(e). In addition, we performed the calibration of depth image with RGB image using Kienct's extrinsic and intrinsic parameters and segmented the child's body region in RGB image as well, which is required in the next stage of our proposed method.

5. FEATURE EXTRACTION FOR POSE REPRESENTATION

The VT has to be given to children in prone, supine, and side lying positions. In our work we primarily focus on the treatment in prone and supine lying positions. We carefully captured the RGB and depth frames containing the movements of upper and lower limbs during the treatment, while lying in one of the aforementioned positions. Since human region in depth images do not possess any color and texture information, therefore, it is very difficult to detect the lying position of a child using only depth data. We utilized the calibrated RGB segmented region for this purpose. To classify the movements of upper and lower limbs, we divided the dataset into four classes. Upper limbs movement in supine lying position, lower limbs movement in supine lying position, upper limbs movement in prone lying position and lower limbs movement in prone lying position. The short description is illustrated in Table 1.

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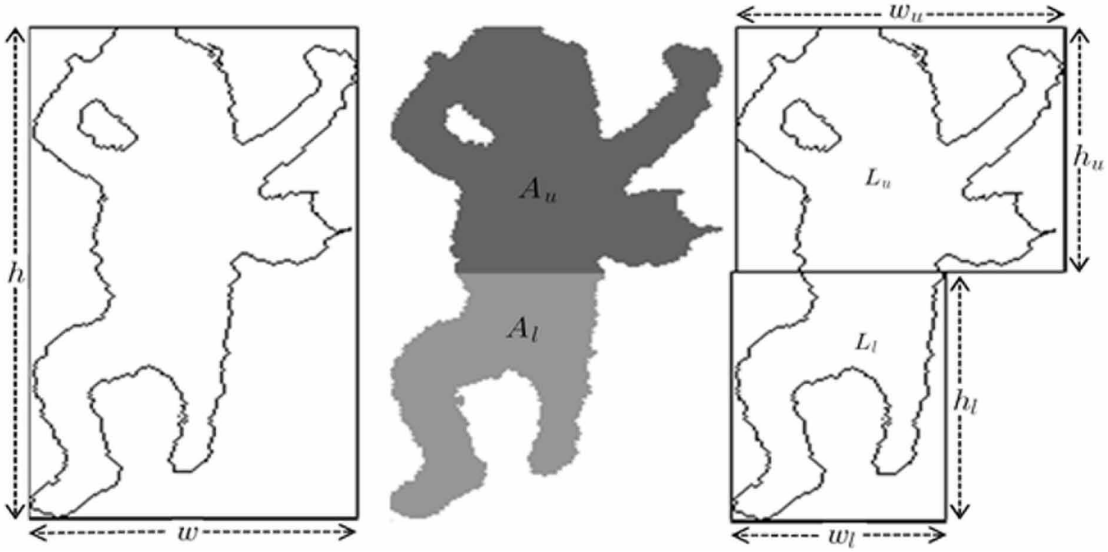
Table 1. Different classes for limb movements

Class label	Movement Type
N_1	Upper limbs movement in supine lying position.
N_2	Lower limbs movement in supine lying position.
N_3	Upper limbs movement in prone lying position.
N_4	Lower limbs movement in prone lying position.

The movement patterns are described using the 9-dimensional features vector F. The first attribute f_1 is the lying position of a child, which can be detected using a face detection algorithm on segmented RGB image. For the other attributes, we used the bounding box of the whole segmented region from depth image in two equally high sub-boxes to define the movements in upper and lower regions separately in a more discriminative way (see Figure 4). Let us define the subscript u is for the boundary box in the upper region and l is for the boundary box in the lower region. The computation of feature's attributes is described in Table 2.

Figure 4. Example of feature computation. Shape bounding box and equally high sub-boxes (i.e., $h_u = h_l$) used for feature extraction.



here, are the height,, are the width,, are the length of the contours and, represent the area of the extracted silhouette in upper and lower bounding boxes respectively, as shown in Figure 4. The purpose for the selection of these features is to capture the movements of upper and lower limbs during the treatment process. The final representation of feature vector *F* can be described as,

$$F = \left[f_1, f_2, f_3, f_4, f_5, f_6, f_7, f_8, f_9\right]$$

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Table 2. Different classes for limb movements

Feature Attribute	Description
f_1	The lying position of child using face detection algorithm..
$f_2 = \frac{h_u}{w_u}$	The ration of height and width in upper bounding box..
$f_3 = \frac{h_l}{w_l}$	The ration of height and width in lower bounding box..
$f_4=A_u$	The area (total number of pixels) in upper bounding box..
$f_5=A_l$	The area (total number of pixels) in lower l bounding box..
$f_6=L_u$	The length of contour in upper bounding box..
$f_7=L_l$	The length of contour in lower bounding box..
$f_8 = \frac{h}{w}$	The ration of height and width in complete (i.e., outer) bounding box..
$f_9=A_u+A_l$	The sum of area in upper and lower bounding box..

Moreover, we have scaled each feature attribute to the range [-1, +1]. The main advantage of scaling is to avoid elements in greater numeric ranges dominating those in smaller numeric ranges. Another advantage is to avoid the numerical difficulties during the calculation, for example in Support Vector Machine (SVM), kernel values usually depend on the inner products of feature vectors (e.g., the linear kernel and the polynomial kernel), and large attribute values might cause numerical problems (Hsu, Chang, & Lin, 2003).

6. EXPERIMENTS AND RESULTS

6.1. Data Capturing

To the best of our knowledge, no relevant public dataset is available to classify the correct movements in child's body parts during VT. Therefore, it was necessary to build our own dataset prior to conducting experiments. The data was captured in a children hospital[3], using a Microsoft Kinect camera. We recorded the movements of 10 patients of various ages (2 weeks to 6 months) and both genders (8 males and 2 females), originating from different countries. For a fair comparison, therapy was also performed by the parents in accordance with therapists. The camera was put on a tripod, at the height of 2 meters and with an angle of 45º from the table surface. The setting was chosen to be in accordance with the recommendation for capturing the best data quality (i.e., movement patterns in upper and lower limbs) with minimum occlusion. The camera setup and patient's lying positions during the therapy process is shown in Figure 5. For each patient the therapy session usually lasted between 15-20 minutes, both the RGB and depth frames are recorded at 640x480 resolution. Upon careful analysis, we selected more than 15,000 frames containing the useful information of upper and lower limbs movement during therapy. The first release of dataset is available free of cost and can be taken by sending an email to the authors.

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Figure 5. Camera setup during the therapy process (a) supine position (b) prone position

(a) (b)

6.2. Detection Performance

The proposed detection algorithm is applied on our collected challenging dataset for child's detection using only depth information. We achieved the detection rate of 83.29% with a small false alarm of 1.27%. The reason for the drop in detection rate is due to the occlusion at the location of the child's head. Although it was pre-decided with the therapists to use their hands with the minimum occlusion of the child's head structure, the situation was particularly often faced when the treatment was given in supine lying position, as shown in Figure 6.

Figure 6. Example of child's head poses during the therapy. (a) a child with clear head structure in prone lying position, (b) occlusion in the child's head structure can be observed in supine lying position due to the therapist's hand.

(a) (b)

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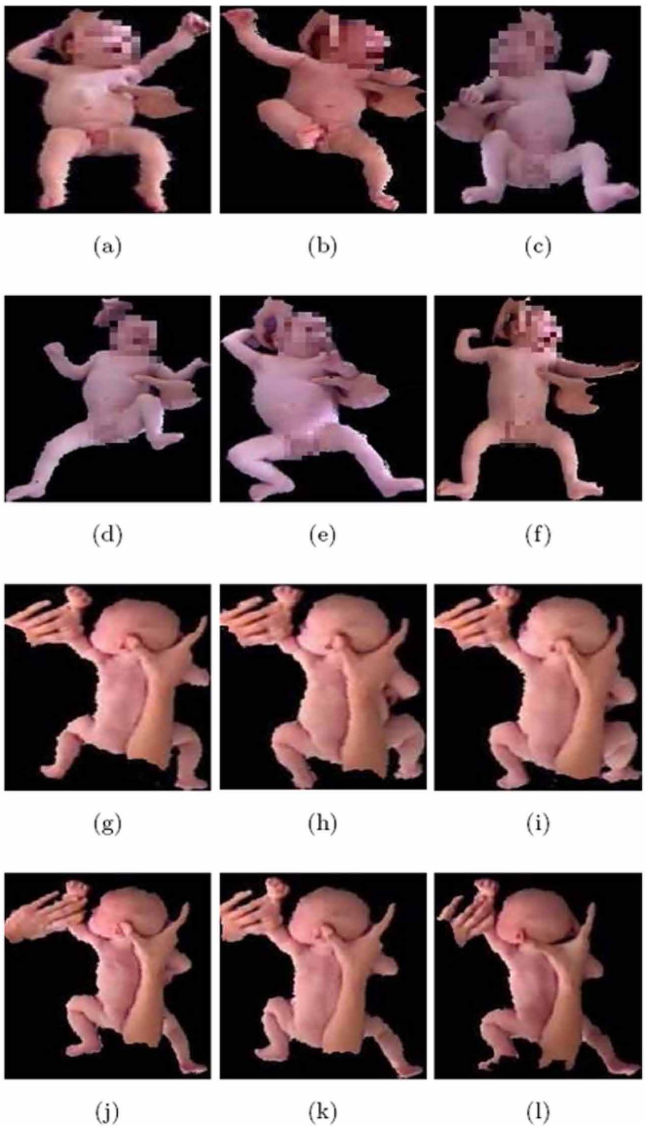
6.3. Classification

SVM has been used as a powerful tool for solving classification problems in many applications. Due to the high dimensionality of our features, we decided to use SVM as classifier. In the comparison of SVM, the other similarity based classifiers like K-Nearest Neighbor and probability based classifiers like Naive Bayes do not perform well for high dimensional features (Khan, Helsper, Boukhers & Grzegorzek, 2016). SVM first maps the training samples in high dimensional space and then extract a hyper- plane between the different classes of objects using the principle of maximizing the margin. Because of this

Figure 7. Example of movement in various body parts of a child during the therapy. First row (a-c) belongs to class N_1, second row (d-f) belongs to class N_2, third row (g-i) belongs to class N_3 and forth row (j-l) belongs to class N_4.



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principle, the generalization error of the SVM is theoretically independent of the number of feature dimensions. To solve the multi-class problem, we exploited a multi-class Support Vector Machine using its one-against-one version. It uses two-class SVMs for each pair from a set of all considered classes. Thus, for N classes in total, two-class classifiers are constructed. It uses voting strategy for classification and each testing sample is classified to the class with maximum number of votes. In this paper, we used the implementation of SVM within the LIBSVM library (Chang & Lin, 2011).

We used the C-Support Vector Classification formulation with the soft margin parameter C and, γ when RBF kernels are used as meta-parameters. A 5-fold cross-validation is performed to validate the model with the selection of the above mentioned meta-parameters prior to it training the actual model on the full training dataset. Figure 7 represents the various movement patterns in upper and lower limbs of a child during the therapy process and Table 3 summarize their classification results. One can see that the movement of lower limbs in prone position is the set of activities (i.e., N_4) where the most confusion occurs (see Table 3) because the required portion of the lower limbs is occluded by the therapist's arm. The lying position of a child, however, is detected but the estimation of lower limbs movement might become unstable due to the therapy technique requirement, as shown in Figure 8. Obtaining an average classification rate of more than 78% lets us believe in this solution and encourages us to plan future work in this research area by considering some other features to identify the correct patterns of movement.

Table 3. Classification rate of the proposed method

Class label	N_1	N_2	N_3	N_4	Accuracy (%)
N_1	**548**	52	0	0	91.33
N_2	24	**576**	0	0	96.00
N_3	1	1	**481**	117	80.17
N_4	1	0	330	**269**	44.83
					$\mu = 78.08$

7. CONCLUSION

In this paper, we proposed a framework for child's detection and accurate recognition of movement patterns during VT. The proposed method works in three steps. First, the child's body region is detected and segmented from depth image using his/her head location. Second, different movement patterns are analyzed in the segmented body region and various features are computed to capture these movements. Third, the computed features are classified using SVM. The experimental results show that the proposed method performs well and can be used for in-home based vojta-therapy systems to recognize the accuracy of the treatment. In future, we plan to include few other features like motion trajectories for accurate classification of movement patterns.

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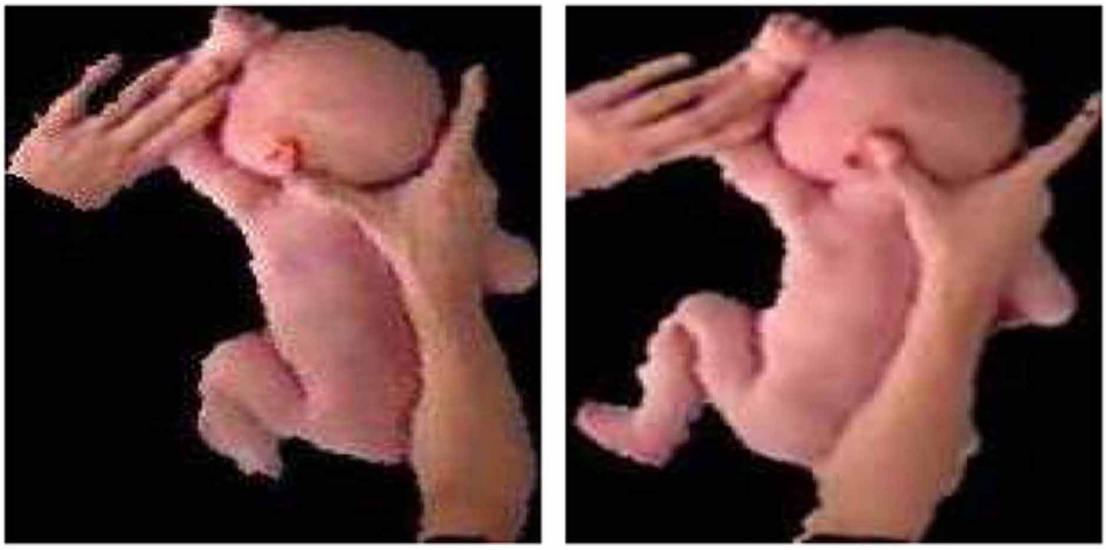
Figure 8. Example of occlusion in child's lower limb movement due to the therapists arm



(a) (b)

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ENDNOTES

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Chapter 21
What Cognitive Psychology Can Tell Us About Educational Computer Games

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ABSTRACT

Developers of educational computer games often have incomplete knowledge of the cognitive abilities of learners, yet this knowledge can be useful in informing game design. This chapter reviews two important cognitive abilities that underlie learning: working memory and attentional capacity/executive function. From a description of the developmental course of each ability, we derive a set of recommendations for game developers to follow when designing games for learners of different ages. The chapter next reviews the psychology of transfer of training, including two major theories on the issue. The doctrine of identical elements appears to give the better description of how transfer occurs from training environment (the educational computer game) to target environment (real world performance of the learned skill). It is recommended that games embody, as closely as possible, the end behavior they hope to produce, as this will produce maximal transfer. Finally, we review some controversial research demonstrating distant transfer in computer video gaming.

INTRODUCTION

In this chapter we consider the following questions: (1) What is an educational computer game? (2) How can cognitive psychology inform the developers of educational computer games? and (3) What can we expect in the way of transfer from the educational computer gaming environment to other educationally relevant environments? Our conclusion is that even with well developed, cognitively appropriate educational games, designers should be careful about making claims of widespread transfer, as these claims are rarely substantiated.

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BACKGROUND

Although educational computer games are becoming increasingly popular in the K-12 educational system (e.g., Kebritchi, 2010; Maushak, Chen, & Hai, 2001), it can be difficult to characterize exactly what constitutes an educational computer game. At a minimum, the content must be presented on a computer or other sort of digital media. But beyond that, what is necessary? The philosopher Wittgenstein (1953) asked the question "What is the definition of a game?" His conclusion was that there were no necessary and sufficient features of a game. Rather, the members of the category "games" are bound together by the principle of family resemblance. Some games share features with other games (e.g., solitaire and poker both involve the use of cards), which in turn share features with other games (e.g., poker and craps both involve gambling), and so on. The principle of family resemblance derives from the similarity between members of human families: a child may have eyes that are similar to his father, a smile that is similar to his mother, and ears that are similar to his uncle, but there may be no physical feature true of all of them. Likewise, games share features with some other games, but not with all other games. There are no necessary and sufficient conditions for something to be called a game. Therefore, the search for an adequate definition of educational computer games will end in frustration. Instead, we must rely on our common sense to categorize something as an educational computer game.

Although we may not be able to define educational computer games, we can say something about their function. The purpose of educational computer games is to create learning in students: preferably learning that is broadly applicable to many educational contexts. The computer can serve as a motivational device (the game is engaging, thereby encouraging prolonged interaction), as a feedback mechanism (the game tracks student knowledge, and corrects misunderstandings), and as a developer of proficient skill (continued practice should result in fast and fluid responses, with response times governed by a power law [Newell & Rosenbloom, 1981]). But the key to educational computer games is that they should produce learning that extends beyond the gaming context. This is the question of transfer, and we will return to it later in this chapter.

MAIN FOCUS OF THE CHAPTER

The Development of Cognitive Abilities

A number of cognitive abilities are necessary for children to benefit from educational computer games. Games that might be suitable for a 12th grader would not be suitable for a 1st grader. The abilities we will focus on are memory and attention or executive control.

Memory

Early cognitive theories of short-term memory stressed the storage function of memory over its cognitive control functions. Memory was seen as a multistage processing system (e.g., Atkinson & Shiffrin, 1968) that worked in a very linear fashion. Information from the environment was initially registered in a set of sensory stores. These systems held information from the environment in a raw, unprocessed form for very brief periods of time. There was a sensory store for each of the various senses. Information that was attended to was transferred to a short-term store that held small quantities of information for

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relatively short periods of time (but much longer than the sensory store). Information in this short-term memory could be held for perhaps only 18 seconds before it would fade away (Brown, 1958; Peterson & Peterson, 1959). However, information in the store could be "kept alive" by rehearsing it: repeating it again and again. In this way, material in the short-term memory could be maintained almost indefinitely. The longer material remained in the short-term store, the more likely it was to be transferred to a long-term store. Material in the long-term store was assumed to be stored forever. If an individual was unable to retrieve an item known to be stored in long-term memory, it was assumed to be due to a lack of available retrieval cues (Tulving & Thomson, 1971, 1973) or to interference from other items also stored in long-term memory (e.g., Shiffrin & Atkinson, 1969).

Short-term memory was not only limited in its duration, but was limited in the number of items it could store. It was assumed to be able to store seven chunks of information, plus or minus two (Miller, 1956). A chunk is an organized unit of information. Thus, letters and numbers could be chunks, but words and important dates (e.g., 1066, the date of the Battle of Hastings) could also be chunks. Obviously seven words or dates contain more than seven letters or numbers, but the internal organization of words and dates unify them as single pieces of information. The limit on short-term memory was the number of chunks, not simply the number letters or numbers.

While Atkinson and Shiffrin's (1968) model (often referred to as the "modal model") of memory allowed for processing operations in short term memory beyond rehearsal (e.g., transforming information from visual to verbal codes, deciding whether two items were the same or different, and activating retrieval strategies for long term memory), it was rehearsal that was the processing focus of their model. The longer an item was rehearsed, the better its chances of being transferred from short term store to long-term store. Later research by Craik and Lockhart (1972) cast doubt on this interpretation. They showed that the depth at which information was processed was more important than the absolute amount of time it was processed in the short-term store. Shallow processing was associated with surface features of the information (e.g., phonetic characteristics), while deep processing was associated with the meaning of the information (e.g., semantic characteristics). Shallow processing resulted in poor long-term memory, while deep processing resulted in good long-term memory.

As interest increased in the information processing taking place in short term memory, a new model emerged called "working memory" (Baddeley, Eysenck, & Anderson, 2009; Baddeley & Hitch, 1974). This model focuses almost exclusively on how information is stored for short periods of time, and on how this information is manipulated while being held in storage. In the working memory model, there is a central executive, and a set of information buffers that serve as slave subsystems to be manipulated by the central executive. The model posits a phonological loop that holds sequences of acoustic or speech-based information. Information in the phonological loop can be items that need to be remembered later, but it can also hold "reminder" instructions on what to do next during a processing task (Baddeley, Chincotta, & Adlam, 2001). It can also access language-based information in long-term memory. The model similarly posits a visuo-spatial sketchpad that stores visual and spatial information and allows for its manipulation. This store can also access information related to visual semantics stored in long-term memory. More recently, Baddeley (2000) has argued for a third subsystem: the episodic buffer. This buffer holds about four chunks of information in a multidimensional code (visual, auditory, and potentially other types of information), and allows for connecting together information from the other buffers, as well as linking this information with information in long-term memory and sensory information (Baddeley, Eysenck, & Anderson, 2009).

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The "central executive" controls the various buffers. The central executive serves as an attentional controller for the slave subsystems, rather than as a memory system per se (Baddeley, Eysenck, & Anderson, 2009). Its operation is primarily automatic: existing skills are executed with little or no conscious intervention, and conflicts are resolved by simple rules (referred to as "contention scheduling") that give priority to certain actions over other competing actions. However, when conflicts arise that cannot be easily resolved, a more active form of control must be engaged. This is sometimes called the supervisory attentional system (Norman & Shallace, 1986). The supervisory attentional system can intervene in automatic processing and bias certain "schema control units" to make them more likely to execute. In this way, the supervisory attentional system can overcome learned tendencies to respond in certain ways in given situations. For example, if you are driving and see a green traffic light, your tendency would be to continue driving forward. However, if you saw an ambulance crossing the intersection with emergency lights flashing, your supervisory attentional system would intervene to engage the stop response and inhibit the go response.

The supervisory attentional system resides in the frontal lobes, and patients with frontal lobe damage often cannot interrupt ongoing sequences of processing. For instance, in tasks such as the Wisconsin Card Sorting Test (Heaton, et al., 1993) individuals are asked to categorize presented objects according to categorization rules that are not explicitly stated, and instead must be induced. Periodically, the rules are changed, and the individual must induce the new categorization rules. Patients with frontal lobe damage typically demonstrate perseverative errors, continuing to use the old rule to categorize objects in the face of feedback that their responses are incorrect. This is presumably due to damage to the supervisory attentional system, which is part of the working memory central executive.

A distinction in made in the memory literature between declarative memory and procedural memory. Declarative memory is memory for factual information; for the sort of information you can bring into conscious awareness. This includes semantic memory and episodic memory (Tulving, 1972). Semantic memory is overlearned memory about the world around us (e.g., what a cup is and how it is related to a saucer, or that Mars is a planet while the sun is a star). Episodic memory is memory for personally experienced events that have temporal information associated with them. What you had for breakfast is an example of an episodic memory. What breakfast means would be a semantic memory. Most of what we have been discussing so far concerns the declarative memory system.

A second kind of memory can also be defined: procedural memory. Procedural memory is the memory we have for skills and procedures. This memory does not need to be called into conscious awareness, and indeed to try to do so may interfere with the skill (Medeiros-Ward, Cooper, & Strayer, 2014). You may know how to ride a bicycle or hit a golf ball. These skills are based on procedural memories. Trying to think about how to hit a golf ball will likely make it more difficult to hit it effectively. Indeed, when people try to call to mind a skill, they are usually trying to recall the declarative information (i.e., the rules) that led to the skill, not the skill itself. Procedural memory is fundamentally different from declarative memory. Its developmental course and underlying neurobiology are different as well.

Procedural memory falls into the larger category of implicit memory: memory that is demonstrated by a facilitation in performance due to exposure to previous experiences (Graf & Schacter, 1985; Schacter, 1987). This type of memory also includes priming (facilitation in the response to one stimulus due to prior exposure to another stimulus) and classical conditioning (the transfer of a prior response [salivation to food] to a neutral stimulus [a dinner bell] through repeated pairings). While declarative memory (sometimes called explicit memory) shows marked improvements throughout childhood and adolescence, implicit memory shows few, if any, changes as children age. In a meta-analysis of eighteen studies of

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involving implicit memory, Murphy, McKone, and Slee (2003) found significant effects for age in only three of these studies. Likewise, Perez, Peynircioğlu, and Blaxton (1998) found no age effect on implicit memory tasks when testing preschool, elementary school and college students.

Based on the existing knowledge of memory, there are at least four recommendations that can be made to the developers of educational computer games. First, the developers of educational computer games need to be sensitive to the declarative memory abilities of the age group their games are intended for. Declarative memory increases from early childhood through adolescence, and even into adulthood. Siegler (1998; see also Baddeley, Eysenck, & Anderson, 2009, for a discussion) describes four means through which this improvement takes place. First, the capacity of working memory improves with age. Gathercole Pickering, Ambridge, and Wearing (2004) have found evidence that the phonological loop, the visuo-spatial sketchpad, and the central executive all improve from ages 4 through 15 (the age range they studied). The speed at which an individual can identify a presented item appears to play a role as well (Dempster, 1981). In a related vein, several researchers (Hitch, Halliday, & Littler, 1984; Hulme, Thomson, Muir, & Lawrence, 1984; Nichoson, 1981; see also Baddeley, 1990, for a discussion of the "word length effect") have shown the rate at which words can be spoken is directly related to memory span, and that this rate increases from early childhood through adulthood. This would be expected if vocalization (either overt or covert) is necessary for rehearsal, and rehearsal is necessary to keep verbal information active in the phonological loop. Thus, games designed for the early elementary grades should not put too great a strain on the declarative memory system, and presentation speeds should be slower for younger age groups.

Second, as children age, they acquire more knowledge. The greater the amount of knowledge a child or adolescent possesses, the more connections that can be made to new information that the child or adolescent is trying to learn. These connections can serve as retrieval cues when the information later needs to be recalled. Game developer should not presume extended knowledge structures among young learners.

Third, the older the child, the wider the range of memory study and retrieval strategies at their disposal, and the more fluently these strategies can be employed. While a young child may rehearse a set of items for later recall, and older child may look to see if the items can be grouped by semantic category. Such a semantic coding strategy inevitably results in superior recall. Also, memory strategies that are just being mastered require the child to expend considerable attentional resources just to carry out the strategy; older children who have practiced the strategy can carry it out relatively automatically, leaving additional attentional resources for other processes such as encoding and finding additional patterns in the stimuli. Thus, game developers need to recognize that younger learners will have greater difficulty handling memory retrieval strategies than will older learners.

Fourth, as children age their metamemory increases. Metamemory is the individual's knowledge of their own memory system and its functioning. Young children may believe that simply staring at an item to be remembered will result in its being memorized. Older children realize that some memory strategies are more effective for producing good memory than others. Furthermore, different situations may require different mnemonic strategies. Finally, older children are better at assessing whether they will or will not be able to recall various stimuli. They can then focus their study on those items they are most likely to forget. The take away for game developers is that younger learners will have less command of what they know and don't know, and less knowledge of how to effectively learn the things they do not know.

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Attention or Executive Control

Although attention is complex, and can be conceived of as comprising several separate functions (e.g., alerting, orienting, and executive attention/self-regulation (Posner, Rothbart, & Rueda, 2014)), we will focus on the executive control aspect of attention. Executive control can be considered to be the ability to maintain task goals in the face of distraction or conflict (Engle, 2002; see also Watson, Lambert, Miller, & Strayer, 2011).

The executive control aspect of working memory (think of the "central executive" in Baddeley's model) is correlated with a number of important abilities: reading comprehension, complex learning, and reasoning (Daneman & Carpenter, 1980). This executive control function can be measured through complex span tasks such as reading span (e.g., the participant reads several sentences each followed by an unrelated word; at the end of the task, the participant must recall the words that followed the sentences read (Daneman & Carpenter, 1980) or operations span (e.g., the participant reads aloud and verifies a set of operations such as 4/2 x 3 = 6 [yes or no] each of which is followed by a word; at the end of the task, the participant must remember the words that followed the operations (Turner & Engle, 1989)). It is not the ability to read and understand the sentences, or complete and verify the arithmetic operations, that seems to be related to other higher order abilities; rather, it is the ability to use attention to maintain or suppress information, and to avoid distraction, that results in the correlation with higher-order abilities.

Another critical feature of attention and executive function in working memory is the ability to maintain information in the presence of interference (Kane & Engle, 2002). Individuals with low complex working memory spans are more susceptible to various forms of long-term memory interference than those with high complex working memory spans (Conway & Engle, 1996; Kane & Engle, 2000; Rosen & Engle, 1997, 1998). Kane and Engle (2000) compared the performance of low-span (bottom 25%) and high span (top 25%) individuals with regard to the buildup of proactive interference. Both groups recalled approximately 60% of memory items from the first trial. However, as memory trials progressed, low span individuals showed greater amount of proactive interference (that is, fewer items correctly recalled from subsequent lists) than did high span individuals. When both groups were asked to recall items while performing a secondary task, the high span individuals decreased while the low span individuals remained the same. Thus, high span individuals' performance under cognitive load made them appear like low span individuals (with or without load). It appears that high span individuals use their additional attentional capacity to combat the effects of proactive interference (Engle, 2002). The fact that cognitive load had no effect of low span individuals seems to indicate that these people either do not routinely use attention to maintain information in the face of distraction, or are unable to do so because their attention is fully utilized in performing other more basic cognitive functions.

Dempster (1993) argues that the ability to resist or suppress task-irrelevant information is essential for intelligent behavior, and that it develops as the child ages. Several tasks demonstrate this developmental trend. Chelune and Baer (1986) tested children from grades 1 through 6 on the Wisconsin Card Sorting Task (described earlier) and found that as children aged (especially between ages 6 and 7) their performance significantly improved. Their perseverative errors (choosing the wrong category after a rule change) decreased, indicating an improvement in their ability to suppress a previously correct response in the face of changing environmental feedback.

Likewise, performance on a number of measures of field dependence/independence (e.g., the Embedded Figures Task and the Rod and Frame Test) improves during childhood (Dempster, 1993; Witkin,

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Dyk, Faterson, Goodenough, & Karp, 1992). This improvement appears to be the result of the child's increasing ability to suppress irrelevant perceptual cues in solving the various field tests.

Another example of the development of the ability to resist interference is the Stroop Color-Word Interference Test (Stroop, 1935). In this test, the "interference" condition asks subjects to name the colors of ink that words are written in while ignoring the words themselves. The words, however, are the names of colors that differ from the ink color. Dempster (1993) points out that this makes the Stroop Test "an index of the individual's ability to focus attention on a relevant dimension (ink color) and to ignore an irrelevant one (word meaning)" (Dempster, 1993, pp. 9-10). Comalli, Wapner, and Werner (1962) tested individuals from 7 to 80 years of age on the Stroop Test and found that interference declined from age 7 through adulthood, indicating a developmental trend toward increased resistance to interference with age over childhood. Interference remained constant during the adult years, but increased again among the oldest participants (over age 65).

Divided attention tasks require individuals to split their attention between two or more concurrent tasks (Strayer & Drews, 2007). The assumption in these paradigms is that total amount of attention an individual possesses is limited, and that performance will suffer when multiple tasks compete for the limited attention available, assuming that the attention necessary to perform the tasks exceed the total capacity available (Norman & Bobrow, 1975). Task switching paradigms measure the cost of task switching by comparing blocks of trials in which no switch is required with blocks of trials in which a task switch is required (Kramer & Madden, 2008). The switch cost is thought to tap the effectiveness of attentional control processes and the efficiency of maintaining the dual task goals in working memory (Kramer & Madden, 2008; Watson, Lambert, Miller, & Stayer, 2011). Switch costs decrease through childhood into early adulthood (Crone, Bunge, van der Molen, & Ridderinkhof, 2006), but increase again in old age (Mayr, 2001). At least some of this effect can be explained on the basis of speed of information processing, which decreases in old age (Salthouse, 1996).

Both Dempster (1993) and Watson, Lambert, Miller, and Stayer (2011) explain the differences in attention, executive function, and resistance to interference on the basis of the development of the prefrontal cortex, which is associated with attention and goal directed behavior. Consider Figure 1 (adapted from Figure 16.3, Watson, Lambert, Miller, & Strayer, 2011), which shows the development of the prefrontal cortex across the age span. The prefrontal cortex is developing throughout infancy and childhood, and peaks in early adulthood (around age 30). Thereafter, it begins a slow decline, which becomes noticeable in early old age (after age 65). This development coincides with task performance on the attention and interference tasks we have discussed above. While this evidence is correlational, it leads us to believe that attention and resistance to inference are strongly related to the performance of the prefrontal cortex.

The takeaways for developers of educational computer games are fourfold. First, in the early school years, goals should be kept simple, and interference from previous interactions with the game should be kept to a minimum. Second, the game should support learning by providing contextual cues that reduce reliance on working memory and attention. Third, games aimed at older audiences (later high school and college-aged groups) can involve multiple and/or conflicting goals, but they should be carefully pilot tested with age appropriate audiences to insure that they do not exceed the attentional capabilities of the typical student. Fourth, games aimed at non-traditional learners, who may be considerably older than typical college students, may also require contextual support to reduce reliance on working memory and attentional capabilities that may be waning in some members of this group.

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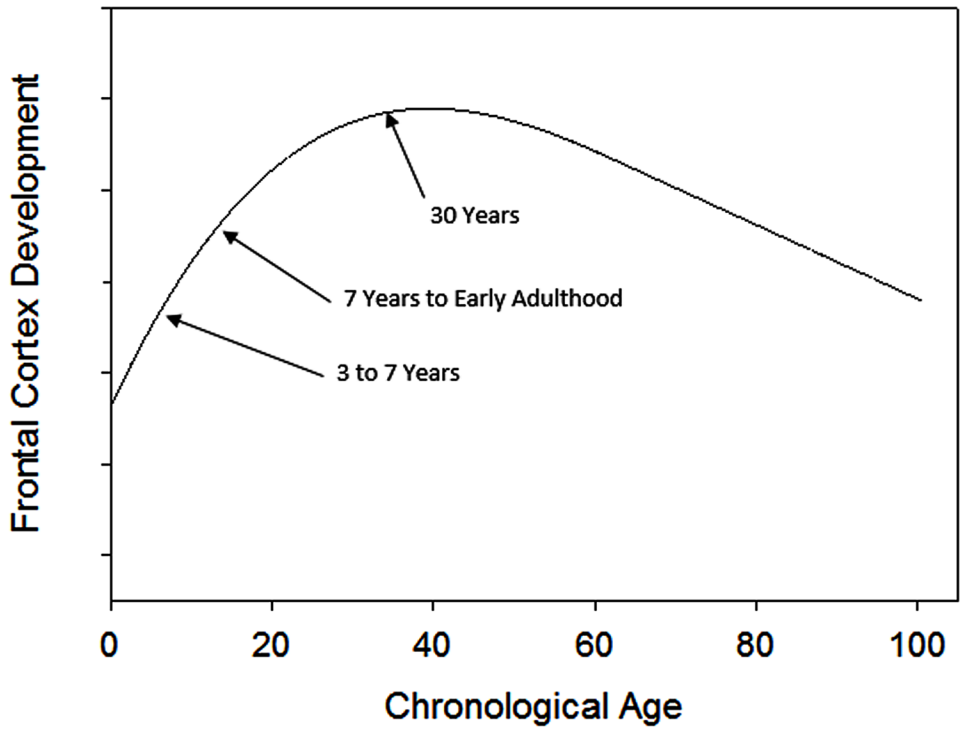
Figure 1. Development of the prefrontal cortex across the age span (adapted with permission from Figure 16.3, Watson, Lambert, Miller, & Strayer, 2011).



Transfer of Training

When game developers create an educational computer game, they are often quite optimistic about how information or skills learned in the game will transfer to new situations. Often they are surprised when transfer fails to occur. A review of the theoretical basis for transfer is instructive, because transfer to very different contexts rarely occurs in the real world.

Two theories were proposed early in the history of educational psychology to describe how transfer occurs. The first was termed *the doctrine of formal discipline* (Angell, 1908; Pillsbury, 1908; Woodrow, 1927; also see the discussion of the history of transfer in Singley & Anderson, 1989). This theory views the mind as composed of a number of separate abilities (i.e., faculties) that are responsible for performance. The abilities are conceived of as similar to muscles in the body: if we exercise the abilities, they will become stronger. Then, when these same abilities are needed in the future, they will perform better due to their strengthening through practice. The important aspect of the doctrine of formal discipline is that the abilities are seen as broad and general. Thus, early twentieth century students were trained in Latin and geometry, not because these areas of study were useful in their own right, but because they were difficult, and training in them strengthened numerous mental faculties.

The second theory of transfer was *the doctrine of identical elements* (Thorndike, 1903; Thorndike & Woodworth, 1901; see Taatgen, 2013, for a more sophisticated current version of the identical elements theory). This theory predicted that learning of one mental skill will only transfer to a second mental skill to the extent the two skills share underlying common components. To Thorndike, these components were

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stimulus-response bonds; however, the same general principle could be applied to other kinds of commonalities such as mental procedures or cognitive schema. Which theory provides the better explanation of transfer? The identical elements theory seems to best comport with the data (Woltz, Gardner, & Gyll, 2000). Thorndike and Woodworth (1901) found that no correlation between memory for numbers and memory for words, despite the fact that both of these tasks required the faculty of memory. In a later experiment, Thorndike (1922) found that changes to the surface structure of algebraic expressions generally led to a decrement in solution performance, even though both the early and later versions of the problems required mathematics ability. It is not the case that transfer never occurs: it does. However, it most often occurs in situations that are similar to the educational or training context (Woltz, Gardner, & Gyll, 2000). These are exactly the situations under which underlying elements of the trained skill will be found in the transfer task, just as Thorndike predicted. These situations are referred to as *near transfer* (Salomon & Perkins, 1989). We would contrast near transfer tasks with transfer tasks that bear few if any similarities to the original training contexts. These tasks are referred to *distant transfer*.

When positive transfer (an improvement in performance due to previous training) occurs, it is almost always in the near transfer domain. When overlapping processing components exist between training and transfer tasks, an improvement in performance can be demonstrated in complex domains such as typing in word processors (Singley & Anderson, 1985), computer programming (McKendree & Anderson, 1987), and geometry problem solving (Lovett & Anderson, 1994). However, example of distant transfer in the psychological literature are relatively infrequent, and often require prompting of the participant to produce the hoped for transfer. Gick and Holyoak (1980) explored the use of analogical thinking to produce distant transfer. Participants first read a story based on a military problem and its solution (the story was an isomorph of Duncker's [1945] radiation problem). Participants were then asked to solve the original radiation problem, which has an analogous solution. Participants generated analogous solutions to the radiation problem, but mostly when they were prompted that the previously read story might provide a "hint" about how to solve the current problem. Without the prompting to use prior training, most participants failed to apply their previous learning to the current task. The takeaway here is that distant transfer is relatively infrequent, and often requires environmental supports such as prompts or reminders.

Of course, there is a degenerative case of near transfer: practice over time on the same task. Here the training situation and the transfer situation are identical. Not surprisingly, we find improvement on a task with practice. The improvement is quite predictable: time to solve a task improves according to a power law (Newell & Rosenbloom, 1981). This can be demonstrated in widely varying task domains such as number reduction (an artificial task developed by Thurstone [Thurstone & Thurstone, 1941] that involves iterative application of rules to reduce pairs of numbers to single digits; Gardner, Woltz, & Bell [2002]; Woltz, Bell, Kyllonen, & Gardner [1996]; Woltz, Gardner, & Bell [2000]), generating geometry-like proofs (Neves & Anderson, 1981), reading inverted text (Kolers & Perkins, 1975), and rolling cigars (Crossman, 1959).

This leads us to a generalization that we present in Figure 2. *The likelihood of positive transfer is a function of the similarity between the trained task and the transfer task.* If we wish to engage learners with an educational computer game, we should expect their learning will be bound to the context of training (to a large degree). So as developers of computer games, we should design our games to be as close to the actual end performance that we seek to develop. But how do games benefit learners if they are simply restatements of the end result we hope to train? First, they provide the learner with *practice*, and practice has been shown repeatedly to result in skill development. Second, they provide *feedback t*o learners about their performance. Feedback is most effective when it is immediate, and educational

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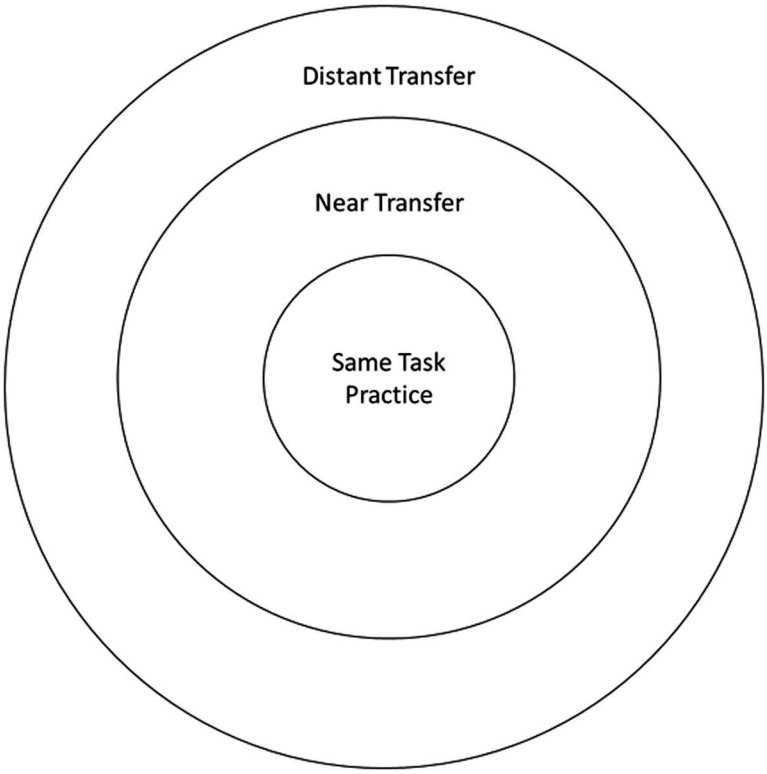
Figure 2. Relationship of likelihood of positive transfer to degree of task similarity between training environment and target task



games are able to provide feedback immediately by tracking learner performance and game moves. Finally, they provide *motivation* to engage in the learning process. Motivation is essential in situations where learning requires extended practice to develop a skill.

Finally, we would be remiss if we did not mention some research that has purported to demonstrate distant transfer from experience with video games (it should be noted that these games were not specifically educational in nature). Gopher and colleagues (Gopher, Weil, & Bareket, 1994; Gopher, Weil, & Siegel, 1989) trained Israeli Air Force cadets on a computer game (i.e., Space Fortress) that required players to balance six game component skills, as well as vary emphasis on certain component skills, in addition to playing the full game. A control group of cadets did not play the game or learn any of the component skills. When the two groups were later compared in their actual flight training, the game group outperformed the control groups on a number of measures. These differences extended to actual training in flying fighter jets, and were most pronounced in advanced flight maneuvers. Gopher et al. concluded was that "the emphasis-change elements promoted the development of skill components that could be transferred and generalized to flight" (Gopher, Weil, & Bareket, 1994, p. 401). This finding is intriguing, because it argues for broad transfer, which is extremely rare in the literature. If such transfer does exist, it would be because of overlapping elements at the very highest levels of cognition (control and deployment of attentional resources across competing task elements). While this is possible, it assumes that a complex process such attentional deployment is functionally the same between computer game playing and flying a jet plane, which seems a little hard to believe.

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Green and Bavelier (2003, 2006; Green, Pouget, & Bavelier, 2010) have provided evidence that extended practice on action games (e.g., Medal of Honor) can result in improved visual attention in both the visual center and periphery. Their research showed advantages for serious video gamers both with and without a concurrent central task, ruling out a center versus periphery tradeoff in attention. Perhaps most provocative, they found improvements in attention for non-gamers after 30 hours of video game training. Other researchers have also found support for improvements in visual working memory (but not complex span memory) after action video game training (Blacker, Curby, Klobusicky, & Chein, 2014). It should be noted that many researchers have had difficulty replicating these findings, casting doubt on distant transfer. For example, Van Ravenzwaaij, Boekel, Forstmann, Ratcliff, and Wagenmakers (2014) found similar practice effects over testing for participants who engaged in video game training, cognitive game training, and no video game training; so, the conclusion of enhanced processing and attention due to video game play is equivocal. Boot, Blakely, and Simons (2011) have also cautioned against possible methodological weaknesses in many of the studies that have reported distant transfer with video gaming. They cite concerns such as overt recruiting of participants (creating demand characteristics), unspecified recruiting methods, no tests of perceived similarity between testing tasks and video games, and possible differential placebo effects. Overall, the current literature suggests caution in expecting distant transfer.

Other researchers have used video gaming in an attempt to improve cognitive decline among older adults, with mixed results. Basak, Boot, Voss, & Kramer (2008) found that training older adults in a real-time strategy video game produced improvement on tasks such as task switching, working memory, visual short-term memory, and reasoning compared to controls. Ackerman, Kramer, and Calderwood (2010), however, trained older adults using the Wii Big Brain Academy software, but found no significant transfer from the computer training to measures of cognitive and perceptual speed abilities. Again, distant transfer is found under some circumstances, but it seems difficult to replicate and is dependent on particular aspect of the training and the experimental design.

At this juncture, the research does not support a change in our recommendations to developers of educational video games. *If you wish to develop a skill or impart knowledge, create a game that closely matches the end state you wish to achieve.* The closer the target task is to training, the greater the likelihood of positive transfer (see Figure 2). Use the game to provide the learner with practice, feedback, and motivation to continue the learning process.

SOLUTIONS AND RECOMMENDATIONS

We have presented recommendations throughout this chapter, and we will summarize them again here. Educational game developers need to take into account the cognitive abilities of prospective learners when designing games. Younger learners have limited working memory and attention/executive control abilities. With regard to working memory, this requires that games developed for young learners should include: (1) fewer items to be held in working memory; (2) more explicit connections between things to be learned and previous knowledge (which is likely to be less extensive with younger age groups); (3) fewer expectations of prior knowledge of memory study and retrieval strategies; and (4) less of an expectation that the young child will have a well-developed knowledge of meta-memory (i.e., how their memory system works and what they currently know and don't know). The development of attention/executive function mirrors the development and decline of the prefrontal cortex over the lifespan, with its maximum efficiency occurring around age 30.

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With regard to attention/executive function, games developed for younger learners should: (1) be kept relatively simple, and try to avoid interference between early game experiences and later game experiences; and (2) should scaffold learning by providing contextual cues that reduce reliance on working memory and attention. Games developed for older, non-traditional learners should employ the same strategies as games developed for young learners. With late high school and college-aged learners, multiple game goals can be employed, but pilot testing with the target population is necessary to determine that the game's demands do not exceed the cognitive abilities of the intended learners.

The history of educational psychology leads to the conclusion that the greatest positive learning transfer occurs in situations when the target task is identical to the training task, due to the almost complete overlap of task elements (see Figure 2). Therefore, we recommend that the educational game be an embodiment of the skill the game developer wishes to teach. The greater the difference between training and ultimate goal, the smaller the amount of transfer that is likely to be found. Games can provide practice, motivation, and feedback, all essential elements necessary to continue the skill development process.

FUTURE RESEARCH DIRECTIONS

At the conclusion of the main section of this chapter, we discussed some provocative research that purports to show distant transfer from video gaming (Gopher, Weil, & Bareket, 1994; Gopher, Weil, & Siegel, 1989; Green and Bavelier, 2003, 2006; Green, Pouget, and Bavelier, 2010). These studies have been controversial, but there is a commonality among them: the distant transfer appears to be the result of training flexibility in attentional skills. Future research needs to confirm these previous findings, and, possibly, develop a theory of how to attain training and transfer of attentional processes. If such a theory could be developed, it might well be the "magic bullet" that educational psychologists have long sought.

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KEY TERMS AND DEFINITIONS

Attention/Executive Function: The ability to maintain task goal information in mind in the face of distraction, conflict, or competing goals.

Declarative Memory: Memory for information that can be called into consciousness. Memory for factual information (e.g., George Washington was the first president of the United States of America).

Procedural Memory: Memory for information that cannot be called into consciousness. Memory for skills, priming, and classical conditioning are all procedural in nature (e.g., how to ride a bicycle).

Transfer of Training: The degree to which training on one task (the training task) produces improvement on a second task (the target task), which is measured after training has been completed.

Working Memory: A short-term memory system comprised of a central executive (associated with attention) and several slave sub-systems (associated with storage of items of a particular types such verbal-phonological, visuo-spatial, episodic). The key feature of working memory is that it deals with both the short-term storage of information and the processing of that information within the same cognitive system.

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Section 3
Tools and Technologies

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Chapter 22
Towards Cost-Oriented User-Friendly Robotic Systems for Post-Stroke Rehabilitation

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ABSTRACT

This chapter deals with robotics for assisting patients in their recovery after stroke. The first section outlines the key physiotherapist movements that are needed in post-stroke treatment. Sets of experimental data are discussed for defining the main specifications for post-stroke rehabilitation devices. Then, a detailed overview is provided on the existing key achievements and solutions concerning rehabilitation robotics for post-stroke treatment. This section is followed by a detailed critical analysis aiming at the definition of new concepts for cost-oriented user-friendly solutions.

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INTRODUCTION

In the next two decades, the current evolution in average life span and medical progress, will force a paradigm shift in the treatment of many diseases. Such is the case of stroke, a cardiovascular disease, which affects mostly the elder population (over 65) and has, as the most common consequence, a negative effect on the patient's capability of performing activities of daily living (ADL). From a medical standpoint, specific protocols exist, which attempt to correct these disabilities by performing specific drug, neurologic and physical therapy. One of the most common disabilities, which affects over 50% of the stroke survivors is hemiparesis (one side weakness) or hemiplegia (one side paralysis), namely the partial or total loss of the ability to control half of the body. This disability is treated by a physical therapist by using different techniques in a process called rehabilitation, which spreads in time up to two years after the stroke.

The Royal College of Physicians defines rehabilitation as a collaboration with limited time between a person with disabilities and professionals, plus other relevant people, to produce sustained reduction in the impact of disease and disability on daily life. The interventions are focused on the human, on the social or physical implications, or a combination of these, (RCF 2010).

In the current approach one therapist can attend only one patient at a time which limits the number of procedures that one person can undergo daily, thus having a negative effect upon the recovery process and progress. Unfortunately, based on the demographic shift estimates, the number of elderly people will increase, making it impossible for the medical system to deal properly with all of them. One possible answer here is a shift in the rehabilitation paradigm which involves the use of specialized devices to perform specific exercises with the patients, changing the role of the therapist to a supervisor which monitors and adapts the rehabilitation process for each individual, based on his/her specific needs and progress. The specialized devices which can perform these tasks efficiently are the rehabilitation robots. Currently multiple devices exist for both upper and lower limb, balance, gait and so on but there is a need for further development in this field aiming to achieve not only efficient but also cost-oriented devices that could be afforded by the medical systems of lower income countries. Rehabilitation robotics has become one of the strategic fields of research promoted all over the world in an attempt to gain sufficient knowledge and reach a good maturity level before the moment when demographics will force the shift from one-to-one therapy to personalized robotic assisted rehabilitation. If compared with conventional therapy via physiotherapists, rehabilitation robots can offer repeatable, controlled, and interactive training at a much higher intensity and pace (Housman et al., 2009).

This chapter presents a detailed overview of the current problems and progress in patient rehabilitation after stroke, illustrating some of the commercially available technologies for the rehabilitation of the lower limb, upper limb and hand, followed by on-going developments in different maturity stages. Several new solutions for the rehabilitation of the upper limb are illustrated along with an overview of the most important challenges and future research directions.

Note: performing multiple movements significantly affects the rehabilitation of post-stroke patients, as highlighted for example in (Klein et al., 2008). However, research in fully understanding the relationship between limb training and recovery is still undergoing, as pointed out for example in (Yoo, D. H., Kim, S. K., 2015). Additionally, besides existing protocols, such as (Vaida, et al., 2017), significant research

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is carried out towards defining and understanding what is the most effective rehabilitation protocol, (Vaida, et al., 2017).

BACKGROUND

A stroke, as defined by the World Health Organization (WHO), is a "neurological deficit of cerebrovascular cause that persists beyond 24 hours or is interrupted by death within 24 hours". In simple terms, a stroke will cause either a burst or a blockage in a blood vessel inside the brain which will lead to the temporary or permanent loss of the brain functions from the affected region, the damage being influenced by the blood vessel size and medical reaction time. Some recent numbers published on the WHO page in September 2016, reveal that in 2012 there were 6.7 million deaths registered due to stroke with over 75% being registered in the low- and middle-income countries. However, a mortality study published by the Romanian government shows that Romania, which trails behind the advanced European countries, registered an average of 18.6% decrease in stroke deaths from 2006 and 2010. Quoting from the Multi-Annual Report (MAR, 2015):" It is estimated that in the EU the proportion of the population aged over 65 will rise from 17.1% in 2008 to 30% in 2060 and that the proportion of persons aged over 80 will rise from 4.4% to 12.1% over the same period (EUROSTAT population projections). Neurological conditions, especially stroke, are a major cause of disability among older people. Incidence of a first stroke in Europe is about 1.1 million and prevalence is about 6 million. Currently, about 75% of stroke sufferers survive one year after…approximately 80% of stroke patients experience long-term reduced manual dexterity and half of all patients with neurological conditions are unable to perform everyday tasks."

Another recent study published in Spain (Lopez-Espuela, 2016), reveals that out of the 175 stroke patients admitted in a medical center in acute post-stroke phase, 22 have died and 110 (62.9%) suffered hemiparesis or hemiplegia.

Stroke is the first cause of long-term disability in the United States, about 3% of men and 2% women were reported having a long-term disability after they suffered a stroke. (Benjamin, et al. 2017)

The main objectives of stroke rehabilitation are to regain independence and improve the quality of life by improving the capacity of the patient to perform activities of daily living (ADL). (Sullivan, Schmit &Fulk, 2014)

Stroke rehabilitation support is achieved by a professional team which targets multiple areas, starting with the improvement of the patient's physical impairments, and continuing with cognitive, emotional, and vocational skills. (Clarke & Forster, 2015)

Generally, when discussing about physical rehabilitation the motions that a physical therapist performs are complex, working on the mobilization of each joint which are sometimes difficult to replicate with a robotic device but, in some cases there are reports which emphasize the advantages of existing robotic devices. Such is the case of devices for gait rehabilitation, which can more easily support the weight of the patient in comparison to a person, and because of their repeatability, tirelessness and ability to quantitatively assess rehabilitation effectiveness with high accuracy, (Patton, Kovic, Mussa-Ivaldi, 2006) can provide better physiotherapy training than ordinary physiotherapists.

The market for rehabilitation robots is continuously increasing. The use of rehabilitation robots in hospitals and ADL is increasing in the US and European countries. Due to the high demand of rehabilitation robotic devices, the market is expected to increase to 24.27% by 2019 (Chen et al., 2015) Based

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on another market research, a rehabilitation robot market size value of 37.2 million euros was registered in 2014 and has expectations to grow up to 1.6 billion euros by 2020. (Winter Green Research [WGR]).

As an overview of the current trends at an international level reference is made to the documents which define the critical domains where the development of robotics represents a necessity in the next years. Healthcare is among the most important areas where robotics systems can enhance the level of medical care that can be provided for patients. With reference to neuro-rehabilitation, the Multi-Annual Roadmap (MAR, 2015) shows an increase in the implementation of robotic solutions which is however insufficient. Their report makes reference to statistical data which forecast very important demographic changes in the next decades. Nowadays the ratio between elderly, retired people and the active (working) population is around 26.8% (one elderly person for every four working persons) whereas in 2060 this ratio will increase to 52.6% (one elderly person for every two working persons). These demographic changes will generate automatic modifications to the expenses in population healthcare (a higher number of pensions and people requiring medical services, increased number of medical personnel and so on) which will put pressure upon the economic development and sustainability of economies worldwide. Furthermore, EUROSTAT studies show that in 2011 20.5% of the elderly European population (EU 27) live in poverty at the border of social exclusion (Bulgaria – 61.1%, Romania – 35.3%, Greece – 29.3%, Portugal – 24.5%, Italy – 24.2%) which shows that with a decrease in the funding allocated for healthcare or an increase in the healthcare costs, this category of people will suffer even more, leading to economic crises which will not be sustainable causing a domino effect with global implications. This data demonstrates once more that actions must be taken before it is too late. The same European document, the Multi-Annual Roadmap (MAR, 2015), points out the fact that the utilization of robotic systems in post-stroke rehabilitation along other neurologic pathologies (Parkinson, Multiple Sclerosis, ataxia) proved to have positive effects (in many cases higher than traditional therapies). Some of the necessary characteristics of these robotic systems are: sustainable production costs, clinical validation, proper protocols for the evaluation of patient progress, large scale implementation strategies.

From the medical point of view post-stroke patient rehabilitation covers three large periods of time, with the general consensus that progress in functional recovery is obtainable in a period of up to two years after which only progress preservation can be achieved. These time periods represent the acute phase which covers a period of up to three months after the stroke, sub-acute phase which extends up to six months post stroke and the chronic phase which spreads up to two years. In each phase, the patients have specific needs and rehabilitation is achieved differently being highly dependent on the patient progress.

Taking into account that currently over 75% of the stroke patients survive one year after the stroke and that the large majority of them (over 80%) experience a certain level of physical disability, the target population which could benefit from robotic rehabilitation is extremely high and will increase even more due to the continuous increase of average life expectancy. As in the next years the available number of physical therapists will no longer be able to provide proper medical care to this population segment, a general conclusion emphasis a big gap between the actual demands in rehabilitation and the available solutions, a gap which extends with time. This raises not just the opportunity but the necessity to act fast towards the development of new rehabilitation solutions, in an economically feasible environment capable of supporting stroke patients in each stage of rehabilitation starting from the acute post-stroke phase which takes place in hospitals, followed by longer stages which can take place in day care centers and home environment.

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COMMERCIAL DEVICES

Upper Limb

InMotionArm (Duret, Courtial, Grosmaire & Hutin, 2015)

It is made by Bionik Laboratories Corp.

InMotion ARM Dimensions: Workstation: 1.12m(W) x 1.85m(D) x 1.2m(H) at lowest position. Allows 81cm for the chair. Weight 83kg. Electrical Requirements 100-240VAC, 50/60Hz, automatic < 1250VA.

This device is a 2 translational degrees-of-freedom planar robot that focuses on shoulder (flexion/extension) and elbow (flexion/extension) motions in the horizontal plane. It was planned to have low intrinsic end point impedance with a low inertia. It allows clinicians to efficiently deliver optimum intensive sensorimotor therapy to the shoulder and elbow to achieve the development of new neural pathways. The InMotion ARM is an interactive rehabilitation technology that senses patient movements and limitations, providing "assistance-as-needed" in real-time. This robotic device can provide a serious number of treatment types, including an adjustable (or assist-as-needed) program using a performance-based algorithm that adapts forces to assist or challenge the patient's motions according to his/her motor performance. Especially, if a function cannot be completed in a voluntary manner, then the robot helps the patient to reach the target. The point-to-point unrestricted reaching program is mostly used for the evaluation of kinematic motions.

Advantages: It is able to execute the following motions: shoulder protraction/retraction, shoulder internal/external rotation and elbow flexion/extension, it is an accurate device, it is able to improve the patient's range of motion, eye-hand coordination, strength, movement speed, movement smoothness. It is easy to use, it can be accessed directly from a wheel chair and patient progress reports can be printed directly from the robot.

Drawbacks: Being a planar robotic device it allows the human limb to achieve motions in a three-dimensional space but it is heavily limited by the structure.

Bi-Manu-Track (van Delden, Peper, Kwakkel, & Beek, 2012)

It is produced by Reha-Stim Medtec Gmbh, it is designed especially for both sides of the human musculoskeletal system. Lost movements are regained with the help of the healthy side. The stand-alone therapy permits full concentration on the pertinent brain areas in the affected treatment area.Passive and active therapy offers, two different training movements: forearm pronation and supination, wrist extension/flexion.

Power supply: 230V/50Hz, servo motor driven operating panel, has an individually adjustable resistance, amplitude and speed of arm movement, height adaptable table and arm rest (25x18x13cm).

Dimensions: height:72-105cm, width: 85 cm, depth:90cm (including table), weight 51kg.

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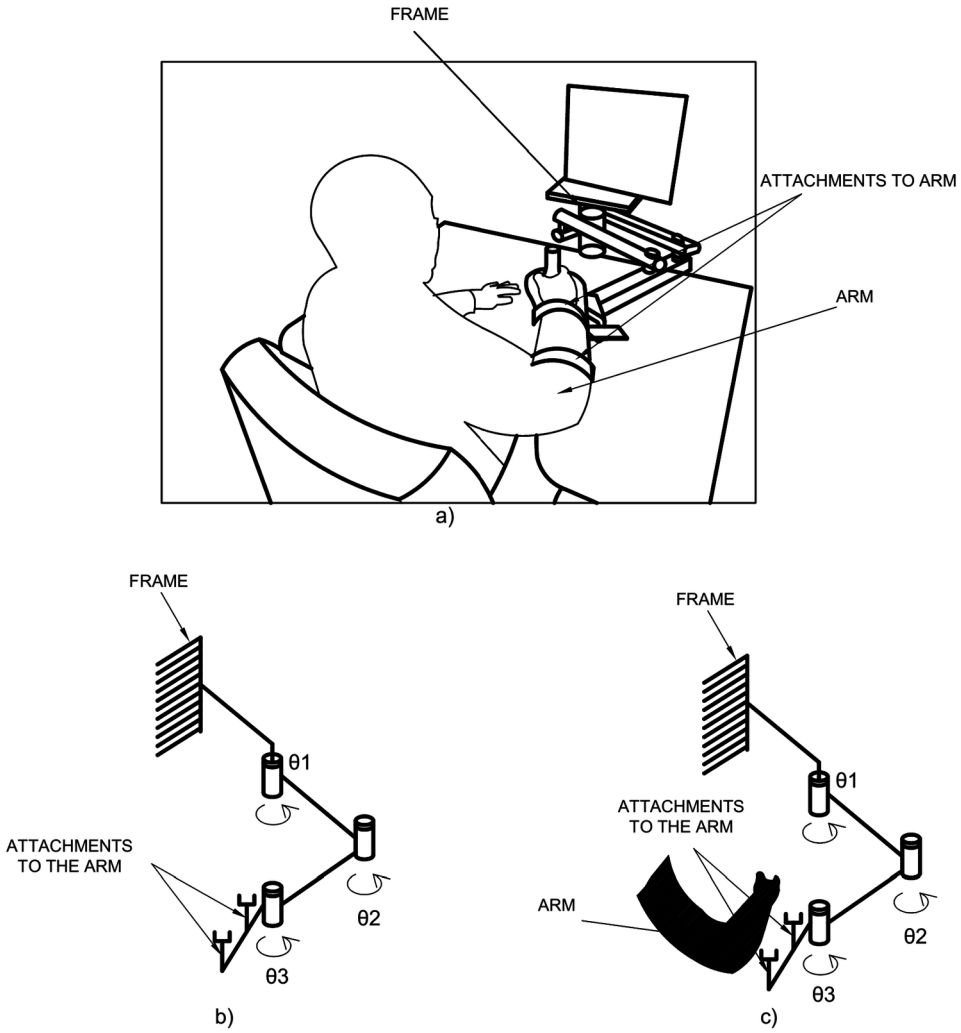
Figure 1. InMotionArm prototype (Duret, Courtial, Grosmaire & Hutin, 2015); a) a general scheme b) a kinematic scheme; c) a kinematic scheme with arm attachments



The Bi-Manu-Track is an automated motor-driven arm trainer that permits bilateral training of two movement patterns: forearm pronation and supination and wrist flexion and extension. To change between movement patterns the device can be rotated by 90°. The Bi-Manu-Track is suitable for three computer-controlled modes of practice. In the passive-passive mode the robot device commands both arms. In the active-passive mode the less affected upper limb actively moves the handle while the robot moves the most affected upper limb. In the active-active mode both arms execute the motions actively by overcoming an initial isometric resistance. Movements can be either mirror-symmetric (in-phase) or parallel (antiphase). Amplitude, speed, and resistances can be set individually.

Advantages: The robot device is simple and easy to use, low cost and permits bilateral exercises.
Drawbacks: Because of the involvement of the healthy limb, the projections to the paretic muscle can be affected.

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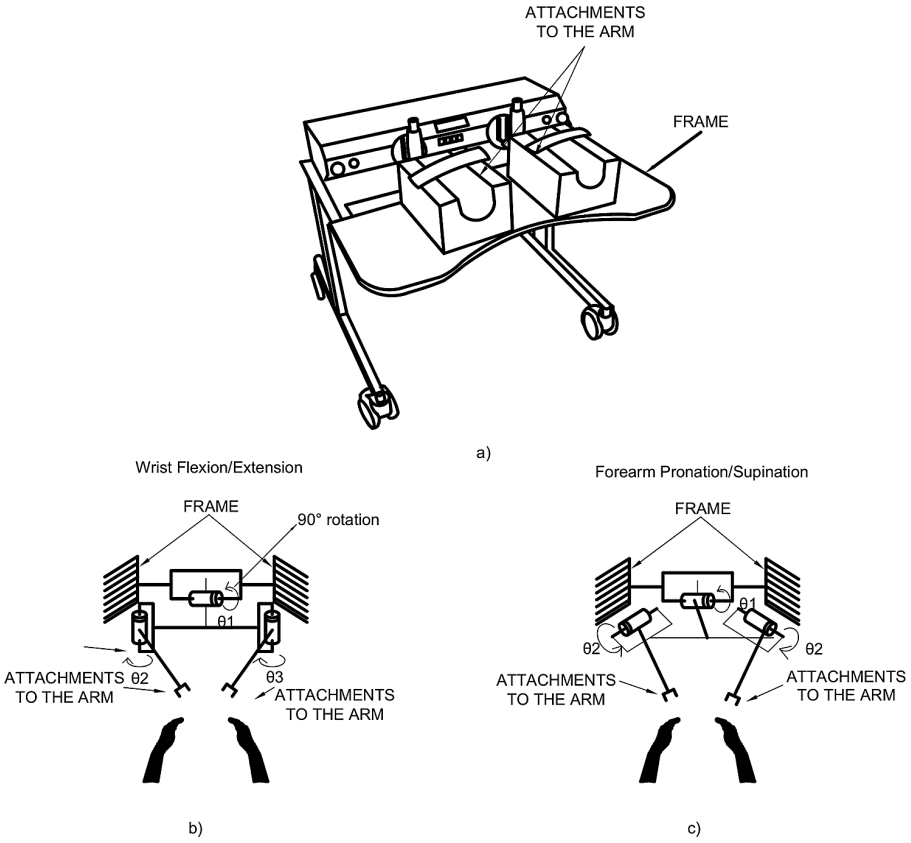
Figure 2. The Bi-Manu-Track prototype (van Delden, Peper, Kwakkel, & Beek, 2012); a) a general scheme b) a kinematic scheme for wrist flexion/extension; c) a kinematic scheme for forearm pronation/supination



ArmeoPower

ArmeoPower (Hocoma Web Page) [HWP] 2016) is made by Hocoma AG, Switzerland, and is a rehabilitative exercise device for upper extremity therapy. The main component of the Armeo Power consists of a motorized arm orthosis that is able to sustain the weight of a patient's arm, it can also assist the patient during specific training in a large 3D workspace. The Armeo Power does specific exercises for increasing the strength of muscles and the range of motion of joints in order to improve motor functions.

The motorized arm orthosis with 6 DOF reaches a large 3D workspace. Dimensions 2.7 m (l)x0.8 m (w) x 1.65 m (h), weight: approx. 205 kg. It can be adapted to patient sizes with an electric lifting column (range: 400 mm), forearm lengths (elbow to handgrip): 310-420mm, upper arm lengths (shoulder to elbow): 250-340mm, maximum weight of patient can reach 135 kg. It has an optional module named ManovoPower that is a mechanized hand module which supports the opening and closing of the hand in reach and grasps movements.

Advantages: Allows patients to get early treatment of motor disabilities, enabling patients to perform repetitive, intensive, and goal-oriented exercises.
Drawbacks: The price is high, about 250000 euros.

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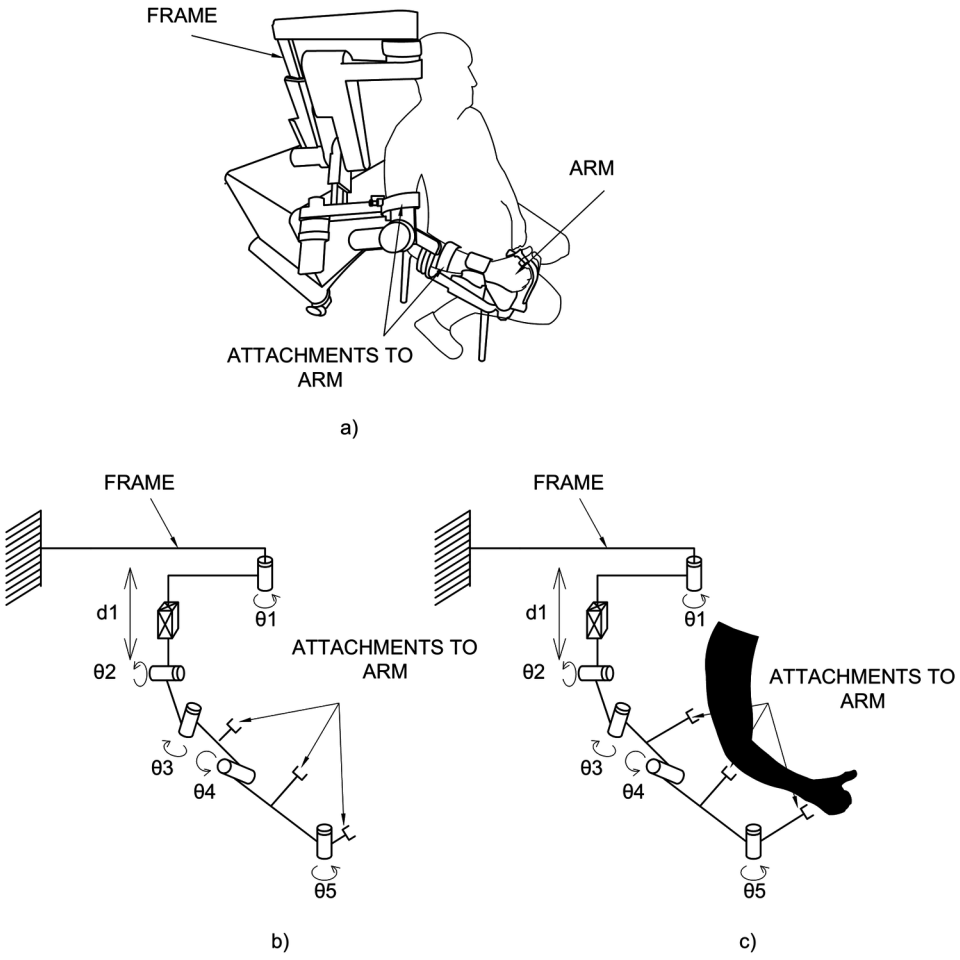
Figure 3. ArmeoPower prototype (van Delden, Peper, Kwakkel, & Beek, 2012); a) a general scheme b) a kinematic scheme; c) a kinematic scheme with detail of arm attachments



ArmeoSpring

ArmeoSpring (HWP, 2016) is made by Hocoma AG, Switzerland, it is an instrumented arm orthosis with a spring mechanism for an adjustable Arm Weight Support in a large 3D workspace that can be used as a real-time input device to the associated therapy software ArmeoControl. The aim of ArmeoSpring is to provide functional therapy for patients who have impaired upper limbs due to cerebral, neurogenic, spinal, muscular or bone-related disorders.

Device's dimensions: 81 cm (l) x 75 cm (w) x 85-125 cm (h), weight: max. 82 kg, room requirements: 3x3x2m (l x w x h), temperature: 10°C-30°C. Forearm lengths 290-310mm, upper arm lengths:220-310mm.

It has a 5 degree-of-freedom (3 in the shoulder, 1 in the elbow, 1 in the forearm) orthosis without robotic actuators, a so called passive system. The adaptable mechanical arm permits variable levels of gravity support by means of a spring mechanism. This allows patients, using residual upper limb function, to reach a bigger active range of motion (ROM) within a 3-dimensional work volume than is possible without support.

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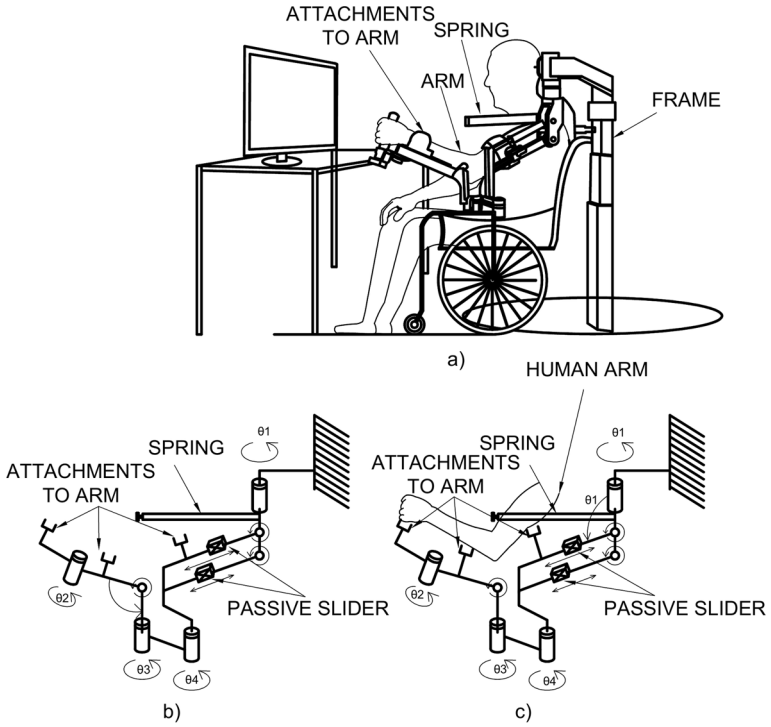
Figure 4. ArmeoSpring prototype (HWP, 2016); a) a general scheme b) a kinematic scheme; c) a kinematic scheme with detail of arm attachments



Advantages: Permits customized patient's therapy, feedback exercises have been designed to train core movement patterns that are used in activities of daily living.

Drawbacks: Being a passive system, the robotic devices address patients with mild moderate chronic impairment of the upper limb following a stroke, so this robotic system can't be used for patients with severe hemiparesis.

Lower Limb

G-EO-System (Hesse, Waldner, &Tomeller, 2010)

The robotic device is built on the end-effector principle, the trajectories of the foot plates are freely programmable allowing not only the practice of simulated floor walking but also up and down stair climbing.

Its design characteristics are as follows: Length: 406 cm, Width: 124 cm, Standard height: 280 cm, Reduced Height: 260 cm, Weight: 900 kg, power Supply: 110/230 V. The device adopted the end effector principle. The harness secures the patient that stands on two-foot plates, whose trajectories were completely programmable. The two-foot plates have each been connected via a pivoting arm to two moving sledges. The foot's forward motion was given by the movement of the main sledge, which was connected to the transmission belt of the linear guide. The transmission belt was driven by a 1.500 W servomotor mounted in the back end of the linear guide. The robotic system is used to improve the floor walking and stair climbing of patients that suffered a stroke. The G-EO-System robot device patent is held by Reha-Technologies GmbH.

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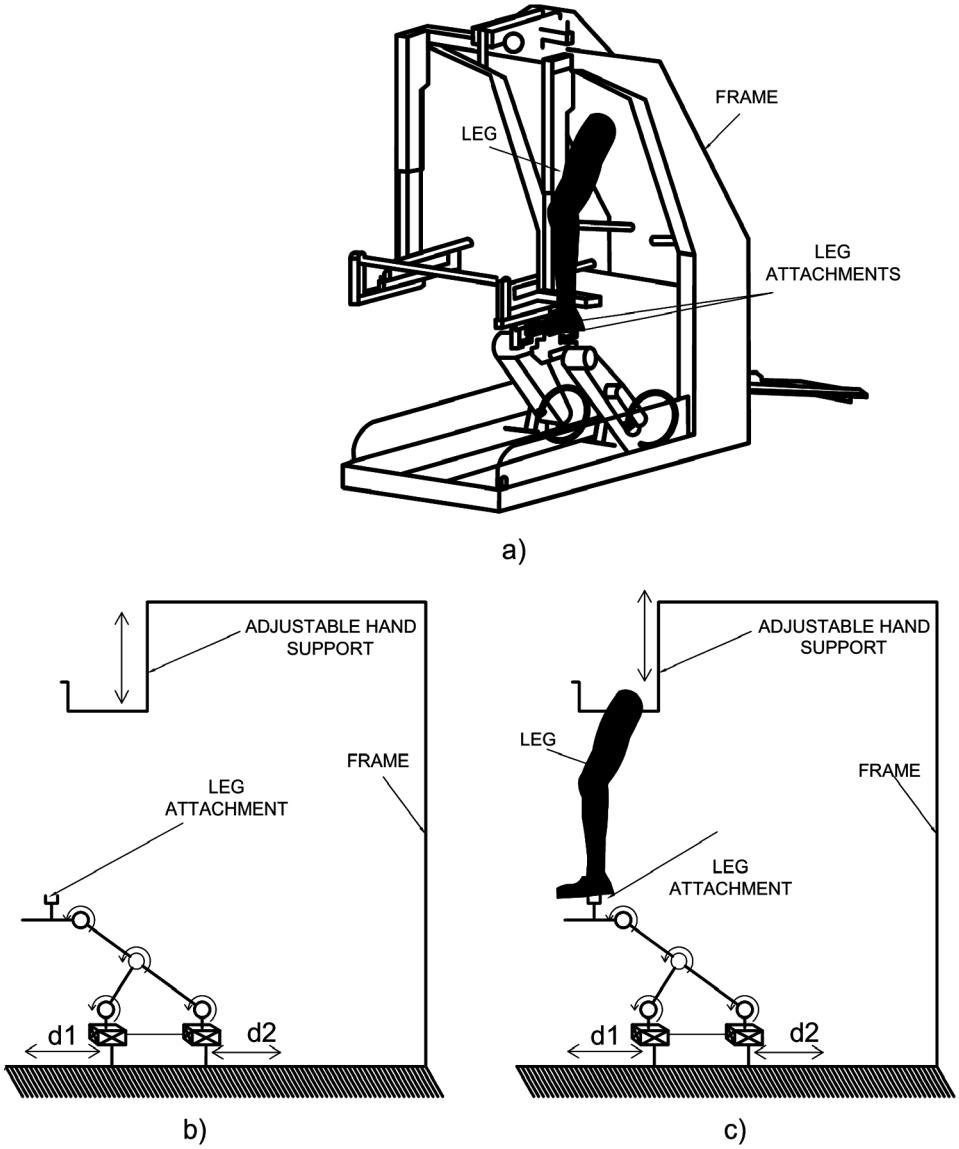
Advantages: Easy for patients to use, G-EO system can simulate walking on level ground and stair climbing, quick setup and easy patient handling.

Drawbacks: It doesn't have a virtual reality interactive training module; this detail could help patients increase their motivation during the therapy exercises.

HAL-5 (Type-B) (Hybrid Assistive Limb) (Sankay, 2007)

This exoskeleton was developed by the University of Tsukuba, Japan and it's produced by CYBERDYNE Inc. The exoskeleton helps in daily activities, heavy work and also entertainment.

Figure 5. G-EO-System prototype (Hesse, Waldner & Tomeller, 2010); a) a general scheme b) a kinematic scheme; a kinematic scheme with detail of leg attachment



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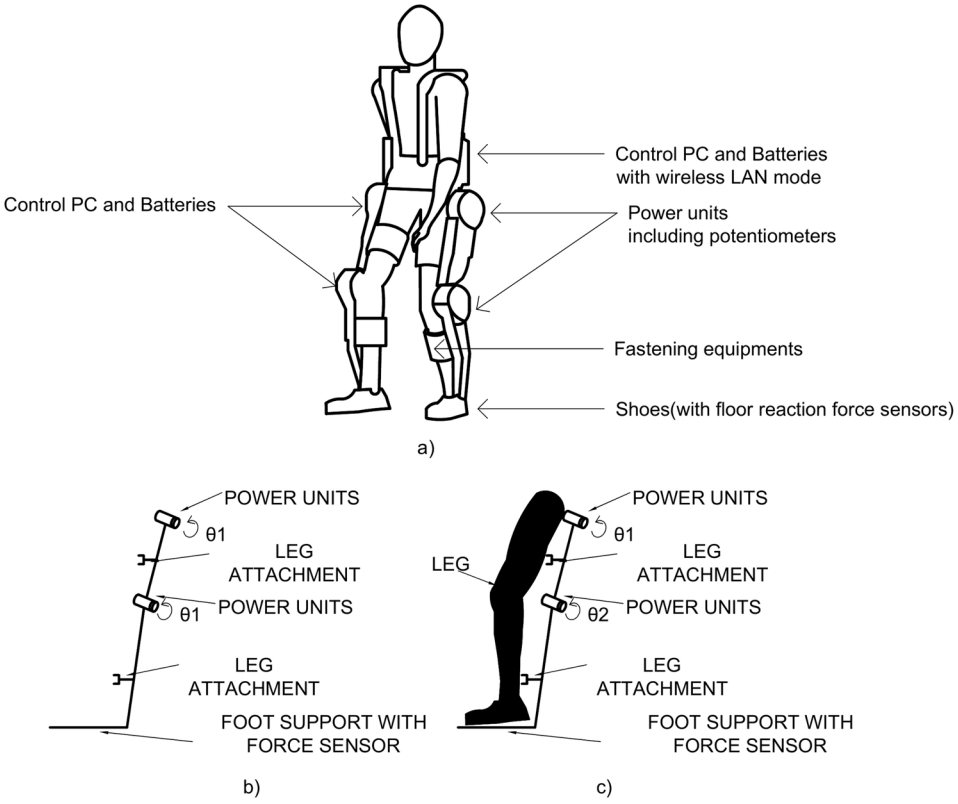
The Robotic Suit HAL is a cyborg type robot which can enlarge, augment and sustain physical capacity. The robotic device HAL has two kinds of control systems such as "Cybernic Voluntary Control System" and "Cybernic Autonomous Control System". The application fields of HAL are medical well-being, heavy work support, entertainment etc.

The exoskeleton has the following specifications: Height 1,600mm, Weight Full Body Type approx. 23kg (Lower body approx. 15kg), Battery Drive Charged battery (AC100V), Continuous operating time Approximately 2 hours 40 minutes, Motions Daily Activities (standing up from a chair, walking, climbing up and down stairs), hold and lift heavy objects up to 70kg, Hybrid Control System (Cybernic Control: Cybernic Voluntary Control, Cybernic Autonomous Control), indoor and outdoor usage.

Advantages: It is a wearable and portable device that confers the patients significant aid in rehabilitation gait training.

Drawbacks: It has a limited torque, it is heavy and can't be used by paralyzed patients.

Figure 6. HAL-5 (Type-B) (Hybrid Assistive Limb) prototype (Sankay, 2007); a) a general scheme b) a kinematic scheme; c) a kinematic scheme with detail of leg attachment



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AlterG Bionic Leg (Li, Ding, Chen, Mao, Huang, Li 2015)

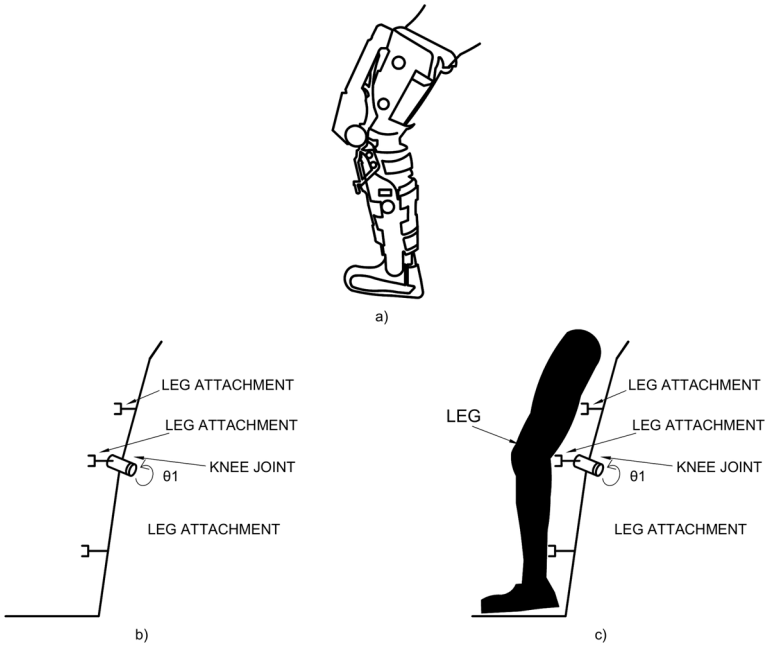
This is an advanced and dynamic lower extremity orthosis that is battery-powered and wearable. It intends to increase existing muscle strength, it gives sensory inputs (i.e. auditory and sensory feedback) and mobility support for users with disability at the lower-extremity functions during rehabilitation. The ROM and quantity of support provided by the Bionic Leg is personalized through the device settings. These parameters are determined by the clinician.

The robotic device has a weight of 3.5 kilograms and an internal sensor that detects the user's foot pressure. The orthosis provides forward propulsion when the users generate enough force on their paretic knee. The RLO (robotic leg orthosis) delivered support with extension (during standing posture, forward gait, and so on), controlled flexion (during standing to sitting posture), and free movement (during the swing period).

Three types of settings on the robotic device can be modified: threshold (the minimum force necessary to activate the device), assistance (the percentage of body weight provided through the limb during extension in the stance phase of the gait cycle), and resistance (level of resistance during flexion on the stance phase of the gait cycle). The robotic device's support physiotherapy training procedure was built respecting a motor control learning theorem that included fifteen sessions held five times per week for three weeks

Advantages: It is a lightweight wearable device which assist the patient with the impaired leg by helping the user to relearn gait support, it also helps patients to place the body weight on the healthy leg.
Drawbacks: Battery life gives limited daily usage.

Figure 7. AlterG Bionic Leg prototype (Li, Ding, Chen, Mao, Huang, Li); a) a general scheme; b) a kinematic scheme; c) a kinematic scheme with leg attachment



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Hand

AMADEO Hand-Therapy System (Sale, Lombardi, Franceschini 2012)

AMADEO is made by TYROMOTION GmbH Austria, it is a modern mechatronic finger-hand therapy system for the rehabilitation of patients with motor disability in the distal upper extremity. The AMADEO system is made up of the hand unit, that contains the electrically powered movement mechanism, the hand-arm support, finger supports and finger plasters, a height-adjustable load-bearing frame with table surface, control panel and a PC-based control and operating unit for configuring therapy parameters.

The AMADEO system has the following specifications: power supply 110-240V a.c., supply frequency 50/60Hz, electricity/power consumption 1,83-4A/440W, supply voltage for motors 24V d.c,, max speed 210mm/sec, nominal power of motors 3watts/motor, max. power of motors 30N/Motor, max. permissible finger strength 30N, measurement range strength sensors ±20N, weight 60kg, dimension(WxLxH) 1160x754x1209 (mm) collapsed, 1160x754x1589 (mm) extended.

The Amadeo robot has got 5 DOFs and supplies the motion of one or all five fingers, due to a passive rotation joint placed between fingertip and an entity moving laterally; (the thumb has got two passive rotation joints). All five translational DOFs are independent and provide large coverage of the fingers workspace (but not all of it is covered). The interface between the human hand and the machine is realized thanks to elastic bands or plasters, and the wrist is restrained from the movements by a Velcro strap.

Advantages: This robotic system covers the human hand fingers workspace and performs an intensive training having a high frequency of gripping movements. It can be used even for patients with severe hemiparesis.

Drawbacks: It is a fixed system it is not wearable, it cannot be complementary with a robotic system for upper limb rehabilitation.

YouGraber (Shuster-Amft et al., 2014)

YouGrabber is made by YouRehab, Switzerland, it helps patients with sensory-motor and cognitive impairments during rehabilitation. It delivers bi-manual training exercises with a focus on visuomotor finger, hand and arm coordination. The interactive physiotherapy is using Virtual Reality technology and can be done even in a three-dimensional environment.

At the beginning of every training session the system is adapted to the patient's current abilities. Particular settings in every training application allow the training difficulty and content to be quickly and easily adapted to the patient's progression and therapy needs. The Auto mode allows an automatic adjustment of the software's difficulty and always ensures an optimal challenge. The software is in accordance with state-of-the-art therapy approaches and mirror therapy is also possible. The training software induces the patient to train intensively, using the following available training targets: Arm pronation and supination, arm lifting and lowering, hand and finger extension, grasping movements, selective fine finger movements, wrist flexion and extension elbow flexion and extension, divided attention, reaction time, visual attention, concentration and visual information processing.

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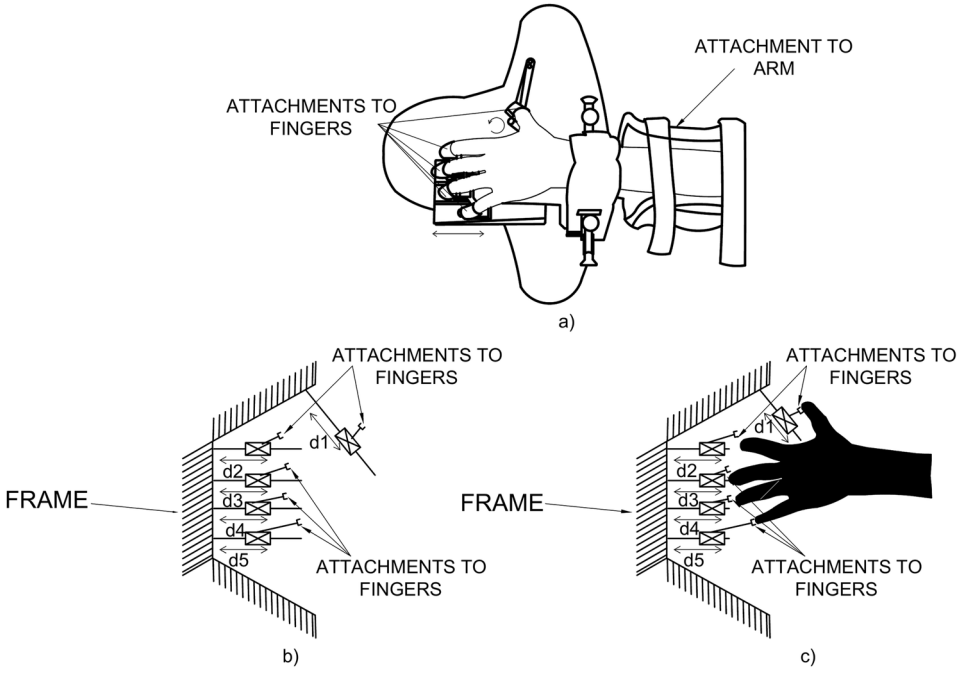
Figure 8. AMADEO Hand-Therapy System prototype (Sale, Lombardi, Franceschini 20012); a) a general scheme b) a kinematic scheme; c) a kinematic scheme with detail of hand attachments



Advantages: The YouGrabber is a wearable, adjustable device that can be adapted in every training session based on patient's current abilities. The training software provided with the system can be used on an usual personal computer for interactive therapy training at home or in a clinic.

Drawbacks: It is designed to move only 3 fingers.

CyberGrasp (Cyber Glove System Web Page[CGSWP] 2014)

The CyberGrasp system, made by CyberGlove Systems LLC, San Jose, CA, USA, is an innovative force feedback system for the fingers and hand. It allows patients to "reach into a computer" and grasp computer-generated or tele-manipulated objects.

It has a force of 12 N per finger (max, continuous), Weight: 454 g (exoskeleton without CyberGlove system), Workspace: 1-meter spherical radius from the Actuator Module.

Grasp forces are generated by a network of tendons routed to the fingertips via the exoskeleton. It has five actuators, one actuator per finger, which can be one by one programmed to prevent the user's fingers from penetrating or crushing a virtual solid object.

The device exerts grasp forces that are roughly perpendicular to the fingertips throughout the range of motion, and forces can be specified individually. The CyberGrasp system allows full range-of-motion of the hand and does not obstruct the wearer's movements. The device is fully adjustable and designed to fit a wide variety of hands. The CyberGrasp system exerts grasp forces perpendicular to each fingertip, allowing full range of hand motion without restriction. The CyberGrasp system is fully adjustable and designed to accommodate a wide variety of hand sizes.

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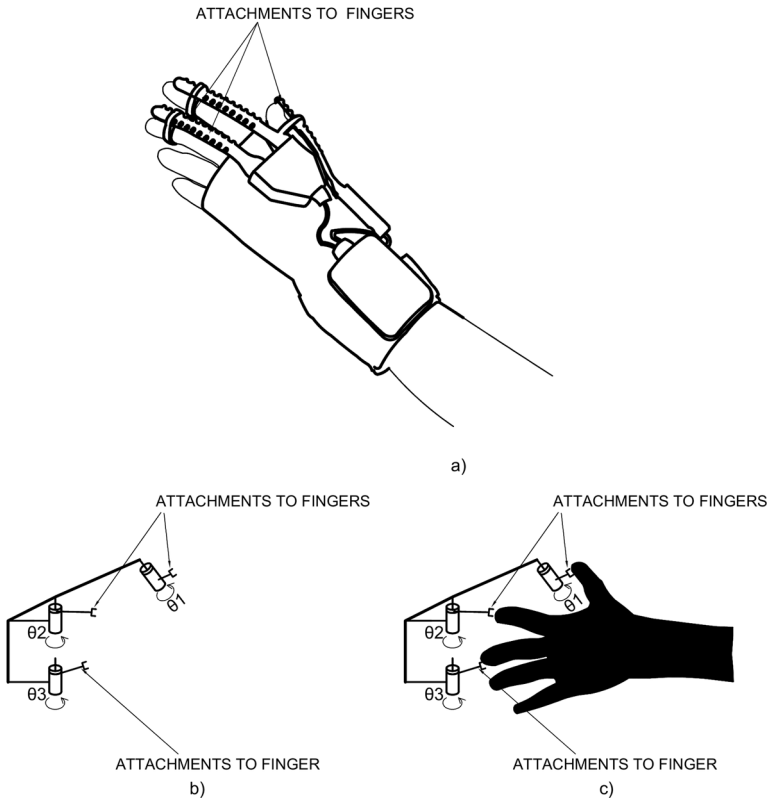
Figure 9. YouGraber prototype (Shuster-Amft et al., 2014); a) a general scheme; b) a kinematic scheme; c) a kinematic scheme with hand attachment



Advantages: Due to the cable driven actuation system the robot can reach a continuous force of 12N per finger. It can be used in different domains for example in haptic rehabilitation and in the training of the visually impaired.

Drawbacks: the system is pretty complex and has a limited workspace from the actuator module; the price is also an inconvenience, around 34000 euros. Also, with the weight of exoskeleton being 454 grams it is not easy to use the system for a certain amount of time.

CONCEPTUAL DEVICES

Upper Limb

Robotic systems for rehabilitation are mainly classified in two large categories: end-effector based and exoskeletons (Figure 11) (Loureriro, Harwin, Nagai, & Johnson, 2011) the end-effector based robotic systems for rehabilitation interact with a patient through a single lateral attachment point on the patient's hand. These types of robots are rather simple and can be easily adjusted to different sizes and shapes of the patient's upper limb (e.g. MIT-MANUS (Hogan, Krebs, Charnnarong, Srikrishna, & Sharon, 1992) and ARM-Guide (Reinkensmeyer, Dewald, & Rymer, 1999). Because of their architecture which allows

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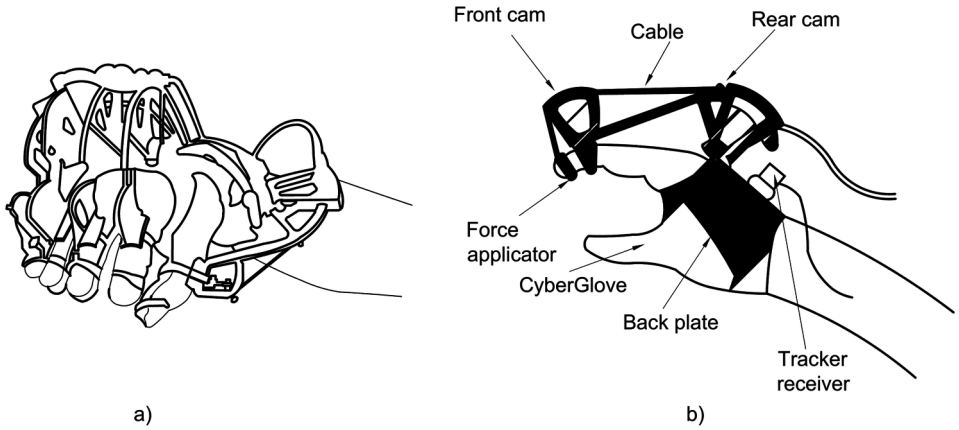
Figure 10. CyberGrasp prototype (Cyber Glove System Web Page[CGSWP] 2014); a) a general scheme b) a functional scheme



only the control of the end-effector tip, it is rather difficult to control a certain single joint of the upper limb of the patient, which is why at least another anchor point is usually needed for rehabilitation training.

If not mastered well, this deficiency could cause serious lesions of the patient's joints, which is a serious problem especially for 3D spatial robots.Two types of robots were designed: table-top robots that are able to perform 2D planar training: e.g. MIT-MANUS (Hogan et al, 1992) or Braccio di Ferro (Casadio, Sanguineti, Morasso, Arrichello 2006) and multi-robots that can perform the predesignated exercises of the wrist, elbow and shoulder at the same time or separately (e.g. REHAROB (Tóth, Arz, Fazekas, Bratanov, Zlatov, 2004) and iPAM (Jackson et al., 2007).

A number of end-effectors were developed to address the mirroring concept, namely to achieve the bilateral rehabilitation training (Figure 11), which supposes that the affected arm imitates the healthy or the less affected arm to perform synchronous training exercises assisted by the robots (e.g. MIME (Lum, Van der Loos, Shor, Burgar, 1999), Bi-Manu-Track (Hesse, Schulte-Tigges, Konrad, Bardeleben, Werner, 2003) and Driver SEAT (Johnson, Van der Loos, Burgar, Leifer,1999)).

An exoskeleton robot encloses the upper-limb into the bionic-construction to control its motion. Because of its enclosed mechanism, exoskeletons can completely control all joints of the upper- limb and determine how much torque is needed to actuate each upper-limb joint separately. (Sheng, Zhang, Meng, Deng, Xie, 2016) Moreover, exoskeletons require less working space compared to end-effectors when achieving the same therapeutic exercises. In any case, this capsule structure means that the joint axes of upper-limb are pre-determined, and mechanical singularity will happen if the robots' axes do not align correctly with the patients' upper-limb anatomical axes (Yang, Cao, Zhao, 2013). Both end-effector based robots and exoskeletons in Figure 11 can be actuated using wires, that are connected to a splint, becket or even the exoskeleton, to support the body weight, to control the height, torque and orientation of the upper-limb (e.g. Swedish Helparm (Kinsman Enterprises Product Catalog Web Page, [KEPCWP]) and NeReBot (Masiero, Celia, Rosati, Armani, M 2005)).

Lately, an increased number of robots were designed for bilateral exercise (mirroring), specifically for upper-limb stroke rehabilitation. Cauraugh (Cauraugh, Summers, 2004) and Stinear (Stinear, J., Byblow, 2002) further reported that the activation of the damaged hemisphere could be assured through simultaneous motions of the damaged arm and the less damaged/unaffected arm. (Sheng, et al., 2016)

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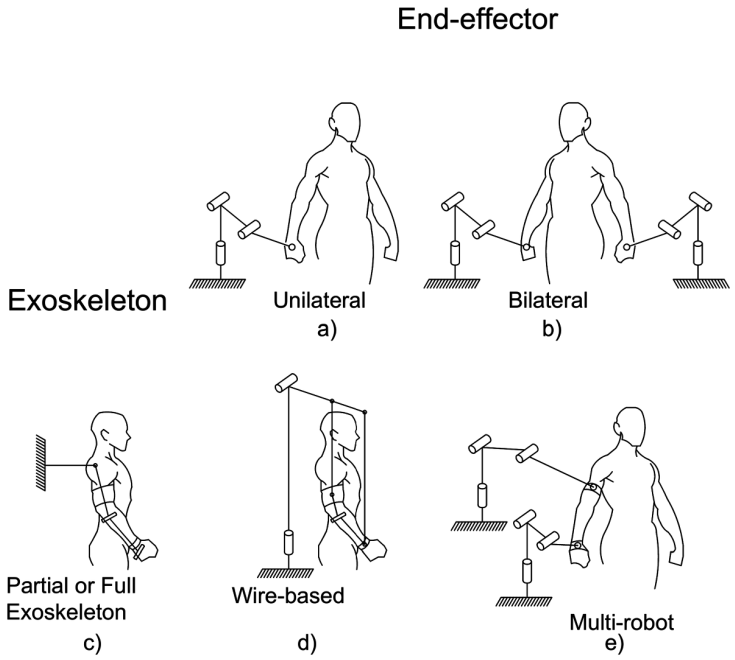
Figure 11. Rehabilitation robots categorized by end-effector and Exoskeleton; a) end-effector actioned unilateral; b) end-effector actioned bilateral; c) partial or full exoskeleton; d) wire-based robot; e) multi-robot



Biomimetic Orthosis for the Neurorehabilitation of the Elbow and Shoulder (BONES) (Klein et al., 2008)

The authors have proposed a robotic structure having a light weight and a robust force control using a parallel robotic device with mechanically grounded actuators. This enables the use of large, direct-drive actuators since the weight of the actuators themselves is not important. The key feature in the design of BONES consists in the human forearm. The parallel device mechanism allows a 3 DOF shoulder motion, including shoulder internal/external rotation. To allow the elbow flexion/extension, the robot includes a serially-placed actuator for elbow flexion/extension.

The upper arm exoskeleton reproduces the upper arm motion via a spherical joint rotating around the shoulder. The arm is anchored at the elbow and moved by means of two passive sliding rods.

The authors have used pneumatic cylinder actuators to achieve the movements described above. In this study, the inverse kinematics has been used to determine the cylinder coordinates required to produce a desired motion of the end-effector.

The weight of the upper arm exoskeleton is 3438 g (including the elbow actuator). The weight of the forearm exoskeleton module is 921g leading to a total arm weight of 4359g. So, the mass of the exoskeleton is comparable with a human upper limb mass that is around 4220g, in average across sexes.

Advantages: Allows naturalistic motion of human arm using mechanically grounded, direct drive actuators at the shoulder.

Drawbacks: It is not wearable and can be used only in clinics thus not for ADL.

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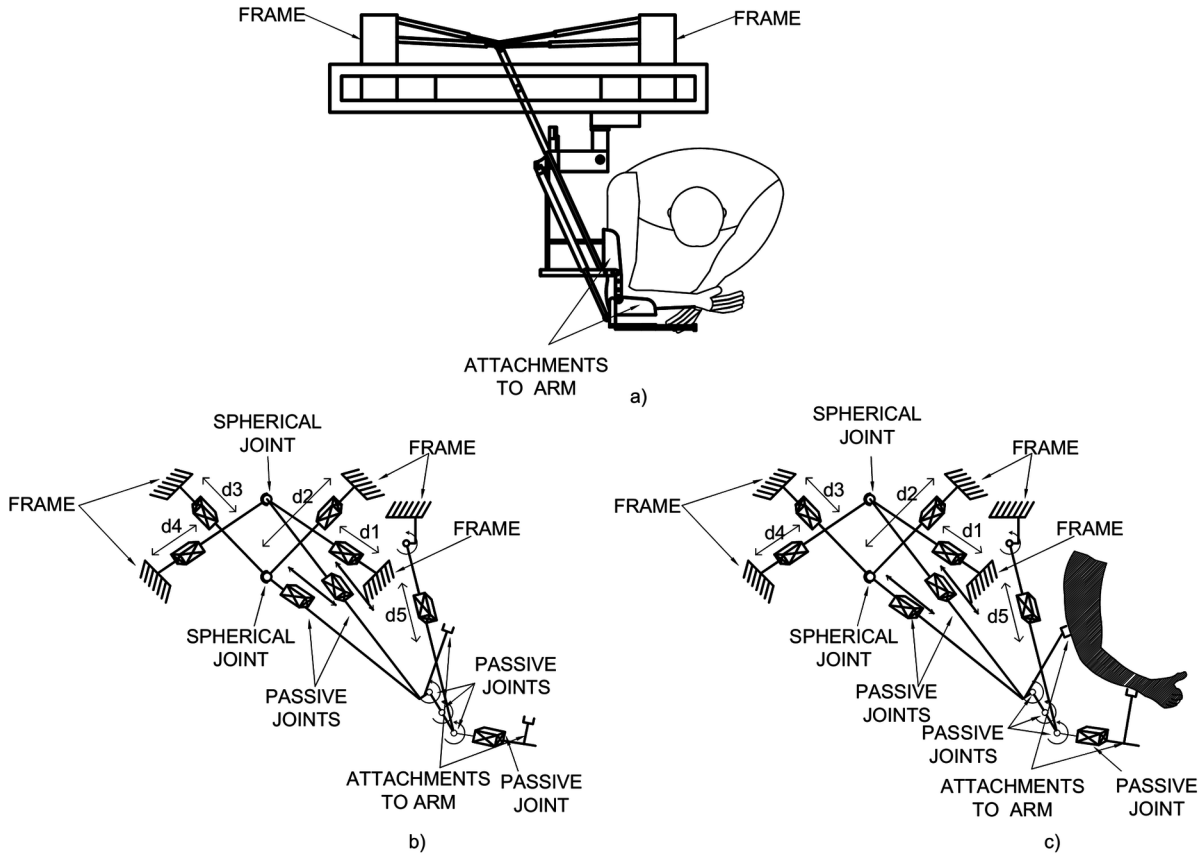
Figure 12. BONES prototype (Klein et al., 2008); a) a general scheme; b) a kinematic scheme; c) a kinematic scheme with arm attachment attachment



Rocker (APBT)

The Rocker is a rehabilitation device that allows active–passive bilateral motion exercise (APBT, Stinear and Byblow (Stinear, Byblow, 2004)), that is an upgraded version of Hand-Object-Hand system (H –O –H, Lum P. S. et al. (Lum, Reinkensmeyer, Lehman, 1993), (Reinkensmeyer, Lehman, Lum,1993)). The robotic device has two connected crankshafts which are placed on a table that connects to two manipulators (Stinear et al., 2004) and can provide symmetrical or asynchronous trainings (60 ° phase lag) for wrist flexion/extension movements in horizontal plane (Figure 13). This robot system allows actively moving the unimpaired upper limb and can passively move the impaired upper limb in either a synchronous or (60 ° phase lag) asynchronous mode. Compared with the Hand-Object-Hand system, this device supports active training mode, which is important for nerve and coordination recovery (Sheng, et al., 2016).

Advantages: It is a good device which helps patients to improve wrist flexion/extension. Based on mirror symmetrical coordination the less impaired limb can passively move the most impaired limb.
Drawbacks: It allows only planar flexion/extension of wrist.

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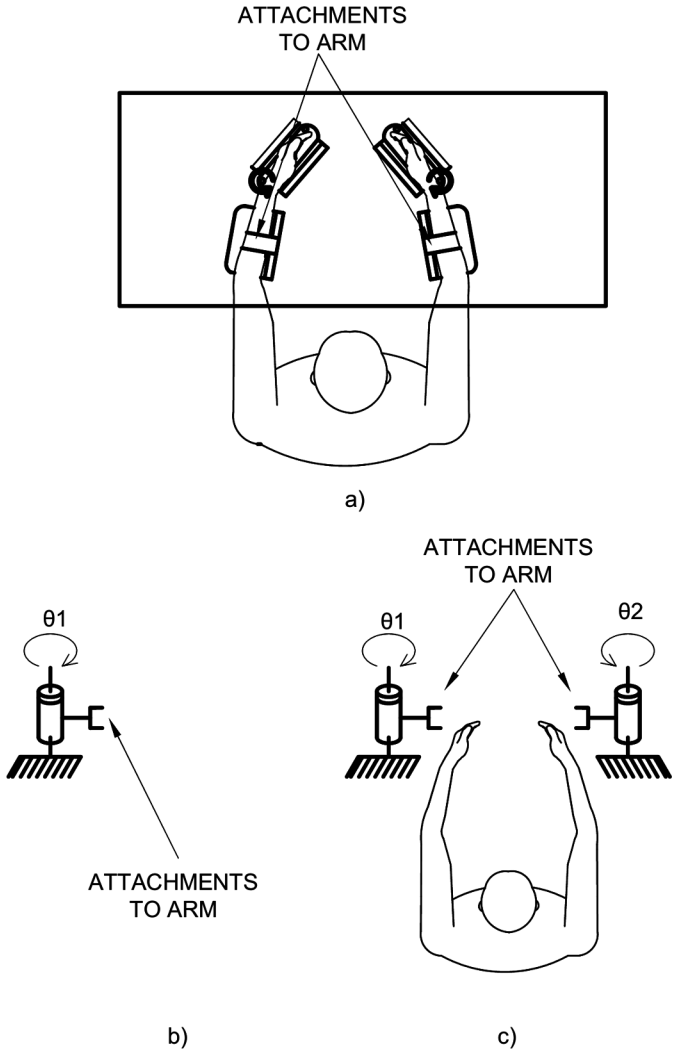
Figure 13. Rocker prototype (APBT, Stinear and By- blow (Stinear, Byblow, 2004); a) a general scheme b) a kinematic scheme of one side; c) a kinematic scheme with detail of hand attachments



Self-Controlled Master-Slave Robot

The Self-controlled Master-Slave Robot was developed starting from the ideas of the Bimanual Lifting Rehabilitator (Lum, Lehman, Reinkensmeyer,1995) and Hand Robotic Rehabilitation Device (Rashedi, Mirbagheri, Taheri, Farahmand, Vossoughi, Parnianpour, 2009), which is composed of two identical terminals for elbow flexion/extension movements (SCMSR, Li C.G. et al. (Liu, Li, Inoue, Shibata, 2010). Two adjustable handles are coupled to the terminals with two identical motors. To measure the torque the authors have used two torque transducers and one strain gage signal amplifier (Figure 14). The motor on which a larger force is applied (by the healthy upper-limb) acts as the master and the other one as slave and guides the impaired limb. The device can support three training types: 1) passive-driven mode: the impaired upper-limb will be passively handled and moved by the robot; 2) active-assisted mode:

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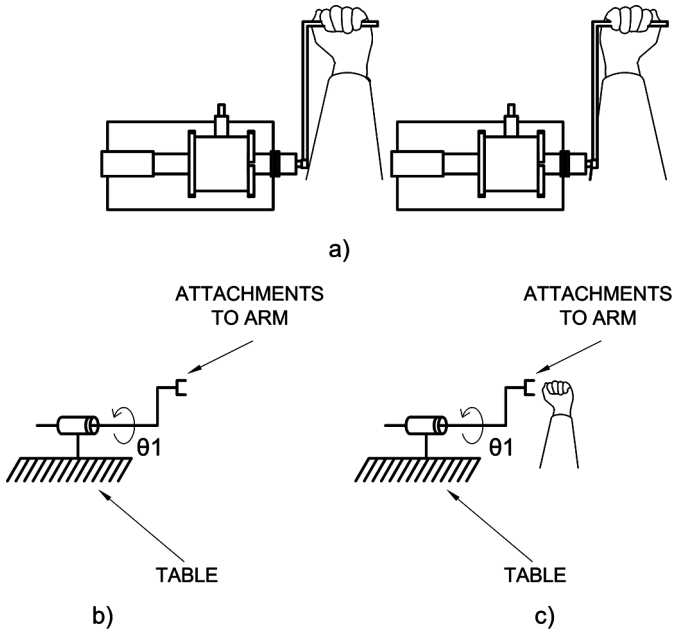
the impaired upper-limb will be helped by the other (healthy) upper-limb to complete the predefined exercises; 3) active-resistive mode: a resistive force will be applied to the impaired upper-limb by the healthy (contralateral) upper-limb, for the rehabilitation training. (Sheng, et al., 2016)

Advantages: This robotic device has a great potential to be applied in rehabilitation, manipulation. The system provides bilateral arm coordinated training for patients that suffered unilateral paralysis.
Drawbacks: It performs only flexion/extension of elbow.

Figure 14. Self-controlled Master-Slave Robot prototype (Lum, Lehman, Reinkensmeyer,1995) ; a) a general scheme b) a kinematic scheme of one flexion; c) a kinematic scheme with detail of hand attachment



Supinator Extender (SUE): A Pneumatically Actuated Robot for post-stroke Forearm/ Wrist Rehabilitation (Allington, Spencer,Klein, Buell,Reinkensmeyer, Bobrow, 2011)

The robot presented in this study, SUE (Supinator extender), has been developed as an additional forearm/wrist rehabilitation device to the UCI BONES (Klein et al., 2008) exoskeleton robot leading to a 6 DOF robotic system. It can also be attached to the ArmeoSpring rehabilitation device. SUE has a 2-DOF serial chain and has two functions: to measure and to achieve the forearm supination-pronation and the wrist flexion-extension. It uses pneumatic actuators, having large power to weight ratio, thus allowing SUE to reach the required forces for the rehabilitation therapy. Due to its lightweight (0.56 kg) it can be carried by BONES (Klein et al., 2008) or ArmeoSpring (HWP, 2016). Each DOF has a range of 90 degrees and a nominal torque of 2.7 N-m.

It is a strong and compact back-drivable robot that provides forearm/wrist capability for two arm rehabilitation exoskeletons. One of the reasons for the use of pneumatic actuation consists in the low impedance of the cylinders and their lightweight. SUE uses two control types, a simple position control

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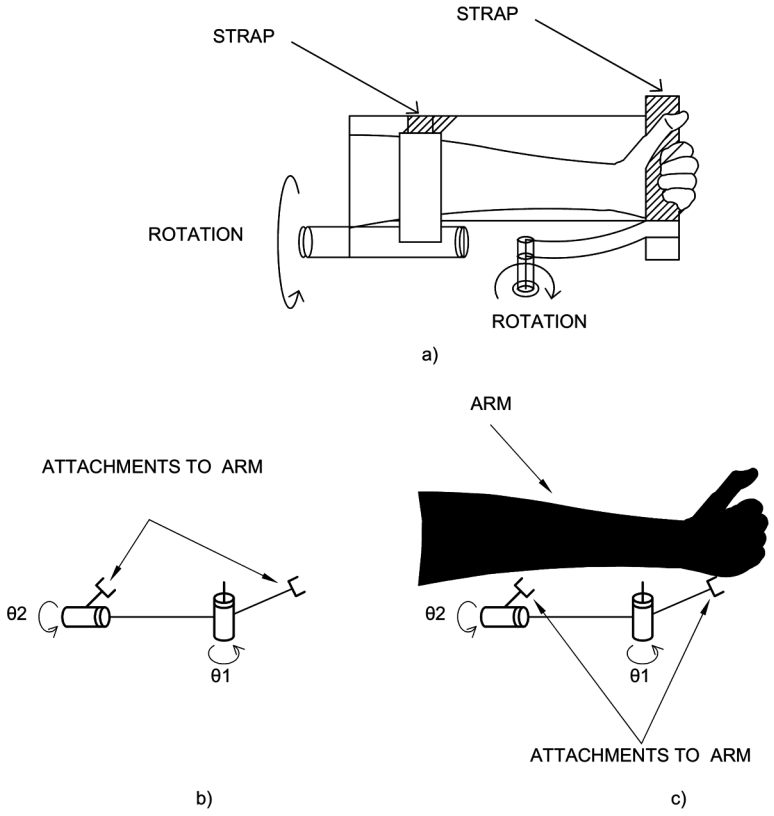
and a force control that uses valves to control the air pressure separately in each chamber. In both cases, a sliding control approach is used to take advantage of the fast on-off solenoid valves. The controller is implemented using xPCTarget in standalone mode running at 1000 Hz.

Advantages: The robot device is lightweight (0.56 kg), the system is complementary with the robot system UCI BONES (Klein et al., 2008) and the Armeo Spring (HWP, 2016), the robot system performs forearm supination/pronation and wrist flexion/extension.

Drawbacks: Non-linear forces that came from pneumatic cylinders can be overcome by good controls so adding complex controls is necessary.

Figure 15. Supinator Extender (SUE) prototype (Allington, Spencer, Klein, Buell,Reinkensmeyer, Bobrow, 2011) a) a general scheme; b) a kinematic scheme; c) a kinematic scheme with arm attachment



Lower Limb

"Physioterabot" (Akdogan, Mehmet, 2011)

This study presents a robotic system with 3 DOF attached to a chair, as shown in Figure 16.

The system can perform all major active and passive rehabilitation exercises but it also has the capacity of learning specific exercise movements and performing these exercises in the absence of the

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physiotherapist. The implemented Human-Machine interface allows a larger adaptability of the system, based on the patient's reaction, so that the robot manipulator can change its position while performing exercises according to the feedback data about the patient's state. The remote manipulator can achieve: flexion-extension for the knee where only link 1 is used, flexion-extension for the hip where Link 1 and Link 2 are working together and abduction-adduction for the hip where link 0 works around the OZ axis. The remote manipulator is extremely versatile in terms of the patient's physical characteristics, generating torque for patients up to 100 kg. The robot is actuated using servomotors, equipped with gearboxes for the motions reported in Table 1

Advantages: It can almost reach the ROM of human limb as is shown in the Table 1 and it can be adapted to fit different weight of patients up to 100 kg.
Drawbacks: It doesn't perform rehabilitation exercises for ankle.

Figure 16. Physioterabot prototype
(Akdogan & Mehmet, 2011)

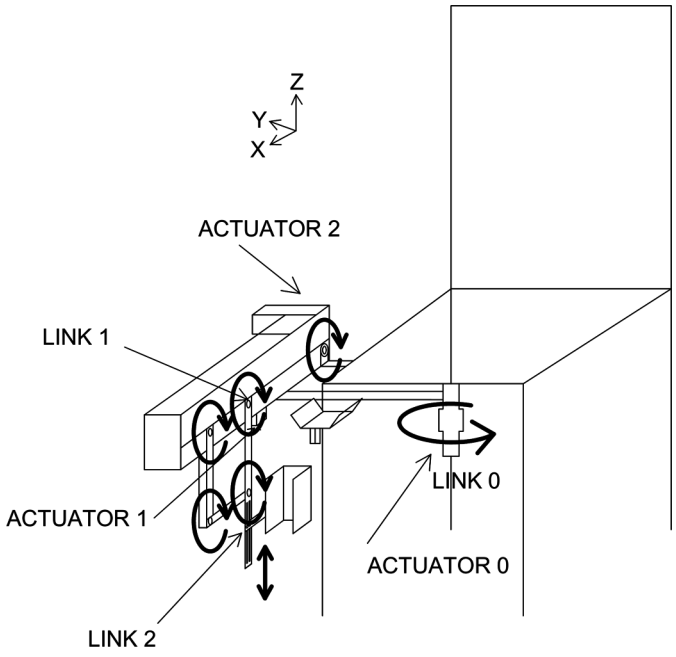

Table 1. Motion ranges as reported in Akdogan (2011)

Limb	Movement	ROM of Limb	ROM of Physiotherabot
Knee	Flexion-extension	-45°/90°	-35°/90°
Hip	Flexion-extension	-15°/45°	-15°/45°
	Abduction-adduction	0°/120°	0°/120°

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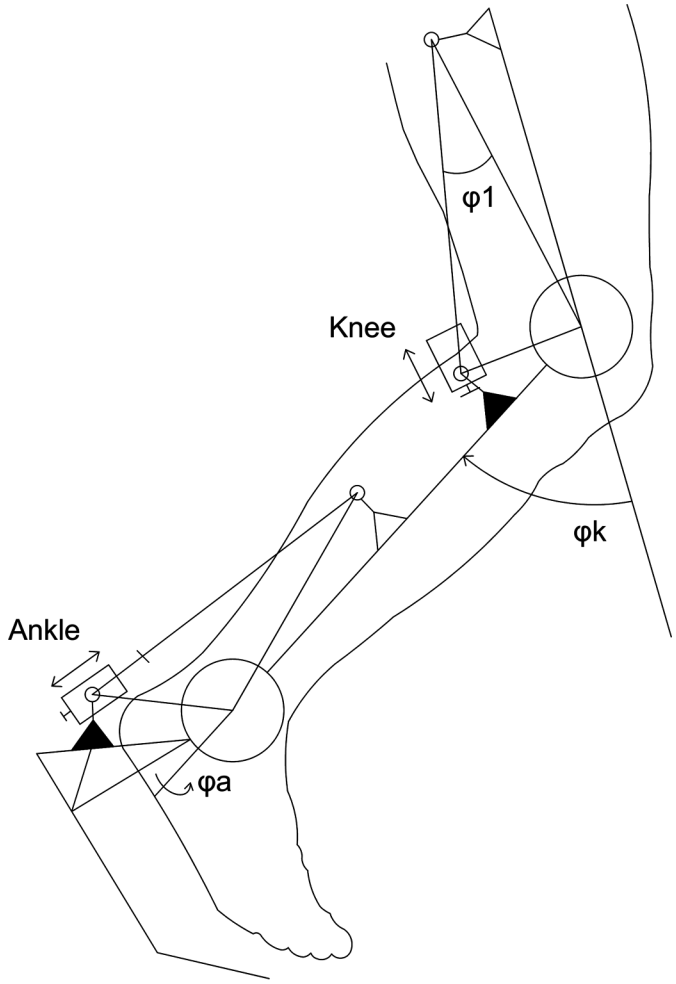
Knee-Ankle-Foot Robot for Gait Rehabilitation (Cheng, Qi, Guo, Yu, 2016)

Knee-foot-ankle is a 2 DOF robot, featuring a modular and portable configuration for post-stroke gait training either in a clinical environment or at home. A new compact series elastic actuator (SEA) has been designed for safe human-robot interactions. For an improved portability, the robotic mechanism is optimized for the walking biomechanics and the mechanical construction has been built using light-weight materials.

The authors have performed an analysis of human walking and starting from this, the design specifications of the robotic system have been delineated. The authors have used Clinical Gait Analysis (CGA) data for the design of the exoskeleton and actuators, collected from the CGA normative gait database. To determine the bio-mechanic features in terms of torque, joint angle and power of the knee flexion/extension and ankle dorsiflexion/plantarflexion, studies have been achieved using a healthy subject (70 kg, 0,9 m leg-length) walking at 1m/s.

Figure 17. Knee-foot-ankle robot a kinematic scheme
(Cheng, Qi, Guo, Yu, 2016)



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The authors have added a certain number of sensors to monitor human kinematics, muscle activity, interaction forces and the force feedback, to control the actuator. The angles in the robotic joints have been determined using rotary potentiometers. The authors used joint angles as control input for the conventional impedance-based control strategy. The robotic device has integrated EMG (electromyography) amplifiers to record muscle activation patterns. EMG signals are used to evaluate human intention or to rate human effort during rehabilitation training.

Advantages: It is a wearable exoskeleton that is a lightweight system of about 3.5 kg.
Drawbacks: It can be used for low hemiparetic patients but can't help the rehabilitation of hip joint.

LLRR: A 3 DOF Lower Limb Rehabilitation Robot (Wu, J., Gao, J., Song, Li, Li, Jiang, 2016)

The LLRR is an exoskeleton with an adaptive robot sub-controller. The design of the exoskeleton includes three joints which can perform the motions of the following human joints: hip joint, knee joint as well as ankle joint. The robotic mechanism provides an adaptable exoskeleton (the length of linkages can be adjusted per the patient's limbs dimensions) and a bracket. The exoskeleton has three modules: thigh, calf and foot, where the length of the thigh and calf are adjustable. The robot is actuated using DC motors.

Advantages: Several parameters must be selected and set prior to starting the training program: the exoskeleton length should be adapted per patient's height; the training program parameters must be selected: the maximum intensity, the training time, the rehabilitation training trajectory and the training joints. The control model includes the kinematics, joint friction and actuator characteristics.
Advantages: The system can be used successfully in lower limb rehabilitation therapy involving all of the lower limb joints.
Drawbacks: It is a static system and it can't achieve the proper simulation of the human gait because the leg is suspended. The patient must be in a standing position therefore those who have serious health problems after a stroke can't use this system.

ROAD: Domestic Assistant and Rehabilitation Robot (Carrera, Moreno & Saltaren, 2011)

This study focuses on the development of a robotic system for the assistance and rehabilitation of patients in walking, balance and standing up activities. This robotic system is designed to interact with the user in the indoor environment both in hospitals or at home. The design is safety compliant, assuring the integrity and safety of the user and the surrounding elements. The robot device moves using tracks placed on the room ceiling see Figure 19, adding some advantages compared to other robots that move on the floor such as reduced risk of collision with the disabled person, better performance and balance support, better access to high places, no need of a navigation system for detecting objects on the floor, improved usage of the available space and adaptability to perform different tasks using different assembly tools placed on the robot.

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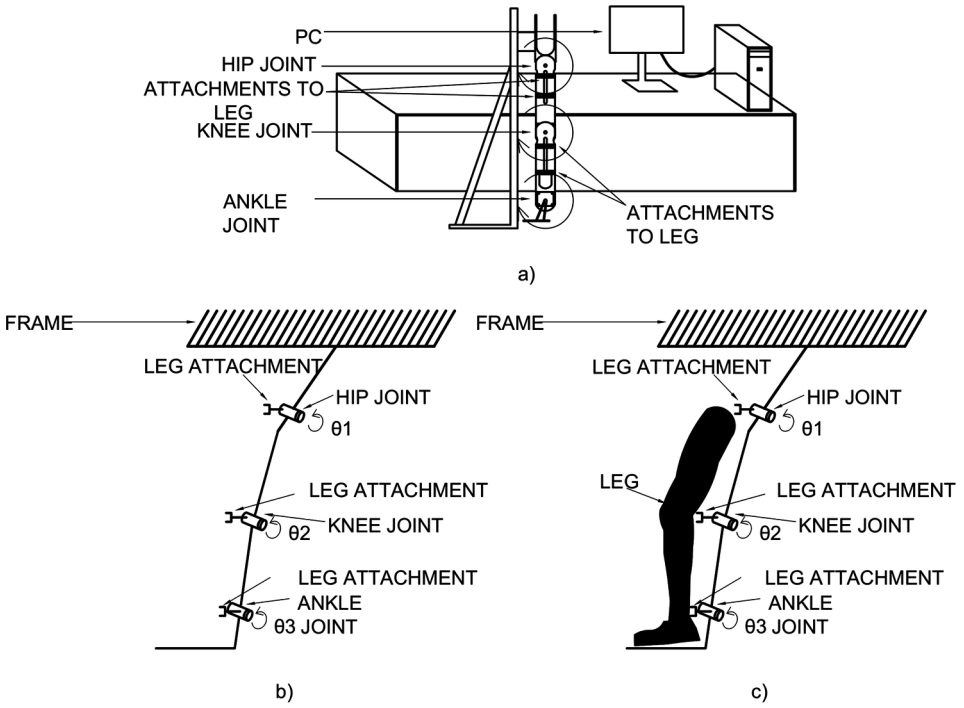
Figure 18. The design and control of a 3DOF lower limb rehabilitation robot prototype (Wu, J., Gao, J., Song, Li, Li, Jiang, 2016); a) a general scheme; b) a kinematic scheme; c) a kinematic scheme with leg attachment



Drawbacks: Because it is suspended on the celling the user's routes are established beforehand, so humans who used this type of robots could feel some kind of spatial restriction as they might feel surrounded, therefore the robotic system has limited mobility and workspace.

CALOWI: A Reconfigurable Cable-Based Parallel Manipulator as a Motion Aiding System (Ottaviano E., Ceccarelli M., Paone A., & Carbone G., 2005)

This study presents the CALOWI (Casino Wire Low-Cost Robot), a reconfigurable four-cable-based parallel manipulator developed as a guiding system for people that have motion disabilities.

The reconfigurability is the main idea behind the concept of this project, being able to achieve different tasks by simply modifying the position of the end-effector anchor points and by building two versions: the planar and the spatial version.

A model for the cable-based parallel manipulator and assisting application has been built. The overall robot dimensions are 2300×2700× 2300 mm, being modeled as a rigid body. The workspace of the robot is quite large, compared to its dimensions. The end-effector has also been modeled as a rigid body, having the overall dimensions: 300× 105 × 216 mm and weighing 3 kg. The selected cable for the simulation is made of steel with a diameter of 2 mm, a Young's modulus of 200 GPa, a breaking load of 3300 N and a mass of 0.02 kg/m.

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Figure 19. ROAD: domestic assistant and rehabilitation robot prototype (Carrera, Moreno & Saltaren, 2011); a) a general scheme; b) a kinematic scheme; c) a kinematic with human attachment

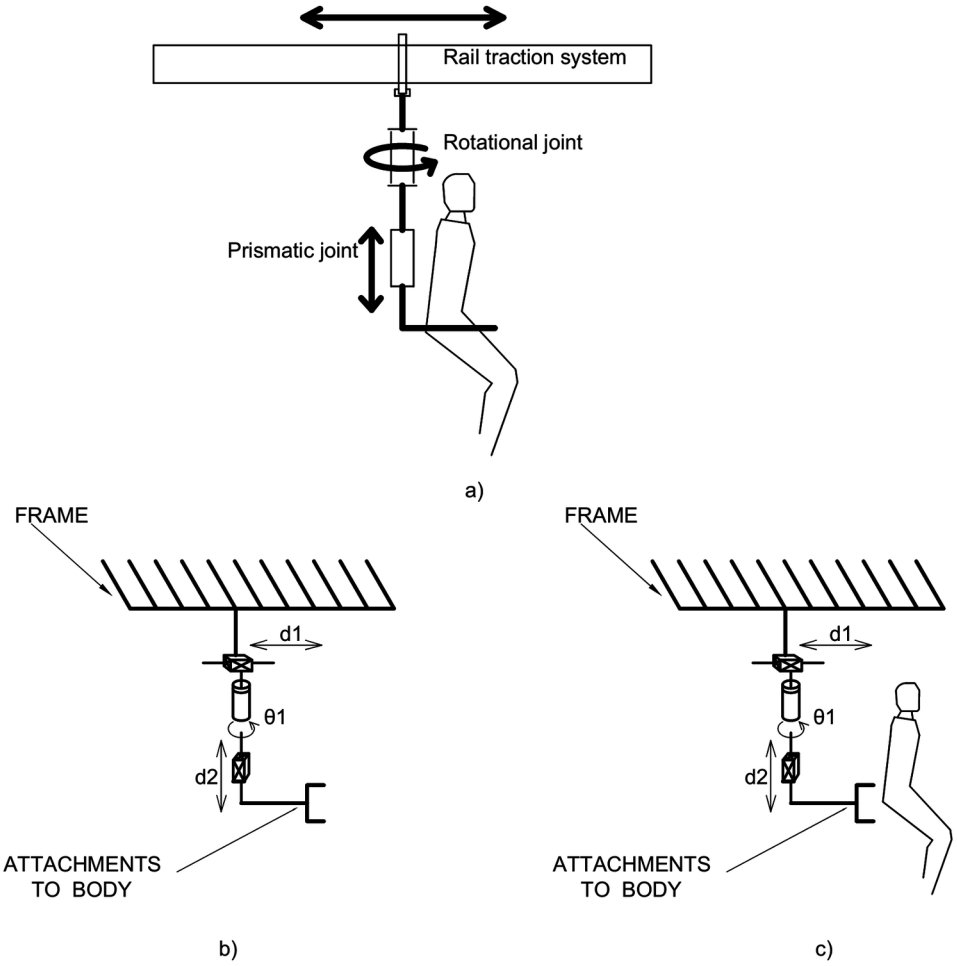
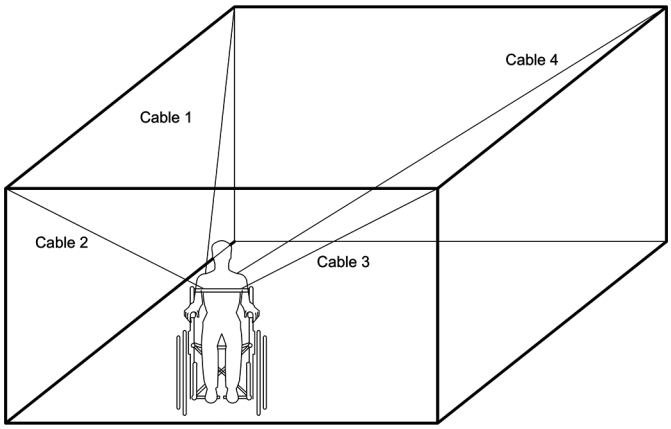


Figure 20. The CALOWI prototype
(Ottaviano E., Ceccarelli M., Paone A., & Carbone G., 2005)



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The human-robot mechanical interface is achieved by using a sling attached to the upper torso of the patient, while four cables connect the sling to the fixed frame of the manipulator, as shown in Figure 20.

Advantages: It can be easy reconfigurable, it is able to do a variety of tasks by changing the position of the end-effector. It is not a complicated solution and also, the costs can't be high. It has a large workspace.
Drawbacks: This system needs a large space to be installed.

Hand

A Rehabilitation Device to Improve the Hand Grasp Function of Stroke Patients using a Patient-Driven Approach (Park, Jeong, Kwon, Kim, Y., H., Kim, L., 2013)

This device was developed to achieve the rehabilitation of stroke patients with the aim of recovering their hand grasp function in order to undertake activities of daily living (ADL). The device has a control unit, two small actuators, an infrared sensor, and pressure sensor in the grasp handle.

The presented system is comprised of a control unit, two actuators, an infrared (IR) sensor, and pressure sensor in the grasping handle. The actuators are LSA-3024SM by PoteNit. The stroke length is 24 mm and the maximum force is 30 N. These actuators assist the grasping (closing the hand) in both passive and patient-driven models.

In the passive training mode, the presented device drives the grasping movement for patients who do not have voluntary hand and finger movements. At this time, the patient's hand must be fixed to the grasping device, thus, a fixing bandage strap is included. The active training mode is utilized when the presented device does not need to assist the patient's motion. Stroke patients who suffer from light after-effects and are close to being recovered can train the grasping motions in this mode. The patient-driven (active-assistive) mode can be utilized using the movement intention of patients with minimal voluntary hand and finger movements. When a patient tries to move the handle for grasp training, the device detects the patient's attempt by way of pressure sensors that are positioned between the patient's hand and the handle.

Advantages: The device improves hand grasping, it can be used in passive training mode and in patient-driven mode. The device helps patients that do not have voluntary hand and finger movements. It has a small size, it is inexpensive, and available for use at home without specialist's supervision.
Drawbacks: the system needs to be improved to offer a higher level of comfort to patients.

A Soft Exoskeleton for Hand and Rehabilitation Application using Pneumatic Actuators with Variable Stiffness (Yap, Lim, Nasrallah, 2015)

The design implicates a soft wearable exoskeleton that is composed of a glove embedded with pneumatic actuators of variable stiffness for hand assistive and rehabilitation application. This device is light weight therefore it is easy to wear due to the usage of soft pneumatic actuators. The wearable robotic device is described by the authors as a soft wearable robotic device for assistive and rehabilitative exercises by providing customizable motion.

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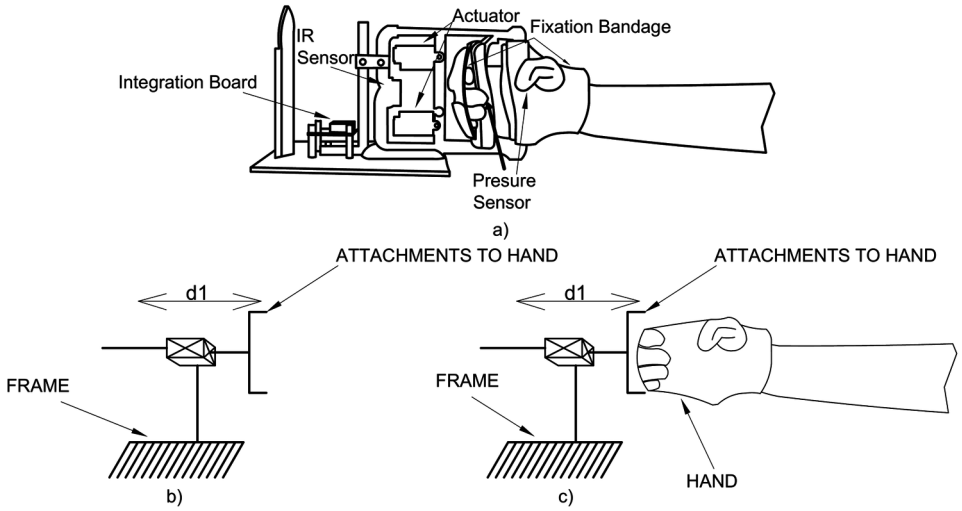
Figure 21. A Rehabilitation Device to Improve the Hand Grasp Function of Stroke Patients using a Patient-Driven Approach. The Prototype. (Park, Jeong, Kwon, Kim, Y., H., Kim, L., 2013); a) a general scheme; b) a kinematic scheme; c) a kinematic scheme with hand attachment



In the study, an actuator with variable stiffness is utilized, thus enabling the stiffness of the actuator to be adapted at different locations, according to the dimensions of the patient's fingers. The actuator concentrates most of the torque at the joints avoiding to bend the links. Moreover, the stiffness of the actuator can be adjusted based on different physiotherapy rehabilitation exercises required such as full fist, straight fist, hook fist and table top. The actuators with variable stiffness are made by using a two –part mold that was made on a 3D printer. The lower-part mold (channel mold) is used to make pneumatic channels into the actuator, which will inflate upon pressurization, and the upper-part mold (feature mold) is used to impose variable stiffness at different locations of the actuator, which decide the bending profile of the actuator.

The general construction of the device is in the form of a glove that has soft actuators with variable stiffness attached on the dorsal side. The ExoGlove prototype was constructed by attaching a total of five actuators on the glove. The glove is glued with five Velcro straps, as well as the bottom part of the actuators. Therefore, the actuators can achieve DON and DOFF motions when required. The total weight of the prototype is approximately 200g.Once the actuators are attached on the glove, the connector tubing is plugged in and connected to the air source.

Advantages: It is a lightweight glove 200g, allows fingers to reach all necessary DOF by using pneumatic actuators with variable stiffness in different locations. It helps the human hand to perform motions like grasping and pinching.

Drawbacks: The device is too customizable, a single set of actuators is able to support only one type of exercises therefore, to reproduce a different type of exercise it is necessary to change the actuators, this could take a pretty long time.

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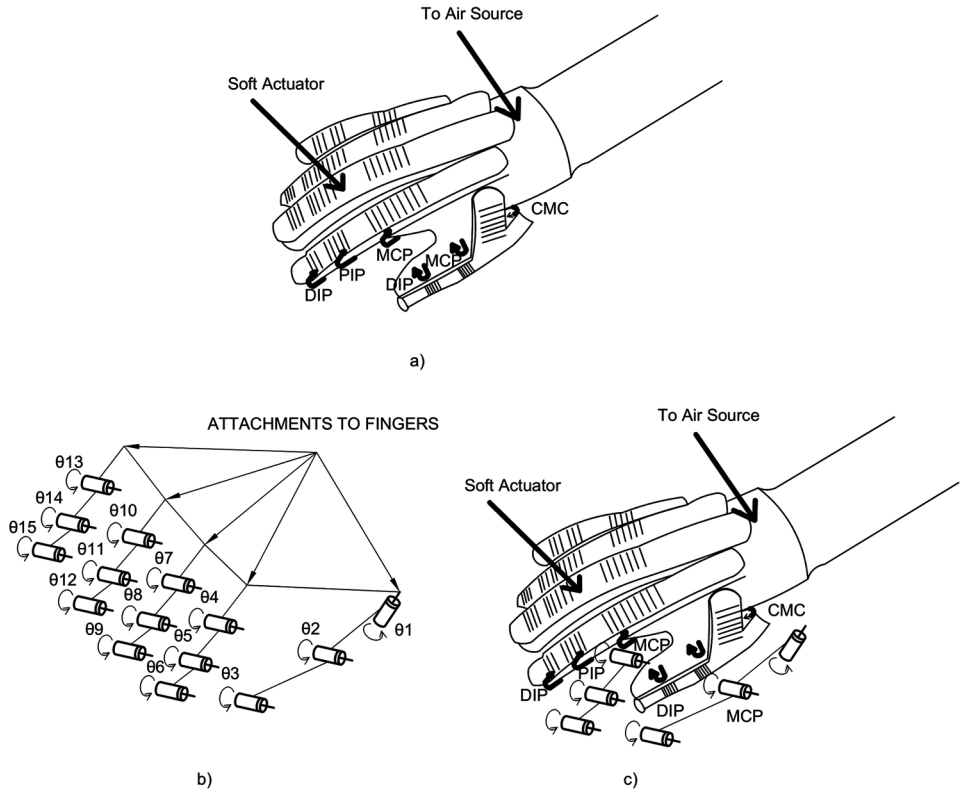
Figure 22. A Soft Exoskeleton for Hand and Rehabilitation Application using Pneumatic Actuators with Variable Stiffness prototype (Yap, Lim, Nasrallah, 2015); a) a general scheme; b) a kinematic scheme; a kinematic scheme with hand attachment



The Design of Fine Motion Assistance Equipment for a Hand Oriented Robotic Rehabilitation System (Ito, Kawasaki, Ishigure, Natsume, Nishimoto, 2011)

This study presents hand rehabilitation equipment and the control system for operating it. A prototype of the hand rehabilitation equipment has been designed, which is able to achieve a total of 18 DOFs of motion, 3 DOFs for help each finger, 4 DOFs for assisting the thumb, and 2 DOFs for the wrist.

The motion assistance equipment that was developed is composed from three parts: mechanisms for the fingers and thumb, a mobile base of mechanism for the aforementioned, and a mechanism for the wrist. Two types of mechanisms are developed, for the four fingers and the thumb. Two closed link structures are established when the finger mounts the equipment. In the first test model of this equipment, the two closed link structures collided each other, which limited the motion of the link. The equipment presented in this study has been developed to solve this problem. The kinematic relation in the closed link structure allows authors to calculate the MP/PIP joint angles according to the active joint angles detected from the built-in rotary encoder, and vice versa.

A self-motion control strategy is adopted in which the impaired hand is controlled by commands from the healthy hand, so in this way bilateral symmetrical motions are realized. Regarding the motion of the unimpaired side, the angular displacements of the finger joints are observed using a data glove.

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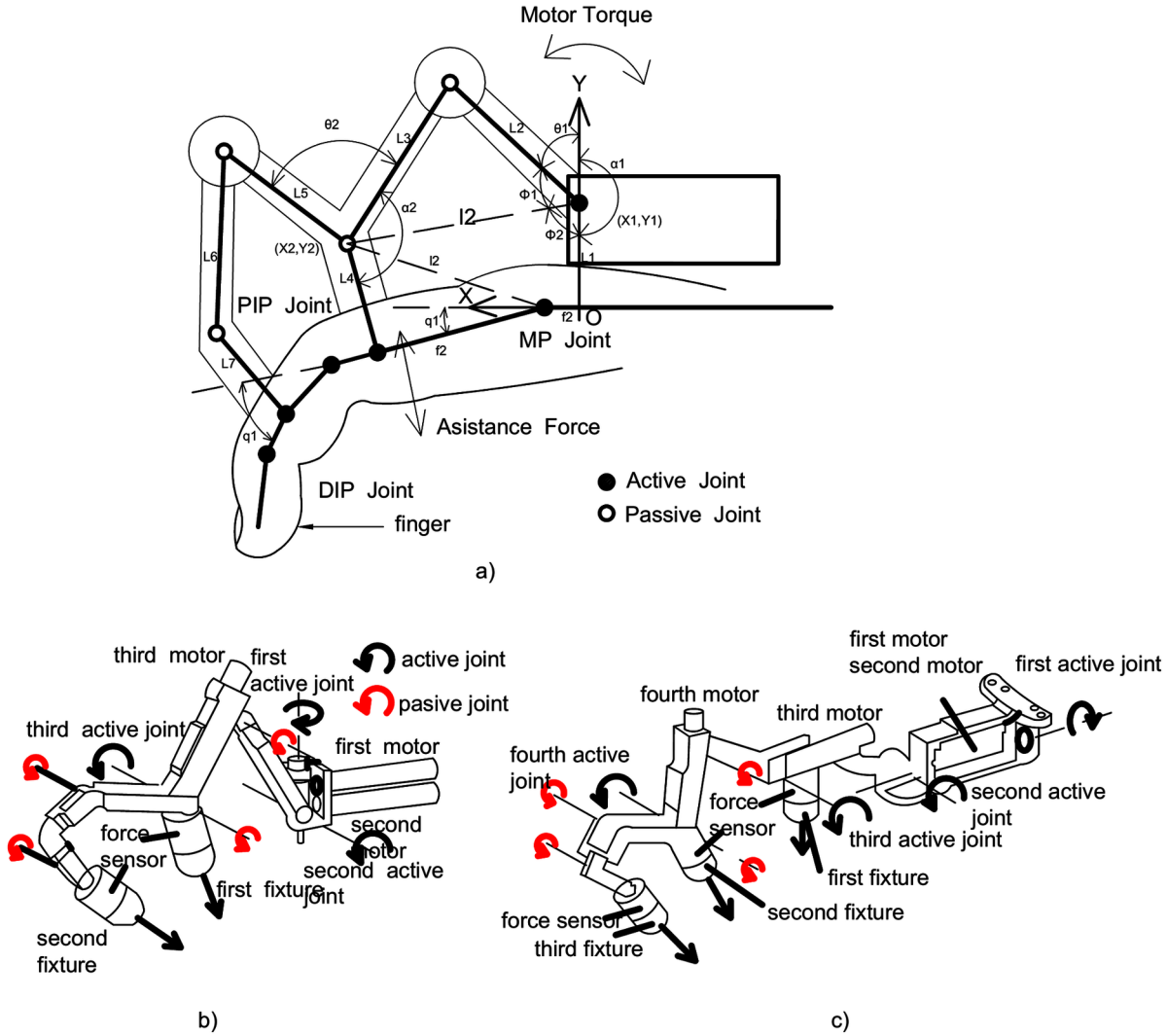
Information that is coming from the unaffected hand's stance is also displayed for the disabled user using computer graphics, which allows the user to visually identify the hand's state of motion. Based on inverse kinematics, the reference angles for the active articulations of each movement assistance mechanisms are computed so that the impaired hand takes the same stance as the unimpaired one. These reference angles are sent to the controller of the motion assistance equipment through TCP/IP communication. To do the above tasks the authors used a personal computer operated by a Windows operating system.

Advantages: The robotic device covers 18 DOFs
Drawbacks: Being a prototype concept the authors will have carry out improvements based on experimental results.

Figure 23. A design of fine motion assist equipment for disabled hand in robotic rehabilitation system (Ito, Kawasaki, Ishigure, Natsume, Nishimoto, 2011) a) a kinematic scheme; b) a scheme of mechanism for fingers; c) a scheme of mechanism for thumb



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CRITICAL DISCUSSIONS

In order to assess the current progress in robotic rehabilitation and to define some general directions which would enhance the impact of robotic devices in post-stroke rehabilitation, reference is made to a number of review studies which focus on multiple studies which evaluated the efficiency of the systems that reached maturity thus enabling patient testing. Thus, the major conclusions can be summarized in the following guidelines:

- There exists no preferred physical therapy or "more efficient" set of exercises, the selection of the proper rehabilitation plan depends on the physical therapist and the patient progress (Proietti, T., et al., 2016);
- Most available robotic devices focus on patient rehabilitation in the post-acute and chronic phase, emphasizing the need of more devices capable to accommodate the special requirements of the acute phase of post-stroke patients (Yadav, R.K., et al., 2016);
- The preferred modalities for rehabilitation exercises used in robotic devices are: active, active-assisted, passive and resistive control, which based on the existing definitions are the simpler human-robot interaction strategies (Vaida, et al., 2017);
- Unfortunately, some results point out that the progress registered by robotic devices based on consecutive patient assessments using classical scoring methods have no positive influence in the ADL (Yoo, et al., 2015);
- The limited transfer of the motor gains into ADL capability improvement is considered to be caused by the non-uniform distribution of the exercises on the different limb areas, even though medical studies proved that distal to proximal combined training is essential for efficient functional progress; (Proietti, T., et al., 2016);
- The exclusive use of repetitive exercises hinders the patient progress due to a lack of physiological implication of the patient in the rehabilitation activities which would stimulate also cognitive and neuronal progress (Vaida, et al., 2017);
- There must be an increase in the human robot interaction process with the time interval from the stroke as it was shown that in acute phase simple exercises are efficient but later on, the best results are obtained through more complex strategies with motivational elements (Abdollahi F., et al, 2014);
- In the context of independent living and the use of such devices in multiple environments safely, ease-of-use and tele-monitoring are elements that the new devices must integrate.

From the social and economic point of view it has to be underlined that the developing economies face a larger number of stroke patients. As some of the social conditions leading to this situation cannot be solved, proper medical care has to be provided also for this population segment. Thus, the future robotic rehabilitation devices must not only provide efficient therapeutic options but must be cost – efficient, sustainable by average healthcare systems and user-friendly, a concept that must be seen beyond its classical definition, providing:

- The definition of standards in robotic rehabilitation, dedicated for this particular field – as an observation, such a standard is in work with the International Organization for Standardization,

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under the code IEC/CD 80601-2-78, with the latest reported development stage 30.20 (Committee Draft Study);

- The definition of comprehensive medical protocols adapted for robotic assisted rehabilitation (Vaida, et al., 2017);
- Adaptable devices which can cover different anthropometric patient parameters making a system suitable for multiple patients (Vaida, et al., 2017);
- The use of modular concepts where the robot can be easily adapted to certain needs;
- The integration of efficient but simple sensory systems that create efficient progress monitoring solutions allowing fast patient oriented exercise optimization (Proietti, T., et al., 2016);
- The implementation of multiple HRI concepts dependent on the patient degree of disability and applications that motivate the patient in multiple ways;
- Dedicated protocols for hospital, day care centers and own environment use;
- Safety functions which prevent unwanted injuries upon the affected limbs that can be configured during the periodic patient evaluation;
- The user-interface must be effective for both the patient, stimulating more than the physical motor gains and the physical therapist that can safely and quickly adapt the therapy plan for maximum patient progress;
- A cost oriented design approach should be followed to guarantee affordable solutions also for home use as proposed for example in (Cafolla & Carbone 2014; Carbone et al. 2017).

Note: It is to note that it is still an open research issue to identify proper requirements and protocols for rehabilitation robots. Accordingly, literature shows a wide range and variety of rehabilitation robots. They can provide quite different features and characteristics while their use and real application still requires investigation to transfer them from laboratories to real end-users.

The above-mentioned aspects have been highlighted in the comparison Tables 2, 3, and 4 as well as they have led to the development of some novel concepts for rehabilitation devices where the main focus has been focused at upper limbs. Further concepts are under investigation for lower limbs and hands.

NEW DEVICES FOR THE REHABILITATION OF THE UPPER LIMB

An Exoskeleton-Based Rehabilitation Robot for Elbow and Wrist

Based on the results presented in (Major, K., et. al., 2016), the following motions were selected to be implemented in the rehabilitation process (Figure 24):

- **Elbow**: Flexion/extension and pronation/supination;
- **Wrist**: Adduction/abduction and the flexion/extension.

For each motion two contact areas (anchor points) will be used, one acting as the motion generator (the active anchor point – represented with dotted line in the figure) and one acting as joint stabilizer and motion isolator (the passive anchor point – represented with continuous line in the Figure 24).

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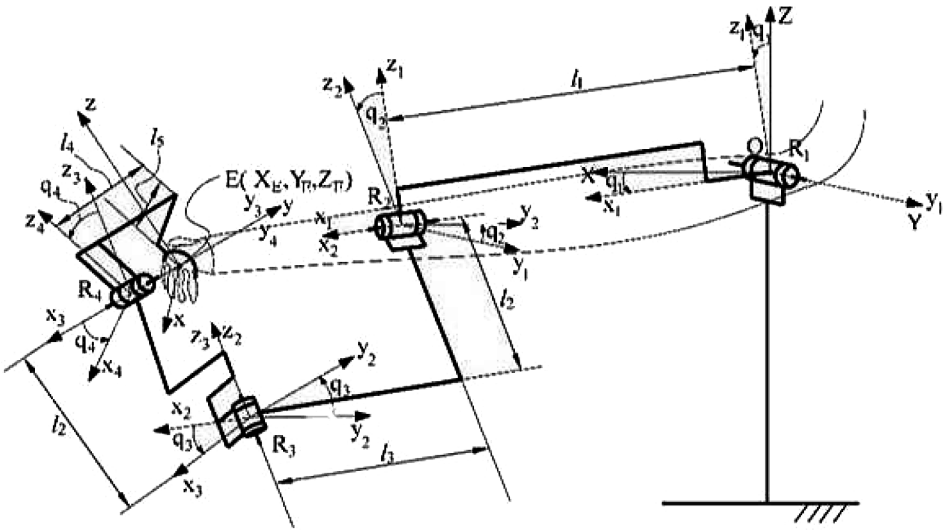
Figure 24. Shows motion anchor for elbow and wrist mobilization: a) flexion/extension; b) pronation/ supination; c) wrist flexion/extension; d) adduction/abduction
(Major et al., 2016)

For the achievement of the defined motions the ReExRob robotic device is proposed as a 4R robot having an anthropometric structure integrating only rotational joints. The kinematic scheme of ReExRob, presented in Figure 25. illustrates the 4 active joints q_i, i=1…4 and the links that l_i, i=1…5 connect them. Through efficient and modular design, the robot can be constructed with adjustable link lengths making it suitable for different anthropometric patient data.

Figure 25. ReExRob robotic system kinematic scheme for elbow and wrist mobilization
(Plitea et al., 2017)



The initial design of the ReExRob robot is illustrated in Figure 26. The main components are: the fixing elements, the three anchors: passive one and the active anchors (2 – for supination/pronation and 3 for the wrist motions). The flexion/extension of the elbow is actuated by Motor 1, the pronation /supination is designed using a spur gear mechanism actuated by Motor 2, while Motor 3 and Motor 4 achieve the motions for the wrist.

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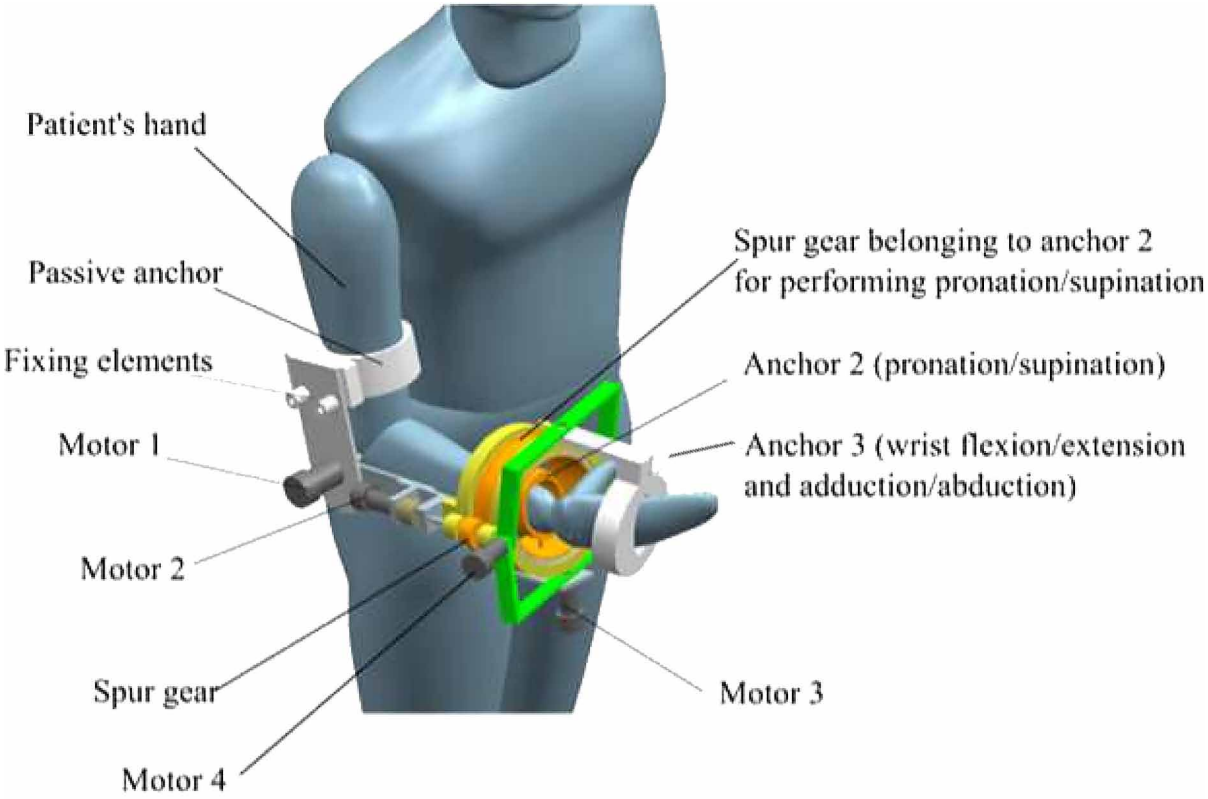
Figure 26. ReExRob robotic system scheme for elbow and wrist mobilization
(Plitea et al., 2017a)



An Innovative Spherical Parallel Robot for Shoulder Rehabilitation

Moving to the proximal joint of the upper limb, the shoulder, the motions of interest are flexion/extension and abduction/adduction which, with respect to the shoulder joint, can be simply described as motions performed either in a horizontal plane or a vertical plane. Analyzing the motion from the shoulder joint point of view the two elementary motions describe arcs with a common rotation center, in the joint itself. Thus, one simple mechanism that can replicate easily these two motions is a spherical robot (ASPIRE), whose kinematic scheme is illustrated in Figure 27.

The advantages of this spherical mechanism are the simple concept, wide range of motions, modular design allows the possibility to attach new modules. Due to its structure, the mechanism allows a generalized motion on the sphere which extends its generality degree allowing the definition of multiple exercises with large amplitudes working in a virtually unconstrained volume. One possible drawback could be considered the larger volume the structure occupies, but due to its design the mechanism itself does not hinder in any way the motions of the arm. A concept design of the mechanism is illustrated in Figure 28. (Plitea et al., 2017b)

Based of robotic rehabilitation systems presented above a comparison table (Table 2) is added to clearly see the main aspects of robotic systems analyzed in this chapter.

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Figure 27. Kinematic scheme of the spherical mechanism for shoulder rehabilitation
(Plitea et al., 2017b)

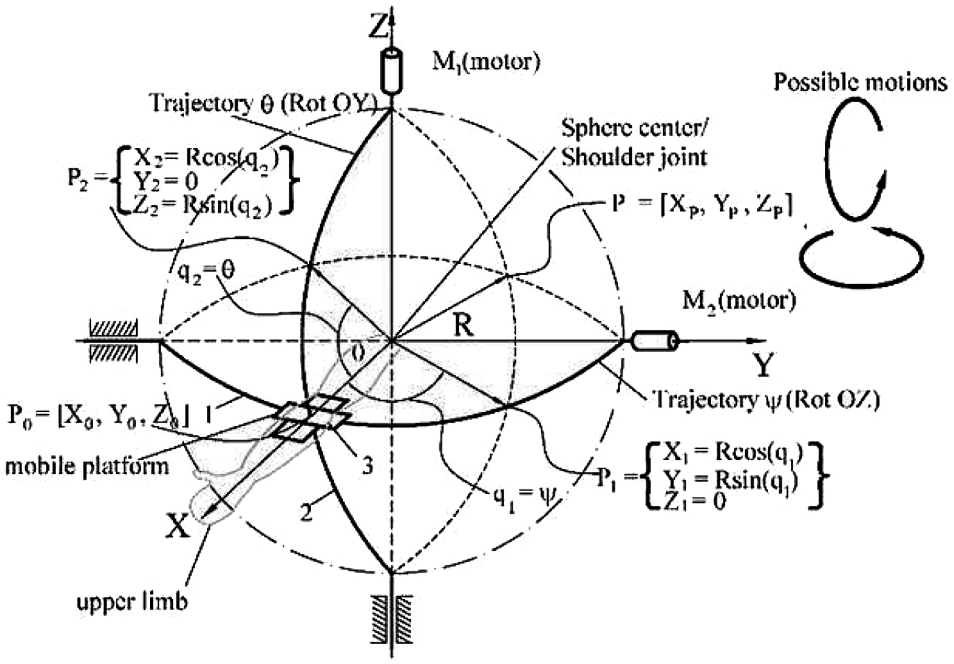

Figure 28. CAD model of the Aspire structure
(Plitea et al., 2017b)

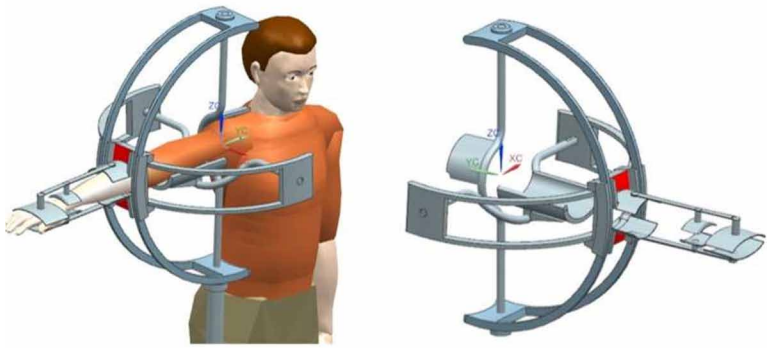

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Table 2. Comparison of robotic rehabilitation systems for upper limbs

No.	Name	DOF	Actuation System	Evol. Stage	Advantages	Drawbacks	Source
1	InMotionArm	2DOF	DC brushless motors	commercial system	-improve patient's range of motion, eye hand coordination, easy to use -it can be accessed direct from wheelchair	being a planar robot device, it allows the human limb to achieve motions in a limited three-dimensional space.	(Duret et al., 2015)
2	Bi-Manu-Track	2DOF	servo motors	commercial system	-easy to use -low cost -permits bilateral exercises	because of the healthy limb's involvement, the projections to the paretic muscle can be affected.	(van Delden, et al., 2012)
3	ArmeoPower	6DOF	DC motors	commercial system	-allow patients to get early treatment of motor disabilities; enable patients to perform repetitive, intensive, and goal oriented exercises.	-high price about 250.000 euros	(HWP, 2016)
4	ArmeoSpring	5DOF	passive (springs)	commercial system	-permits to customize patient's therapy; - feedback exercises to train core movement patterns that are used in activities of daily living	-can't be used for patients with severe hemiparesis	(HWP, 2016)
5	BONES	4DOF	Pneumatic	prototype	-allows naturalistic motion of upper limb using mechanically grounded, direct drive actuators at the shoulder.	-It is not wearable and can be used only in clinics not for ADL	(Klein et al., 2008)
6	Rocker (APBT)	1DOF	DC motors	prototype	-helps patients to improve wrist flexion/extension - mirror symmetrical coordination	-it allows only planar flexion/extension of wrist	(Stinear & Byblow, 2004)
7	SCMRSR (SelfCon.Master-Slave Robot)	1DOF	DC motors	prototype	- provides bilateral arm coordinated training for patients which suffered unilateral paralysis.	- it performs only flexion/extension of elbow.	(Rashedi et al., 2009)
8	SUE (Supinator Extender)	2DOF	Pneumatic	prototype	-lightweight (0.56 kg) - performs forearm supination/pronation and wrist flexion/extension	- non-linear forces induced by the pneumatic cylinders a complex control is necessary.	(Allington et al., 2011)
9	ReExRob	4DOF	servo motors	concept	-efficient and modular design -due to its adjustable link lengths, it is suitable for different anthropometric patient data.	-being a concept, the must be improved to meet a proper pHRI (physical human-robot interaction)	(Major et. al., 2016)
10	ASPIRE	2DOF	servo motors	concept	-simple concept; wide range of motions; modular design allows to attach new modules	-it occupies a large volume	(Plitea et al., 2017b)

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Table 3. Comparison of robotic rehabilitation systems for lower limbs

1	G-EO-System	3DOF	electric motors	commercial system	-easy for patients to use - G-EO system can simulate walking on level ground and stairs climbing, quick setup and easy patient handling.	- No virtual reality interactive training module.	(Hesse et al., 2010)
2	HAL-5	2DOF	DC motors	commercial system	-It is wearable and portable device that confers to patient a good help in rehabilitation gait training.	-it has limited torque -is heavy and can't be used by paralyzed patients.	(Sankay, 2007)
3	AlterG Bionic Leg	1DOF	NXT motors	commercial system	lightweight wearable device which assist person with impaired leg, helps patients to place the body weight on healthy leg.	- battery life gives limited uses per day	(Li et al., 2015)
4	Physioterabot	3DOF	DC motors	prototype	-it can reach the range of motion of human limb as in Table 1; -can be adaptive for different weight of patients up to 100kg.	-it doesn't perform rehabilitation exercises for ankle.	(Akdogan & Mehmet, 2011)
5	Knee-ankle-foot robot	2DOF	SEA (series elastic actuator)	prototype	-lightweight wearable exoskeleton around 3.5 kg.	-it can be used for low hemi paretic patients -can't help rehabilitation joint.	(Cheng et al., 2016)
6	LLRR	3DOF	DC motors	prototype	- the system can be used successfully in lower limb rehabilitation therapy involving whole lower limb joints.	-static system, leg is suspended -the patient with serious health problems after stroke can't use it	(Wu et al., 2016)
7	ROAD	3DOF	electric motors	concept	- less risk of collision with the disabled person; good support for balance; no need of a navigation system for detecting objects on the floor; improved usage of the available space	- some limitations to the patient mobility, access to the surrounding environment is limited; users could feel some kind of spatial restriction.	(Carrera et al., 2011)
8	CALOWI (Cassino Low-Cost wire driven)	4DOF		concept	easy reconfigurable; -it is able to do a variety of tasks by changing the end-effector position; large workspace; low-cost; suitable also for upper limbs	-the system needs a large space, to be installed.	(Ottaviano, et al. 2005)

Table 4. Comparison of robotic rehabilitation systems for hands

1	AMADEO Hand-Therapy System	5DOF	DC motors	commercial system	- covers the human hand fingers workspace - performs an intensive training having a high frequency of gripping movements - even for patients with severe hemiparesis.	- it is a fixed system it is not wearable	(Sale et al., 2012)
2	YouGrabber	3DOF	bending sensors	commercial system	-it allows bilateral training aside from unliteral; the device can be adjusted based on patient's current abilities; the training software can be used on an ordinary PC at home or in a clinic.	-it is designed to move only 3 fingers.	(Shuster-Amft et al., 2014)
3	CyberGrasp	5DOF	stepper motors	commercial system	-as it is a cable driven system, the robot can maintain a continuous force of 12N per finger -it can be used in different domains such as haptic rehabilitation and training of visual impaired.	- a limited workspace -high price around 34000 euros -it is not lightweight (around 454 grams) for using the system for a prolonged period of time.	(CGSWP., 2014)
4	Rehabilitation Device to Improve the Hand Grasp Function of Stroke Patients	1DOF	linear servo actuator	prototype	-improves hand grasping; it can be used in passive training mode and also in patient-driven mode; helps patients that do not have voluntary hand and finger movements; it has a small size and it is inexpensive; it is available to be used at home	-the system needs to be improved to offer a higher level of comfort to patients.	(Park et al., 2013)
5	Soft Exoskeleton for Hand and Rehabilitation Application	15DOF	pneumatic actuators	prototype	-Lightweight glove 200g -allows fingers to reach all necessary DOF by using pneumatic actuators with variable stiffness in different locations. -it helps humans to perform motions like grasping and pinching.	- too many customizations; each actuator type is able to support only one type of exercises; long set up time for actuators changes.	(Yap et al., 2015)
6	Fine motion assist equipment for disabled hand	18DOF	servo motors	prototype	-the robotic devices cover 18 DOF's	-being a prototype concept, the authors will have to make improvements based on experimental results.	(Ito et al., 2011)

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CONCLUSION

The general conclusion with results from the data presented in this chapter emphasis a big gap between the actual demands in rehabilitation and the available solutions, a gap which extends with time due to the ageing of the population. The current prognosis in world population evolution estimates that in 15 years the available number of caregivers will not be able to satisfy the population need in rehabilitation thus imposing a paradigm shift in the therapeutic approaches, where the physical therapist will become the planner and decision maker for the personalized assistance provided for a patient through dedicated robotic devices, supervising, monitoring and adjusting the therapeutic parameters. These conditions raise not just the opportunity but the necessity to act fast towards the development of new rehabilitation solutions, in an economically feasible environment capable of supporting stroke patients in each stage of rehabilitation starting from the acute post-stroke phase which takes place in hospitals, followed by longer stages which can take place in day care centre and home environment. The existing commercial solutions demonstrate that robotic rehabilitation is very promising and can be used for the rehabilitation of multiple disabilities caused by stroke. The results obtained during their first trials define for the entire community the current limitations and areas that have to be enhanced in parallel with the setup of a first set of standards in robotic rehabilitation. The first clinical trials point out the need for the development of HRI strategies that will integrate the patient within the robot control system as an active component to increase the collaboration between man and machine. This will enable an enhanced rehabilitation treatment with focus on multiple areas, cognitive, neural, motivational and physical, aiming to achieve a faster patient recovery improving, in the end, the life quality and contributing to the concept of independent living. The selection criteria have been based on the engineering significance of each solution. A classification has been made based on the limb which can be treated as well as on the availability of either just a concept/laboratory solution or a commercial product.

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Chapter 23
A Case Study of MY Psychology: Malaysia's First Online Psychoeducational Platform

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ABSTRACT

MY Psychology is an online educational platform currently based in Malaysia, formed with the intention to spread awareness towards the general public of not only on issues related with mental health and those who suffer under mental illnesses, but also to create a place where psychology as a basic knowledge can be taught and learned. This is in order to correct misunderstandings from the public toward psychology. Operating on the internet requires the company to shift towards a marketing-oriented direction, in the meantime, coping with internal and external challenges in order to strive for greater reach and engagement from the audience.

BACKGROUND HISTORY OF MY PSYCHOLOGY'S FORMATION

A statement made by the Malaysian Psychiatric Association (2013), detailed the shocking rise of mental health problems in children below the age of 15, as the group rose from 13% of the population in the year 1996 to 20% of the population in 2012. Add to that, the recent report made by The Star Online (2017) from a statement by resident consultant psychiatrist in the International Medical University, Dr. Philip George, claiming that the actual numbers of people who had mental health problems might be underreported, maybe due to the stigma often attached to such conditions and the topic in general. As such, a non-conservative estimation of the mentally-ill population would be around 40% of Malaysians (The Star Online, 2017).

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To further elaborate upon the role that stigma poses against the advancement of the mental health field in Malaysia, stigma towards mental illness and psychology in general are mostly a result of misunderstandings towards the foundations of the field and of the nature of mental illness in itself. Coupled with a lack of knowledge in the subject matter, this causes such a fear to become widespread not only in real life but also in the virtual realm (online and offline). The deficiency in Malaysia when it comes to the availability of mental health practitioners, according to a recent report made in the NST, stands at 1 psychiatrist for every 200,000 of the total population – much lower than the expected ratio set and recommended by WHO: 1;10,000 (Landau, 2017). The report by the World Health Organization (2011) stated that the mental health expenditures from the local government is only a meagre 0.39% in the total budget allocated to health, and that further expenditures towards mental health hospitals are not even available.

This deficiency, coupled with the fact that mental health problems will be on the rise for the foreseeable future as stress levels in a developing country will potentially be one of the most important risk factors for the population, will inevitably demand a higher level of awareness and knowledge regarding mental health in the general public. So what we have now is a vast range of barriers, from perceived stigma towards the mentally afflicted (Clement et al., 2015), a general uncertainty towards clinical effectiveness among the practitioners themselves (Morriss, 2008), economic issues, and finally a deficiency in trained personnel (Berry & Haddock, 2008), all these varying factors result in a reluctance from those who are currently afflicted with one mental health issue or another that can vastly benefit from psychological interventions are now either unwilling to reach out for help, or are unable to do so from the sheer fact of a lack in sources of help.

One of our main goals in establishing MY Psychology as an online platform is to provide a form of countermeasure towards this issue. Our goal is to provide an outlet of information for general knowledge on common psychological topics, and currently progressing towards the dismantling of stigmatization of mental illness through making interventions and information regarding these interventions available and accessible to the audience. It has been shown by Trefflich, Kalckreuth, Mergl, and Rummel-Kluge (2015) that the levels of internet use in those who are afflicted with mental health issues, including those with severe mental health problems (SMIs), are the same as the general population.

Of course, when MY Psychology was originally formed, we didn't have such lofty aspirations, as our original aim was to provide psychological information towards the general public in digestible and accessible formats. These included, educational videos explaining a psychological concept while incorporating comedy skits, or articles ranging from book and movie reviews, to pieces that highlight a single psychological phenomenon. Our approach gradually shifted since our five-year inception from being a pure content creator to incorporating elements of an online educational platform to better suit the goal that developed further down the line. We aimed to not only provide educational insight into the workings of the psychology field and the mental health faction, but also to dispel psychological misconceptions, as well as to raise awareness towards the predicament of the mentally ill. We are not alone in trying to establish ourselves as online providers of psychological and mental health information in Malaysia as well as abroad, as we have also linked up with multiple similar platforms based in the Canada, Taiwan, as well as the Philippines. But this is still a relatively new path for a field that is previously so grounded in the practice of helping through direct contact, and there are still challenges still ahead of us.

In short, MY Psychology, the first Psychology Educational Platform in Malaysia, operating on the belief that psychological information, including discussions regarding mental health issues, shouldn't just be limited to those who are already in the field, and are only used for academic purposes, as we believe that the permeation and popularization of academic knowledge into everyday knowhow should

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also be of utmost importance. We believe that as psychology students as well as practitioners of the field, we bear the responsibility to provide psychoeducation to the community. With our motto: "Learn. Share. Apply", MY Psychology has been providing mental health information for online users through multiple approaches such as articles, comics and videos on social media platforms including Facebook and YouTube.

NATURE OF BUSINESS

As a company that originally started from the simple idea of being a hub for all psychologically related content that grew during the process into being one of the leaders in the field in Malaysia, we are what is known as a "startup company", and we commonly refer to ourselves as social entrepreneurs or as a social enterprise (Katila, Chen, & Piezunka, 2012). Seeing as the field of online educational platforms, specifically for psychology, is still a growing need that requires innovative approaches and products in order for it to grow (Katila et al., 2012), we see it as our role to generate this shift in moving psychology from the classroom to the layman on the street, so that psychology can become a common knowledge in the vein of oral healthcare, or nutritional healthcare.

Every member on the team has a different role in the company, though of course, since we are still trying to experiment with our approach towards content creation, our roles are often swapped, and overall every one of our current projects involved every single member and they often required a very hands-on approach to accomplish. We are also currently in the process of recruiting more volunteers, be it in the content creation department, or on the management front, so as to expand our scope of operation.

When it comes to the production of content, we have at the emergence of a wider audience and subscribers, developed an outline of two different formats of products that we will continue to provide through our platform in the near future, in order to fully utilize the strengths of the online platform as an outlet for producing and distributing educational products. They take the shape of a Toolkit vs. First-Aid Kit paradigm. Contents falling into the Toolkit category are more focused on conveying information of everyday psychological/sociological phenomena through an approachable manner. On the other hand. contents in the First-Aid Kit category will be dedicated to information on mental health in general, such as the diagnostic criteria and definition of different types of mental illnesses, and some of the methods used to relieve said illnesses, so that we can create an increase in awareness towards such a commonly stigmatized group of people, as well as the misunderstanding towards mental health and mental illnesses in general that is ingrained in the public.

Both sides of the paradigm are presented using a combination of mediums which include: infographic made from online and offline photo editing programs with a monthly change of themes, articles regularly being uploaded onto our personal web-pages as well as social media sites, or videos focusing on explaining some psychological phenomenon or comedy skits detailing everyday situations where knowledge of some basic psychology can come in handy. But one of our biggest aims that we hope to achieve is the elimination of the perception that psychology is a pseudoscience and to increase the awareness of the availability of help for those who faced mental health problems. One of our newest addition to our provided services is the Messenger Bot, which enables anyone with access to our Facebook page to directly inquire for help. In it are directories to our published content that is readily available on our website, as well as a growing list of contacts of mental institutes and healthcare centres in Malaysia, categorized according to each respective state. We are currently inviting more centres to join our efforts.

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CURRENT PROJECTS AND FUTURE PROSPECTS

In addition to expanding the database for the Messenger Bot to include more centres and mental health hospitals in Malaysia, we also plan to extend beyond Malaysia and taking our project into Southeast Asia, and then internationally, in the near future. This is of course a very long running project, and we are constantly upgrading the efficiency of our Messenger Bot, so that it would be able to respond to a wider array of questions, as well as provide faster and more accurate responses. On the content creation front, we have already semi-transitioned into a platform, and although the majority of the content we posted daily on to our website as well as our Facebook page is still produced by us, we have also opened the possibility of being part of our team via a registration page on our webpage, allowing users to write articles, and once filtered and approved by our editors, be able to publish it under our brand.

Currently, our newest product is the production of a video series comprising of short videos between one to three minute that attempt to provide a basic outline of either comparisons between differing concepts that lay people usually misunderstood (psychologists vs psychiatrists), or a simple introduction towards a complicated subject matter (i.e. legitimacy of LGBTQ). We plan to release these videos in seasonal formats, with each season taking on topics with a different nature (i.e. first season is comparisons, second season focusing on debating, etc.). This format of videos will be much easier to produce than our older videos, which involved complicated procedures of shooting on location, as well as the addition of skits. In the future, we aim to establish a stable production line for our videos, so that we can be able to produce these videos on a weekly basis.

The other project that we are currently involved in is the production of a monthly web magazines. Currently we have produced two such magazines, and we think that this is an interesting and beautiful way to present our articles as well as entertainment, such as quizzes or infographics, to our audience. Besides that, we would be able to provide more content towards our patrons on our Patreon page, providing them with a summary of each month's best articles. For this, we hope that we would be able to form a team of writers who will be directly responsible for the production of such a magazine.

CURRENT CHALLENGES

The challenges of establishing and running an online psychology educational platform ranged greatly, from internal maintenance of our motivation and company efficiency to external outreach in our attempts to reach our targeted audience and the market. This includes the concerns we have with regards to technological challenges, optimizing the outreach of our content with a limited budget, consistent content creation process as well as handling the new challenges of our messenger bot. These will be discussed accordingly in the following paragraphs.

Audience and Market Needs

The survival of an educational platform is closely related to whether it is serving the need and solving a problem faced by the community. In other words, it is about whether the existence of the platform itself is celebrated and welcomed by the community, or else the platform will just end up providing content with no response or engagement from the receiving end. To further elaborate upon this: multiple factors

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need to be considered, including mental health literacy and awareness among the community and the motivation behind help-seeking behaviors.

As noted before, stigma and discrimination are always recognized as one of the most significant barriers to mental health seeking behaviours as well as social inclusion of that particular individual (Corrigan & Wassel, 2008). The stigma towards mental illness is not only limited to the Western context, but also to the Asian context including Malaysia (Ng, 1997). The manifestation of the stigma in a Malaysian context not only brings adverse impact to various important aspects of the lives of the affected population, in terms of their wellbeing and their employment rates, it will also influence the perception of their families in seeing them as disabled and shameful besides avoiding the disclosure in order to protect the family from 'losing face' (Chang & Horrocks, 2006).

All these negative consequences stemming from stigmatization will limit available support given to the affected population. With this, an online psychology educational platform might have its place of being an alternative option in filling up the gap via providing accurate information about mental disorders and giving directions for getting the right help. To MY Psychology, our audiences can be broadly divided into two groups: the in-group and the out-group. In-group here is referred to psychology students, psychology graduates and professionals who are already familiar with the field, and this group will have a strong interest or even a career related to psychology. They have a higher tendency and motivation to know more about psychology and also to gather as much mental health information as possible. As such, they are easier audience to be targeted for our online psychology learning platform.

In contrast, the out-group refers to the general population, including those who have mental disorders who are 'outside' of the field or who has never heard about psychology except through popular myths such as psychology being "mind-reading" or "mind-control" tactics. This population may have lower awareness and are thus less likely to realize the importance of understanding about psychology and mental health. It is reasonable to anticipate a larger degree of difficulty in targeting and attracting them to learn psychology online. The efforts of generating interest amongst them, converting their online behaviour to click on psychology platforms and the latter phase of directing them to the right help is definitely way more challenging than the in-group.

As such, the approach of running an online psychology platform needs to be even more proactive in reaching out to the community. Based on our trial-and-errors, here are a few criteria that needed to be considered for content creators. First, the content itself needs to be educational in nature so that the audience can at least learn something from viewing the content such as knowing about the fact that "Depression is not just sadness". Second, the content needs to be entertaining because it has to provide a pleasurable learning experience for the audience. Third, the content has to be short and precise, also known as "bite-size content". Keep in mind that the targeted audiences are not professionals in the field which indicates that their initial passions and interests are less connected to the nature of the content, so explaining the content from its history to theories would be a redundant and unproductive effort. The content itself needs to be short, easy to understand and relatable to them so that the engagement level can be further elevated.

Current Technological Concerns

The challenges of connecting psychology and mental health information to the public are undoubtedly bounded within social media marketing methods and techniques. The most common online social media platform is Facebook. However, the trickiest part of posting content on Facebook is the number

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of followers on our page doesn't guarantee the exposure and audience outreach of published contents, meaning that not everyone in the 100k audience population will have received every single update of our newly published posts. In fact, the organic reach which is defined as "the number of people who saw your page posts not due to paid advertising" depends much more on the interaction of various factors including adherence to Facebook's algorithm, the peak period of the contents being posted, audiences' reactions towards the post or photos.

According to the Social@Ogily's report analysis of more than 100 brand pages of various products and industries, there was a concerning decline in average organic reach from 12.05% in October 2013 to 6.15% in February 2014 (Manson, 2014). The biggest decline was found in the month of December, during the period when Facebook's company revealed a major change in algorithm. Regardless of our respective Facebook page sizes and our number of followers, organic reach has shown persistent decline over time, indicating that gaining organic reach from audiences has become more and more difficult.

With that, paid advertising becomes another option to increase the exposure of published contents. Facebook fans will be able to see the content and circulate it on their own Facebook timelines if the content itself is interesting enough. According to Neisen (2012), having a friend's endorsement towards a published content can probably generate higher recall from the advertising campaign. Relating this back to the context of our platform MY Psychology, it is unavoidable that we have to employ both strategies: the organic reach and paid reach in order to increase and maintain the exposure of our contents. Paid advertising campaign has undoubtedly achieved its effectiveness by influencing audiences' online behaviour such as increasing buying behaviour on company's product (Comscore, 2012). However, with the limited budget and the lack of income from our platform, it makes the effort of targeting audiences even harder and a more detailed plan has to be structured out in advertising our contents.

Content Creation Process

With the evolution of Facebook into a platform which publishes and broadcasts contents for the community, the editorial model has become more prominent in publishing about recent news and events with the hope of gaining fan engagement (Malson, 2014). This informs the need of becoming more selective in publishing related contents to generate more engagement and discussion among the fan community. For instance, MY Psychology has adopted some recent news such as school bullying and stigma in job employment as a theme of discussion and also daily canvas pictures that deliver a more holistic approach in discussing about such matters.

This is also related to posting frequencies on our Facebook page, in which posting too little or too often will ultimately kill page engagement. Posting at two extremes is not encouraged and hence more careful choices and considerations have to be taken into consideration to publish quality content less frequently but comes with greater potential in good story-telling methods such as psychology short videos with catchy titles and illustrative themes of mental illness. There is no best method for all pages, but it depends on the data of the page. We have to study and analyze the data about users' engagement and reactions including likes, comments and share towards certain post at certain period of time informs the "do" and "don't" in planning and designing future posts. Relating back to the content of MY Psychology, we have found that our audiences are not fond of articles relating to psychological research but show more engagement when it comes to debunking popular myths, telling the differences between two confusing topics such as "Obsessive-Compulsive Disorder versus Perfectionism" and also funny videos related to Psychological concepts and myths.

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To run MY Psychology, basic knowledge about psychology and keeping ourselves updated to recent news are insufficient. The information of the fans in our Facebook page is very important because it allows us to identify their behavioural information including their motivation of liking and following our page, their reactions towards certain posts, their highest or last engagement with the content as well as their profile and our audience demographic information. Taking cultural background and language into account, these data can become the variables that serve as cues in informing the direction of our platform, whether the platform is publishing potential viral content such as psychology puns and jokes to generate the "wow" effect that attract audiences who jump on merely for similar contents or the platform is attracting a more people who truly want to know more about psychology. The key challenge that always remains on our platform is to publish content that speaks about the core values of MY Psychology and optimize the content outreach at its best among the community of different ethnicities and background.

To improve our targeting functionality, the analysis of the community on our platform along with Social Customer Relationship Management (CRM) is greatly needed to derive an effective communication model such as one-to-one or one-to-many with the audiences in order to narrow down the focus and customize their experience. For instance, we are serving various kinds of contents for our audiences such as publishing daily pictures of bite-size psychology information, monthly articles and psychology-related videos for audiences who are actively engaging with those contents. Also, we post questions such as asking for their opinions on certain topics of interest or even controversy, which can generate engaging discussions, while increasing more chances for audiences to interact with one another so that they can feel the uniqueness of the experience gained from our platform. Trial and error of posting contents in different layout and designs allows us to compare and contrast the effectiveness of the post. Being aware of the limitations allows us to harness the potential of future posts in deriving greater audiences' engagement and reactions.

Bot Creation and Business Connections

Facebook Messenger Bot is undoubtedly one of the most welcomed user features in the coming years as it has been shown that messaging apps have surprisingly surpassed the social networks (Ballve, 2015). The present efforts in integrating business model into the Facebook Messenger Bot is anticipated and the birth of Chatbot which is a software embedded in Messenger Bot with artificial intelligence that can communicate and establish highly personalized conversations with users is well celebrated because it establishes a firm digital presence and friendly approach to the users who are familiar with messaging apps.

Compared to the traditional strategy of utilizing email strategies and websites, the content delivered in Messenger Bot has higher read rates with up to 90% with greater user retention because the message received by users from the Chatbot generates a similar feeling as personal messages sent by their social circles through mobile devices and apps.

With the vision of increasing the mental health awareness against the mental health stigma whereby people are still reluctant to open up for help, Messenger Bot establishes a safer environment which allows users to communicate with the chatbot in a more personalized way, just like how they send and receive message with their friends without needing to post it online on personal Facebook timelines or in a Facebook group. Messenger Bot can also be seen as a way to overcome the algorithm in the social media especially Facebook page in which we don't have full control of the exposure of our published contents.

MY Psychology has soft-launched its bot platform in early July this year (2017) with the hope of being a directory in connecting the users to psychological help. By doing so, our team has extracted the

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contact details of the local government hospitals into the chatbot which allows the users to contact and check the available centres at their fingertips. We have also contacted private centers and community organizations that provide mental health services as an alternative to centres in government sectors for our users. With this, we hope to increase the act of getting mental help among the community and connect them to the right services at the right time.

The key challenges of executing the Chatbot are that the initial purpose is to connect users to the local mental health services in Malaysia. However, it isn't yet ready for use by those living in countries especially in the Southeast Asian region where mental health stigma is still prevalent and there is a lack of legislation bodies in regulating the services. The next goal of our team then is not only aiming to establish a more complete directory of mental health services in Malaysia, but also open a new door to international audiences so that they can have access to this service as well.

Sustainability and Future Direction

One of the key challenges which is consistently faced by MY Psychology is the company's long-term sustainability due to us providing free online psychology contents regularly which does not generate profit in return because there is no product that can be sold other than providing information. Hence, getting funding for MY Psychology would be limited compared to other startups which may come with a business model that can drive profit from the users. Sponsorship could come from companies that wish to advertise or increase brand awareness on the platform. Prior to attracting that sponsorship, the number of followers and the statistics in term of audiences' engagement are undoubtedly the key factors that inform the potential optimized outreach of the company's exposure and the engagement itself is embedded within the strategy of designing and publishing contents on a regular basis.

In order to publish content on a regular basis to promote and maintain the audience engagement, manpower in the content creation process is very important and that brings us to the recruitment and management of workload levels that requires detailed planning and production line. Recently, MY Psychology has started to expand its team and recruit a few key members to take respective roles according to their interests and ability. More and more challenges ahead are anticipated.

The future of MY Psychology is uncertain, as always as it is. Being one of the leading platforms in providing bite-size information in Malaysia where the level of mental health literacy and awareness among the community is still very low definitely invites many unforeseen challenges. Yet, it is believed that it has at least taken the initiative in the hopes of advancing the field of mental health in the country.

POTENTIAL SOLUTIONS

Integrative Platform

As stated above, to achieve self-sustainability, we have to seek for funding and or sponsorships due to the non-profitable nature of our products and provided services, and several such attempts has been implemented. We have set up our own Patreon page in order to gain financial support from the public. Patreon is a membership platform that provides business tools for creators to run a subscription-based service, as well as ways for artists to build relationships and provide exclusive experiences and contents to their subscribers, or "patrons." It is popular among Youtube videographers, webcomic artists, writers,

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podcasters, musicians, and other categories of creators who regularly posted their creations online. It allows artists to receive funding directly from their fans, or patrons, on a recurring basis or per work of art. Despite the slow progress and growth, we have a few patrons who are subscribing to our platform now. The money collected from patrons can be used to pay our writers who contributed articles and designers who compiled them and produce our first issue of the psychology magazine. Hence, MY Psychology would want to use this method to gather funds from our audiences and use them to grow and expand the platform.

MY Psychology's plan is to create a psychology community in which we can connect psychology graduates, students, professionals and the public community en large. By integrating the resources and connecting people from various walks of life, we can easily deliver bite-sized psychology knowledge from credible sources to the public, increase mental health awareness and tackle social stigma towards mental illness. MY psychology has currently been in connection with more than 20 psychological centers in Malaysia and are partners with more than 10 similar psychology online platforms from different countries such as Singapore, Taiwan, Philippines, Canada, and Malaysia. In the journey of promoting psychology and mental health, MY Psychology hope to form an alliance, a community and a closed connection with all the related parties.

Due to the fact that the core members of MY Psychology have their limitations, not only limited time but also are financially insufficient. Without the support from the communities and the public, we would not be able to sustain the platform. For instance, the video series we have been creating as stated before, have achieved quite the success, but because of limited manpower, we are only able to produce one video every two weeks. In order to deliver correct information and credible knowledge from reliable sources to our audience, a much larger quantity of effort is needed. To achieve sustainability, we have to achieve the goal of being able to recruit volunteers first, through the creation of a system, a "psychology content factory", to put it simply. By recruiting talented writers and content creators, we can consistently produce bite-sized psychology infographic, videos, articles, comic and podcast for our audiences as well as controlling the "quality" of the content to make sure each piece of content originated from reliable and credible sources.

Products and Services

MY Psych has several services and products that possess huge potentials in creating job and internship opportunities for Psychology graduates and interns. In order to advance the mental health field, we need to retain the talents in the field, and to provide opportunities for them. MY Psych's current two projects, Bot messenger and Psychology E-magazine, requires a lot of manpower and we are planning use this opportunity to mass recruit psychology students and graduates as volunteers to make these plans achievable. The common problem for psychology students after graduation is not being able to find psychology related jobs and internship opportunities; by promoting these two projects, we can provide these opportunities to the psychology graduates and in turn let them contribute their knowledge and talent back to the society as well as helping them to achieve a better job prospect or academic advancement.

Through this process of hiring psychology students/graduates as writers for our magazine; we gain profit from the public by selling our magazine, and in turn we can use the profit to hire more psychology graduates/ students and to improve the quality of the contents which can later be contributed back to the public once again, in the hopes of creating a positive cycle that can advance the field of psychology in Malaysia.

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Media Attention: Offline Connections

Having media attention on our platform can give us the edge we need to grow for years to come if we use it correctly. Publicity will raise the awareness of our platform and we can use that new-found awareness to grow the events attendance and spread our messages. Having major sources provide coverage of our platform speaks volume for our page credibility, as well as lending the mental health cause a big boost in visibility and attention. Because of this, MY Psychology will continue to pursue further into online marketing.

One such way to gain the necessary attention towards our platform is through the organization of a series of workshops and seminars, as it not only fosters a culture of spreading psychology knowledge but also improve the relationship among the mental health professionals from all over the world. To do this require intensive cooperation between us and the universities. In addition, such a relationship can also improve the welfare of psychology students. For instance, MY Psychology can compile various information of psychology courses from several universities for our audiences who might be interested in pursuing psychology. We might be able to gain exclusive "scholarship", "internship", "financial support" opportunities for our audiences. In addition, MY Psychology can also promote any workshops, seminars or talks that organized by the universities. In other words, My Psychology acts as the integrative platform that provides various psychology information for the students or non-students who are interested in psychology.

Such offline activities have the added advantage to connect with our audiences physically and provide face-to-face interactions with the public. Also, MY Psychology can recruit talented people who are interested to become volunteers through these offline campaigns and events. During these offline campaigns, we can invite the public audience to follow our online platform and get the most updated news. By doing this not only increase our exposure in the public, but also attract media attention and perhaps sponsorship.

MY PSYCHOLOGY'S CURRENT IMPACT

The public conception of psychology in Southeast Asia is heavily clouded by myths. The media often portrays psychology in a constant negative light, and the permeation of notions such as 'if you study psychology, you will become crazy' or 'you won't be able to find a job if you study psychology' are common. These myths are harmful and halt the progress that we are trying to gain when it comes to the advancement of the field as a whole, because widespread misconceptions stop the public from truly understanding the core of psychology.

One of the ways in which we achieve the goal of clarification is through creating a structured and easily understood outline of psychoeducation, we hope to create the proper expectations and atmosphere for the public in order to clarify what we as psychology students actually studied. The monthly psychological project offers us a chance to focus and zero in on specific mental illnesses, giving the audience an overview towards these afflictions, and their respective treatment methods. As of today, we have already completed two such monthly projects: a month on depression, and the other on anxiety disorders.

The impact might not seem significant at this point of time but we truly believe that change occurs gradually, and we hope that by influencing others, the change that we hope for can happen, as more

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and more join in on our efforts. What we truly wanted to achieve is the dismantling of stigmatizations so that people won't hesitate to learn psychology, and that the afflicted won't be afraid to seek for help.

The other achievement of ours is that we have slowly expanded beyond the confines of education and have now stationed ourselves as a middle point between the public and the professional. We have, since our inception, been receiving messages seeking for help when it comes to depression, a trouble in grieving or even suicidal notions through our inbox. We have to clarify with each of them since it is beyond our capabilities and qualifications to provide professional help, but it is hard to just turn our back on these people and draw a clear line.

This is where the Messenger Bot comes into play, as it has the potential to become a constant source of information when our audience came for guidance or seek for help, through its automatic feedback towards help seekers, and as a constant presence, they are able to inquire upon such subjects even when we are not available. We had recently gathered and prepared a long list of emergency hotlines, and upon request, the bot will provide instant replies containing contacts that they can reach to. This is still a task in progress and we hope to cover a wider range of help in the near future.

We also managed to generate an interest in learning more about psychology through our recent video series. Videos, in our opinion, can be an effective medium to share information if used correctly. The contents mainly involve around introducing the right meaning of psychology terms and breaking psychology myths. If you are familiar with YouTube education related channels, when you think of minutes science, you will remember 'AsapScience.' When you think of physics, you will remember 'Veritasium.' There are a lot of channels working now in creating educational videos and gaining a huge wave of support but most of them are from western countries. The successful online education model can be learnt and duplicated, but of course, there are cultural differences between different countries and we should not generalize between these two audiences, and should actively strive for a balance in order to cater to our specific audience.

We are nowhere near the top education channels at this moment, but we hope to introduce the possibility of making education videos in Southeast Asia. When one channel had successfully proven that educational videos could work, others would quickly follow. As of today, while we are writing this, we had two successful videos reaching more than 100k views on Facebook. Shortly after that, we have already received a few invitations to collaborate and produce similar contents. We have also inspired and share our tips to a few psychology graduates and professions to start their own social media page. The online psychoeducation will have a bigger impact to the public if there are more creators joining into this wave, adding depth and variety to the scene and community. We foresee a healthy competition between each group and also a growth in motivation to foster organic growth of the field.

FUTURE RECOMMENDATIONS

First of all, we must repeat that we are not professionals when it comes to online psychoeducation. Our findings are mostly based upon our own experiences, as well as through a painstaking process of trial and error. Nevertheless, we took care to research into every possible outcome as much as we can. Hence, what we shared in this case study is solely for the purpose of sharing our experiences to those who wished to join in the effort in advancing the field of online psychoeducation. We hope these would help future content creators and educators, to create a clearer direction, and to act as a paving stone for those who choose such a path.

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Know Your Psychology Knowledge

Identify your own level of knowledge on psychology to avoid sharing wrong information. Often there are pages sharing "*psychology says*" without solid research or further readings. Share the right information and along the way, try to explore further into other areas of psychology knowledge. Be ambitious, but be careful when sharing knowledge. You may encounter people who will inform you that your research findings are outdated, and update you on the latest finding in this field.

Know Your IT Skills

The fastest way for an information to go viral is with the aid of a right platform and creative designs. Graphic design is a skill worth enhancing. Creating creative infographics with bite size psychology knowledge can be a good starting point. With the aid of free graphic design platforms online, simple graphic designs can be generated with no hassle. Other than presenting these in picture forms, a more engaging method would be to present information in video forms. Do note that editing a one minute video consumes much more time and would be harder to execute without proper training. There are pros and cons to this but you can always find the style that suits you the most.

Know Your Platform Well

Upon spending all that time on your infographic and videos, you would want to be sure it can reach optimum audience. One main difference between online education and offline education is that you can gather feedback accurately. You can observe the number of viewers and reaction to the video. These two information serves as feedback. Study your audiences well to know the kind of content you should generate. For example, content with bigger font for old age audiences and colorful infographics to attract younger audiences. Also observe when to post these contents as time is a crucial factor.

Study Your Time

At macro level, to raising public awareness on the importance of psychology requires consistent commitment and a long period of time. To change a stereotype or raise awareness is different from teaching. Sometimes, scientifically proven data and/or statistical data may not be enough to convince people. Convincing requires ample time, detailed explanation and sometimes aid of recent events to educate the public. For example, when an influential figure (such as an idol) committed suicide due to depression, then it would be a good time to share knowledge about depression. Not only does the creation of true impact requires a long time, sometimes it requires good timing too.

Personally, how much time are we willing to invest in this? It is important to do a quick check before executing any project. To simplify; are you willing to commit full time to online psychoeducation? If you are, then you are able to create consistent content and subsequently, content which probably consumes a lot of your time. If you able to commit only a few hours per day or per week, then you may want to consider projects which fits in with your available time. It is often easy to get too ambitious, only to realize later on that we are not in the capacity to complete what was started.

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Settle With Right Expectations

In comparison to traditional platforms, one of downsides of online education is the lack of positive reward you obtain. Not just in the form of monetary compensation, but also in terms of observing the effects of our effort. To illustrate, we may feel a sense of pride knowing we helped an elderly cross the road, but we may not be able to tell if we have successfully encouraged three patients with mental health problems to seek for help. Despite the powerful impact of our contribution to the society, it can be relatively hard to notice. Raw data shown on the paper will never show the direct effect we have made. So, set your expectations straight. We cannot change the minds of thousands who assumes depression will only affect those who have weak mentalities, but we may be able to save a depressed individual from committing suicide.

Currently, the awareness level towards psychology in Southeast Asia is far behind in comparison with other countries, therefore presenting us with a large barrier to overcome. But at the same time, we are lucky because we now have better tools and platforms to help us achieve our goals. Through online platforms, we are able to easily reach and influence more people. However, it also has the power to mislead if we are not careful enough. Unethical creators can abuse the power of social media and online platforms, spreading misleading information as long as it shows good results and lead to monetary gains.

To paraphrase the cliché sayings of Uncle Ben, if you have the obligation to do the right thing, and if it is within your power to do so, then you are required to be responsible for any such actions. In short, we hope that we have successfully provided steps as to how to start your journey in this field. So, shall we begin?

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Chapter 24
The Evolution of a University-Based Center of Play Therapy Education

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ABSTRACT

More beginning graduate students and new mental health professionals are seeing children and families in their therapeutic work, creating a growing need for play therapy-specific training and supervision. Training students and professionals in the art of play therapy is critical to the wellbeing of children, families, and the future profession. A university-based approved center of play therapy education aims to fulfill this growing need while undertaking a momentous amount of responsibility. Training skilled play therapists is a complex endeavor requiring a combination of foundational knowledge, advanced clinical and conceptual skills, and supervision that surpasses classroom coursework requirements. The authors describe the evolution of Georgia State University's Center of Play Therapy Education and Play Therapy Training Institute to provide readers with a comprehensive model for play therapy training and supervision.

INTRODUCTION

"In play a child is always above his average age, above his daily behaviour; in play it is as though he were a head taller than himself... play contains all developmental tendencies in a condensed form" (Vygotsky, 1966/2016, p. 18). From this 1933 lecture, Vygotsky emphasized the role of play within his larger cultural-historical approach, noting that "play is the leading source of development in preschool

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years" (as cited in Bodrova & Leong, 2015, p. 376). Children's need for play remains a constant factor in their development. Recent changes in child development have increased concerns among parents and professionals alike. Georgia State University's (GSU) Center for Play Therapy Education and Play Therapy Training Institute put child development at the forefront of instruction, practice, and supervision training experiences, allowing students and practicing professionals to address children's mental health concerns in a developmentally appropriate way: through play.

Parental responses to a national survey of children's health showed one in seven children (14%) aged two to eight years old had a diagnosed mental, behavioral, or developmental disorder (Bitko et al., 2016). Reviewing national data, Knopf, Park, and Paul Mulye (2008) similarly concluded that 20-25% of youth experience symptoms of emotional distress and about one in ten may have significant impairment from moderate to severe symptomatology. By 2030, the U.S. Department of Health and Human Services (2002) estimates there will be 83.2 million children under 18 years of age in the US, an increase from 72.0 million children in 2000, creating an arguably greater need for child mental health practitioners in the next decade.

Reporting on the state of children's mental health, U.S. Surgeon General, Admiral David Satcher, wrote, "growing numbers of children are suffering needlessly because their emotional, behavioral, and developmental needs are not being met by the very institutions and systems that were created to take care of them" (U.S. Public Health Service, PHS, 2000, Foreward, para. 1). Satcher called for including child- and family-centered mental health services in all systems that serve this population, engaging families, and integrating children's perspectives in mental healthcare planning (PHS, 2000). GSU's programs now involve parents and teachers, however, these and other child mental health training institutions face a number of program complexities; the changing and growing needs of the helping professions have created a training gap between the focus of education programs and the knowledge and skills needed for successful practice (Hoge, Huey, & O'Connell, 2004; Huang, Macbeth, Dodge, & Jacobstein, 2004).

Scarcity of Child Mental Health Professionals

Child-focused clinicians must develop both basic and advanced skills, navigate multiple systems, incorporate families into treatment, apply multiple systemic interventions in both schools and communities, and deliver services that are culturally competent (Huang et.al., 2004; Mellin & Pertuit, 2009). Factors such as insufficient funding, low priority placed on mental health in the public health agenda, and inadequate training of children's mental health providers contribute to the aforementioned training gap (Huang et al., 2004; Kieling et al., 2011; Saraceno et al., 2007; Saxena, Thornicroft, Knapp, & Whiteford, 2007; Tolan & Dodge, 2005).

The President's New Freedom Commission on Mental Health (2003) highlighted professionals' lack of education, training, and supervision as contributing factors to the shortage of well-trained child and adolescent mental health practitioners. This shortage has left providers without adequate training serving children and adolescents (Koppelman, 2004), and has created "poor working conditions in public mental health services, a lack of incentives to work in rural areas,... [and] in mental health specialists spending time providing care rather than training and supervising others" (Saraceno et al., 2007, p. 1171). GSU combats these challenges by encouraging community service and providing play therapy-specific supervision training to reinforce the strength and stability of the child and adolescent mental health provider workforce.

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Traditionally, clinical mental health counseling programs focus on adults, and school counseling programs do not prepare school counselors to work with acute mental health concerns on a long-term basis (Mellin & Pertuit, 2009). Although the American School Counselor Association (ASCA, 2012) approves of school counselors providing individual and group counseling services, they list "providing therapy or long-term counseling in schools to address psychological disorders" under "inappropriate activities for school counselors" (ASCA, p. 3). In a review of the Council for Accreditation of Counseling and Educational Program's (CACREP) 2009 standards, Mellin and Pertuit (2009) found that *youth, children,* and, *adolescents* were not included in clinical mental health counseling and that *mental health* was not present within school counseling standards. Our review of the 2016 CACREP standards found the same. Although the Council on Rehabilitation Education (CORE) merged with CACREP in 2017 (CACREP, 2017), CORE's former standards did not include any specific requirements for rehabilitation counseling programs to provide coursework specific to children and adolescents (e.g., Mellin, Hunt, Lorenz, 2009).

Studies examining student access to graduate-level courses specializing in child and adolescent counseling are bleak. Mellin et al. (2009) surveyed 46 CORE- accredited rehabilitation counseling programs. Despite student interest, only eight programs (17%) offered a child and adolescent development-specific course; five programs (11%) offered a child, adolescent, and family helping relationships course. Only 4% of respondents reported receiving specialized instruction in youth psychiatric disabilities; only 2% indicated the availability of classroom instruction *and* clinical experience (Mellin et. al., 2009). Surprisingly, however, 73% of programs indicated that students could work with these populations during practicum and internship (Mellin et. al., 2009). Russ (2016) randomly sampled 2,000 American Mental Health Counselors Association members and found fewer than 60% of participants attended graduate programs that offered specific coursework on counseling children and adolescents and only 20% of these programs required these courses. Those who took childhood-specific courses or courses with childhood content reported feeling more prepared to work with children during internship, although only participants who took childhood-specific courses reported higher levels of expertise (Russ, 2016).

Recommendations for closing this educational gap include moving away from generic training models and offering specialized coursework and clinical experience to students working with children and adolescents (Hoge et. al., 2014; Mellin & Pertuit, 2009). Tolan and Dodge (2005) advised orienting programs to a developmental framework that includes epidemiology, prevention, and mental health promotion. Furthermore, utilizing licensed instructors and supervisors who currently practice (Hoge et. al., 2014) and creating opportunities for students to participate in multidisciplinary team treatment approaches (Huang et. al, 2004) helps students operate within an established professional network.

The American Academy of Pediatrics (AAP) urged pediatric providers to "write a prescription for play" (e.g., Yogman et al., 2018, p. 1), noting that cultural shifts in less parent engagement, more digital distractions, fewer safe spaces to play, and an increased focus on academic readiness, comes at the expense of the learning, skills, and social-emotional benefits developed through play. They eloquently stated:

Play is not frivolous; it is brain building. Play has been shown to have both direct and indirect effects on brain structure and functioning. Play leads to changes at the molecular (epigenetic), cellular (neuronal connectivity), and behavioral levels (socioemotional and executive functioning skills) that promote learning and adaptive and/or prosocial behavior. (Yogman et al., 2018, p. 5)

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GSU meets child-specific mental health education recommendations and prescribes play by offering play therapy training to graduate-level students and practicing mental health professionals in university-based and continuing education formats. In turn, these students and professionals may provide developmentally appropriate services to children and families in different settings, such as community mental health agencies and public schools, so that mental health care access does not become a barrier to mental health treatment.

Play Therapy Credentialing and Effectiveness

The Association for Play Therapy (APT), a national organization established in 1982, exists "to promote the value of play, play therapy, and credentialed play therapists" (APT, 2018b). APT (2018c) defined play therapy as "the systematic use of a theoretical model to establish an interpersonal process wherein trained play therapists use the therapeutic powers of play to help clients prevent or resolve psychosocial difficulties and achieve optimal growth and development" (para. 1). Several different forms of play therapy were regarded as promising and evidence-based practices by the U.S. Substance Abuse and Mental Health Services Administration (SAMSHA), who listed them on their National Registry of Evidence-based Programs and Practices (NREPP) until SAMHSA ended their relationship with NREPP in 2018 (Ray, 2018). There are several forms of play therapy currently recognized as evidence-based by the California Evidence-Based Clearinghouse for Child Welfare (CEBC), an entity "highly regarded as a credible reviewer of mental health interventions for children... and a stable force in assessing evidence-based interventions" (Ray, 2018, p. 21).

Providing play therapy requires extensive specialized education, training, and experience. APT offers three credentials that licensed mental health professionals, certified school counselors, and school psychologists can earn after having demonstrated the depth and breadth of their specialized play therapy education, training, and experience. For twenty-five years, APT has offered the Registered Play Therapist (RPT) and Registered Play Therapist-Supervisor (RPT-S) credentials, and the School Based-Registered Play Therapist (SB-RPT) credential since 2016.

To meet the educational requirements necessary to obtain the RPT/S and SB-RPT credentials, training courses must be taken from an approved center of play therapy and/or an approved provider of continuing education. APT grants three-year approval status to approved centers at colleges and universities offering master's or doctoral degrees in a mental health field that satisfy requirements, such as (a) generating play therapy instruction, supervised clinical experience, and supervisor training, and employing faculty members with play therapy expertise and RPT/S credentials, (b) producing original play therapy-specific research, especially research advancing evidence-based play therapy practice, and publishing such research in professional peer-reviewed journals within and outside of the play therapy community, and (c) contributing to the advancement of play therapy and the growth of the play therapy community (APT, 2018a, para. 2).

APT also grants approval to approved providers who offer continuing education opportunities for professionals seeking licensure, continuing education, and play therapy credentials. APT-approved providers may be agencies, individuals, organizations, or businesses that award play therapy credit for continuing education purposes for a period of three years (Type I) or for one event of five days or less that offers up to 25 hours of play therapy credit (Type II; APT, 2018b). For both types, this coursework must satisfy specific approval criteria that aims to:

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Improve client care, either directly or indirectly, by demonstrating evidence of either: (a) systematic use of a therapeutic model, the establishment of an interpersonal process using the therapeutic powers of play, and intent to prevent or resolve psychosocial difficulties and/or achieve optimal growth and development; or (b) content that enhances the specific professional proficiency of mental health practitioners who are engaged in the clinical practice of play therapy, the supervision of play therapists, or the instruction of play therapy. (APT, 2018b, p. 1) Meeting such stringent requirements helps "promote and protect the credibility and viability of the play therapy profession through strong academic rigor and ethical training standards" (Lebby, 2018b).

As public awareness of the effectiveness of play therapy grows, there is an increasing demand for professionals trained in this specialized modality. Beginning mental health graduate students and new professionals are increasingly challenged to meet the needs of their child and adolescent caseloads. As the flagship national professional play therapy association in the US, APT currently boasts more than 6,800 professional and student members, over 52% of whom have earned an RPT/S or SB-RPT credential (Lebby, 2018a). This growing trend of seeking professional recognition through credentialing validates the importance of play therapy and highlights the critical need for play therapy-specific training and research to demonstrate its effectiveness.

Several researchers have established play therapists' effectiveness through the publication of meta-analyses and other research. Lin and Bratton (2015) found small (d=.33) but statistically significant favorable outcomes for externalizing and internalizing behavior problems, caregiver-child relationship stress, and self-efficacy across 24 studies. Ray, Armstrong, Balkin, and Jayne (2015) found small (d=.21-.38) but statistically significant positive outcomes for externalizing and internalizing behavior problems, self-efficacy, academic, and other problems across 23 studies. Bratton, Ray, Rhine, and Jones (2005) found medium (d=.72) and statistically significant favorable outcomes for behavior problems, social adjustment, self-concept, anxiety, development, and relationship issues across 67 studies. LeBlanc and Ritchie (2001) also found medium (d=.66) and statistically significant positive outcomes for emotional and social adjustment, reaction to traumatic event(s), academic and behavior problems, and family adjustment across 42 studies. In addition, Ray and McCullough (2016) further detailed 25 randomized control trials, 25 observational studies, and 20 case reports and qualitative studies that have demonstrated play therapists' effectiveness in producing favorable outcomes on the aforementioned variables and others.

Play therapy education and training aims to fill the knowledge, awareness, and skills gaps inadequately trained child mental health clinicians demonstrate and to promote the growing need for child-specific mental health services. This responsibility is a momentous and complex endeavor, requiring a combination of teaching and training that integrates foundational knowledge and advanced clinical and critical thinking skills, such as case comprehension and conceptualization, personal awareness, and professional insight. Programs also must offer students support, encouragement, and supervision. GSU has a thirty-year history of providing post-graduate training in play therapy in the College of Education and Human Development's Department of Counseling and Psychological Services (CPS).

ORIGINS OF PLAY THERAPY AT GEORGIA STATE UNIVERSITY

In the late 1980s, Dr. JoAnna White, EdD, LPC, CPCS, RPT-S, offered the first Introduction to Play Therapy graduate course at GSU. She built a solid foundation upon which her successors could stand and

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continue to innovate and expand. This program obtained national recognition from APT as its second Approved Center of Play Therapy Education in July 2009 and as an Approved Provider of Continuing Education under the name "GSU Play Therapy Training Institute." Dr. White co-founded the Institute with Dr. Lauren Stern, PhD, LPC, NCC, RPT-S, a Clinical Professor and play therapy instructor at GSU during that time. Dr. White still serves the Institute as Director Emerita.

With her contributions, as well as those from Dr. Stern, Dr. Jeff Ashby, and current Director Dr. Tiffany McNary, both the Center of Play Therapy Education and the Play Therapy Training Institute have garnered renown in the Southeast for play therapy training. There are several key elements that make GSU's play therapy training approach effective and appreciated by students and practicing professionals. We enumerate these below to encourage readers to incorporate effective practices that meet children's developmental and mental health needs into their own play therapy centers and institutes for continuing education.

Building a Solid Training Foundation

In 1988, the first Introduction to Play Therapy course was offered at GSU to respond to a need for developmentally appropriate approaches to counseling young children within and outside of the school setting. This course was rooted in child-centered play therapy (e.g., Landreth, 2012) and integrated concepts from Adlerian play therapy (e.g., Kottman, 2011). Mental health and school counseling students received play therapy theory and were introduced to basic play therapy skills. The impact of this specialized course on students' clinical and child development conceptualization skills was remarkable.

With the success of the introduction course, coupled with the increased need for play therapists in and around Atlanta, a second play therapy graduate course was added to the CPS curriculum: Advanced Play Therapy. It served as a continuation and expansion of the introduction class for mental health and school counseling master's-level students, and specialist- and doctoral-level students in School Psychology and Counselor Education and Practice programs, adding advanced play therapy skills to their repertoire and extending their theoretical knowledge to other seminal play therapy theories (cf. O'Connor & Braverman, 2009) and filial therapy (e.g., Guerney, Guerney, & Andronico, 1966).

Both courses were offered each academic semester, though availability sometimes alternated based upon course registration numbers. Approximately six to fifteen students would enroll in each course. Small class sizes allowed the instructor to attend to individual student needs and encouraged group cohesiveness and sharing.

During these early years, Dr. White taught these classes using videos of her own play therapy sessions to demonstrate the use of play therapy theories and skills for students. In class, students would practice play therapy skills by role playing with each other using portable play kits. Recognizing the need for and the value of more experiential instruction with children in a live setting, though, she designed and built GSU's playroom in 1999 to provide a dedicated play therapy training space to facilitate skill development through direct practice and to provide teaching and supervision under optimal real-time learning conditions.

With the addition of the playroom, a graduate teaching assistant was hired to accompany children to and from the playroom and to film sessions. Although the graduate teaching assistant is not necessarily independently licensed, s/he is a doctoral student that must have successfully completed several classes before beginning in the position, such as the Introduction and Advanced Play Therapy courses and the doctoral-level Supervision of Counseling Services course. Additionally, s/he must be concurrently enrolled

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in the doctoral-level Applied Supervision Internship course, serving as a supervisor-in-training under a licensed and RPT-S credentialed professor while working in the graduate teaching assistant position.

Facilitating Practice and Teaching

The playroom design, based upon Dr. White's play therapy experience, follows Landreth's (2012) recommendations in terms of size, toy selection, and the installation of training equipment. It includes toys selected from Landreth's recommended categories, two sand trays (one wet and one dry), approximately 500 miniatures, a fully functioning sink, a bop bag, and a one-way observation mirror, behind which the teaching assistant can monitor the play session and operate the camera equipment. It is wired and equipped with state-of-the-art audio and video technology for real-time screen projection into the adjacent classroom, where the remaining students and course instructor can observe and discuss the session in progress.

From 1999 forward, requirements for both classes included practicing newly learned play therapy skills with children within and beyond the classroom setting. The in-class required practice invites children from GSU's Child Development Center to be play therapy participants. This center, located on campus, offers child care and a preschool learning environment for the children of GSU faculty, staff, and students. Nearly twenty-five years ago, Dr. White initiated a collaborative relationship with the Child Development Center, with both she and the CPS Department assuming ultimate responsibility for the children's care and wellbeing during this time. This partnership flourished under her leadership and the following procedures, implemented then, still exist today.

Through documented informed consent procedures, parents consent to their children participating in and being video-recorded during "special play times" under direct instructor supervision to help graduate-level play therapists-in-training apply their play therapy knowledge and skills in the playroom setting. Child assent to special play time is obtained verbally after parents have consented to participation in written form. Each academic semester, new informed consent forms are disseminated to parents through the Child Development Center, allowing them to decide how often their child participates in special play time and to withdraw their child from this experience at any time. Parents understand that video recordings of their children may be used for teaching, training, and research purposes. This 25-year collaboration has contributed greatly to the university's research efforts and continues to offer an ideal setting for play therapists-in-training to learn about young children's development while practicing and polishing their play therapy skills.

GSU's playroom is centrally located among the offices and classrooms within the CPS Department. For Introduction to Play Therapy students, the graduate teaching assistant accompanies each child on foot from the Child Development Center to and from the playroom for special play time. The child selected for that day's class rotates among all children with permission to attend, and the play therapist-in-training does not necessarily work exclusively with one child. For Advanced Play Therapy students, one of the first class sessions is dedicated to forming a student-child dyad at the Child Development Center so the relationship begins in a familiar space (the child's classroom) and near a familiar and presumably safe person for the child (the child's teacher); this dyad remains paired exclusively throughout the semester. The Advanced Play Therapy students have the privilege of accompanying their child from the Child Development Center directly to the playroom and back, further building their relationship during their walks before and after their play sessions together.

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This in-class experience allows the play therapist-in-training thirty minutes with a child in the playroom while the teaching assistant records the session from behind the one-way mirror. The rest of the class remains in the adjacent classroom, viewing the session live, while the course instructor encourages the class to note what basic and advanced play therapy skills are being employed, and what strengths and areas for improvement they see in their colleague's approach. This feedback is captured on a play therapy evaluator's form that is shared orally and in writing with the play therapist-in-training after the session. The professor also comments on what the play therapist-in-training and/or the child is doing in the session, further enhancing students' understanding of play therapy theories and process dynamics in real time. Therefore, students learn by doing and by actively observing their peers while direct supervision and commentary is provided by their professor.

Other introductory and advanced course requirements include recruiting and obtaining consent and assent to practice play therapy in special play times outside of the classroom setting with one child on the students' personal time; transcribing recorded sessions to better understand one's personal process and the development of the therapeutic relationship through play therapy; and completing reports on how different theoretical orientations approach case conceptualization, practice, and parent feedback. Students learn to develop encouraging feedback and to deliver this information to their colleagues orally and in writing, which represents an active form of attendance and participation in class and a professional development skill that later serves them in working with future clients' parents/guardians, teachers, other professionals, and eventually their own supervisees.

PROGRAM EVOLUTIONS AND CURRENT PRACTICES

With a solid foundation from which to teach and practice, GSU's Center of Play Therapy Education carried on the mission initiated by Dr. White for twenty years with procedures that remained relatively unchanged during that time. The evolutions that have emerged in current procedures respond more to meeting societal and technological demands for security than changing the underlying play therapy teaching and practice philosophy. All of these differences have spurred enhancements that allow the program to operate to the highest possible ethical and legal standards while adding greater diversity and depth to class discussions.

Tracking the Evolution of Current Practices

Since 2010, the CPS Department and the Child Development Center have agreed to assume joint responsibility for accompanying child participants to and from the playroom. Child participants are now accompanied back and forth from sessions with one of their teachers in addition to either the CPS graduate teaching assistant (in Introduction to Play Therapy) or the play therapist-in-training (in Advanced Play Therapy). Beyond providing an extra layer of physical security to the children, this double accompaniment also promotes children's emotional security to have a person they already trust (their teacher) there to ensure their wellbeing, acting as a secure base for them (Verschueren & Koomen, 2012) while they develop a therapeutic relationship with the play therapist-in-training. This reflection for the child's safety also was extended to bathroom breaks requested by the child during play sessions; children are always accompanied to the restroom by their teacher and their play therapist-in-training.

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To better include parents, the course instructor encourages them to sit in the observation room with their child's teacher and the graduate teaching assistant during the session. The parents may openly communicate their questions or concerns and receive immediate answers from the graduate assistant, who is well-trained in play therapy, child development, and supervision, or from the professor after the session. However, if the parent is not present, no feedback is offered after the session. Additionally, parents are better informed about data security procedures employed through updated informed consent forms.

Sessions are digitally recorded and stored on a server developed uniquely for the Center for Play Therapy Education. This server allows only the course instructor and teaching assistant to access files, though both may digitally send encrypted files to students through a password-protected account. The course instructor works closely with the College of Education and Human Development's lead technology staff person, participating in specialized technology trainings twice a year to comply with the highest levels of data security and ethical responsibility (e.g., American Counseling Association, 2014; American Psychological Association, 2018).

In addition to the technological changes within the Center of Play Therapy Education, the program has updated its original coursework to reflect current CACREP standards and APT objectives, and now includes three additional course offerings. This three-course expansion provides a more comprehensive and well-rounded perspective on child development and further play therapy-specific knowledge and skills in several crucial domains. Notably, professors put special populations and settings at the forefront of play therapy education, such as working with traumatized children and families through play and expressive arts and working "outside the box" of the four-walled classroom through adventure therapy facilitation and education.

Expanding Course Offerings

A total of five graduate-level courses are currently offered and taught by two different professors: Tiffany McNary, PhD, LPC, NCC, CPCS, RPT-S, Clinical Assistant Professor of Counseling, and Jeff Ashby, PhD, ABPP, RPT-S, Full Professor of Counseling Psychology. The difference in the play therapy professors' professional identities provides students with licensure, supervision, and play therapy credentialing advantages; students can seek education and training across disciplines or supervision from a professor within their discipline, as those disciplines may require.

Three of GSU's courses provide students with 67.5 hours each of the mandatory 150 education hours required for RPT/S certification through APT, and the remaining two courses offer 30 hours each towards RPT/S certification. A registration wait-list is necessary to account for the ever-increasing demand for these courses. Enrollment is intentionally limited to increase instructors' abilities to respond to students' specialized training and supervision needs. Additionally, students may benefit from play therapy-specific supervision groups that meet weekly on campus to focus on child and adolescent cases. Each semester, approximately 12-18 master's-level students in practicum and internship classes receive play therapy supervision by faculty members (including one part-time instructor) with doctoral degrees, a mental health license, certified supervisor credentials, and the RPT-S credential from APT.

The development of graduate-level course programming is an intricate task wherein professors are expected to reflect the values, mission, policy and procedures of multiple entities within their syllabi (e.g., university and department standards, accrediting agency guidelines, and specialty certification requirements). GSU play therapy syllabi specify all of these components and align course learning objectives with APT's requirements for RPT/S credentialing. We provide course descriptions in Table 1

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Table 1. Georgia State University play therapy course offerings

Course	Course Objectives	Course Content	Course Format	Text(s)	Attendance hours offered toward RPT/S credential
Introduction to Play Therapy[a]	Acquire play therapy knowledge and skills. Utilize play therapy skills with children from GSU's Child Development Center and children recruited outside of class time.	Play therapy history, seminal play therapy theories, basic play therapy techniques, and issues related to counseling children.	Lecture, case studies, video presentations, and experiential activities. Limited to 15 students.	Landreth (2012) Kottman (2011)	67.5
Advanced Play Therapy[a]	Develop and deepen play therapy knowledge and skills. Build a one-on-one therapeutic relationship with a child from GSU's Child Development Center. Review recorded sessions in individual play therapy-specific supervision. Participate in group supervision activities outside of class time.	Play therapy history, additional play therapy theories, play therapy research, and recent innovations in play therapy. Guest speakers present on special topics of interest, directly linking theories and special issues to real-world practice.	Lecture, case studies, video and oral presentations, and experiential activities. Limited to 13 students.	Ray (2011)	67.5
Treating the Traumatized Child: Integrating Play Therapy and the Expressive Arts[a]	Acquire traumatology and traumatic play dynamics knowledge. Gain exposure to working with traumatized children through play and expressive art therapies and the neurosequential model of therapeutics.	Discussion and delineation of common concerns, research bases, and practice guidelines among traumatology, play therapy, and expressive art therapy theories and practices.	Lecture, discussion, video and oral presentations, and experiential activities. Limited to 30 students.	Findling, Bratton, & Henson (2006) Gaskill & Perry (2017) Herman (1992/2015) Malchiodi (2014) Steele & Malchiodi (2011)	30
Family Systems, Theory and Interventions: Integrating Play Therapy and the Expressive Arts[a]	Acquire knowledge of family systems theories and working with families in play therapy. Integrate play and expressive arts techniques into family therapy sessions using art, puppets, sand tray, storytelling, and drama.	Family therapy history, major family therapy theoretical orientations, family therapy research and ethics, and family play therapy techniques.	Lecture, discussion, video and oral presentations, and experiential activities. Limited to 30 students.	Gil (2016) Gladding (2015) McGoldrick, Gerson, & Petry (2008)	30
Facilitating Adventure Therapy and Education[b]	Acquire knowledge about adventure/challenge therapy. Learn to facilitate adventure/challenge therapy.	Dynamics of adventure experiences, therapeutic application of adventure activities, and effective group facilitation and processing skills.	Lecture, video, class discussion, and participating in and leading a variety of experiential exercises in high-, low-, and no-ropes settings. Limited to 12 students.	Ashby, Kottman, & DeGraff (2008) Gass, Gillis, & Russel (2018)	30

Note. [a]Denotes courses taught by Dr. Tiffany McNary, PhD, LPC, NCC, CPCS, RPT-S, Clinical Assistant Professor of Counseling at Georgia State University. [b]Denotes courses taught by Dr. Jeff Ashby, PhD, ABPP, RPT-S, Full Professor of Counseling Psychology at Georgia State University.

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as examples that may be useful to other approved centers or individual providers designing coursework for play therapy credit.

Since the inception of GSU's play therapy program thirty years ago, instructors have emphasized that providing an adequate training environment and promoting collaborative relationships among participants allows students to grow in their professional identity as play therapists and to flourish in their skill development. The specific concepts that are emphasized and employed in the GSU teaching approach are worth noting and incorporating in any center for play therapy education or continuing education setting. We describe them here to encourage readers to think globally about how their training programs will make a difference in the professional lives of their students and those students' future or current clients as a result of having participated in readers' own play therapy education and training programs.

TEACHING APPROACH AND THEORETICAL CONSIDERATIONS

Attending to the logistics, details, and setup of a training institute are paramount to its establishment and success. Equally as important are the relationships and connections we have with one another. Developing a sense of community among students aids in fostering a sense of belonging to the course, the program, and the profession as a whole, and helps them build a professional network with their colleagues. While integrating psychological and developmental theories and models, clinical experience, and experiential practice into each class, course instructors underscore connection to the play therapy material, to each other, and to the professor. Several practices are key to GSU's teaching approach to experiential education. For example, instructors emphasize creating a learning community, incorporating supervision directly into the teaching model, and discussing the importance of trauma-informed instruction and care, multiculturalism, and social justice during class sessions.

The program incorporates tiered teaching and supervision experiences to develop a cadre of play therapy professors/trainers and supervisors, addressing Saraceno et al.'s (2007) concerns for developing more practicing supervisors. Furthermore, professors encourage students to use their play therapy skills on a volunteer basis to help others and further promote the play therapy profession. Finally, offering courses in a continuing education format to practicing clinicians allows the GSU Play Therapy Training Institute to have a greater community impact on child clients, answering Satcher's call to expand child mental health services (PHS, 2000). We discuss each of these components in turn to inspire readers to build a solid training foundation for students and simultaneously perform community outreach and strengthening through their own programs.

Creating a Learning Community

This part of GSU's teaching style is multifaceted and includes didactic learning, experiential components, and creativity. Instructors integrate clinical skills into the classroom environment and highlight attunement, intentionality, student strengths, and the use of encouragement, thereby creating a safe and nurturing environment in which to learn and develop personally and professionally. This approach recognizes the developmental processes involved in becoming both a helping professional and a play therapist. Instructional style and depth are informed by the students' developmental levels, as instructors aim to support students' transition from novice learners to competent clinicians. In accordance with Vygotsky's (1978) teachings on the zone of proximal development, instructors are mindful of the level

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of scaffolding, assistance, support, and encouragement needed for students to complete the various tasks required of them.

This multi-layered approach to teaching, which captures students' unique and varied learning styles, may begin, for example, with a Power Point presentation and lecture embedded in a thought-provoking discussion, followed by a case study from the instructor's clinical practice. Then, students transition to viewing a video of the professor facilitating a play therapy session, cued to highlight the skill taught in the Power Point. Finally, students work experientially using play and expressive activities designed to increase students' awareness of the class topic.

Incorporating Supervision Into the Teaching Model

Supervision is an important component to require within a didactic and experiential training program, for students initially learning play therapy skills and for licensed mental health professionals that supervise others. GSU's Center for Play Therapy offers supervision experiences and training to accommodate different students' needs: requiring supervision of play therapists-in-training and offering tiered teaching and supervision opportunities to doctoral students learning to supervise others in play therapy practice.

Offering Supervision as a Part of Initial Play Therapy Training

Instructor awareness of clinical supervision models (e.g., Bernard & Goodyear, 2018; McNeill, Stoltenberg, & Romans, 1992; Stoltenberg, 1997) offers greater conceptualization of student development. Understanding students' individual professional development stage (i.e., length of time in graduate program and previous courses taken) provides instructors with a roadmap of how to enhance clinical understanding and skills for each class member. For instance, a first semester student will approach and comprehend course material vastly differently than a student entering his or her final semester who has completed basic skills, counseling theories, and practicum.

When these two types of students are in the same class, the instructor can make use of each of their skill levels to create connections and further skill development for all students simultaneously. For example, the instructor can invite more advanced students to describe their experiences to the class, thereby activating case conceptualization and presentation skills, to engage less advanced students in observation through active listening, discussion, and connecting to others and the course material through asking questions and giving feedback. The integrated developmental model (e.g., Stoltenberg, 1997; McNeill et al., 1992) also recognizes that student development may vary within the same cohort year, with some students integrating material and skills more quickly than others.

Meeting students at their developmental level is central to helping them integrate new knowledge and increasing their willingness to examine and reflect upon their practice. Accordingly, professors must balance their roles of educator, supervisor, model, mentor, and consultant. Instructors must be keenly aware of their responsibility to the clients that these students serve (currently or eventually). The discrimination model (e.g., Bernard & Goodyear, 2018) highlights three main skill areas for supervisees that can translate directly to play therapy-specific courses: intervention skills, conceptualization skills, and personalization skills. Intervention skills address counseling interventions and skills; conceptualization skills attend to understanding patterns and choosing interventions; and personalization skills focus on personal counseling style (Bernard & Goodyear, 2018). When addressing each of these skill areas, supervisors will utilize and shift between teacher, counselor, and consultant roles (Bernard & Goodyear,

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2018). In the teacher role, the supervisor provides structure, instruction, feedback and modeling; in the counselor role, s/he increases a supervisees' reflection and awareness of their inner world; and in the consultant role, the supervisor challenges the supervisee to trust his or her own insights and to choose his or her own actions (Bernard & Goodyear, 2018).

However, Allen, Folger, and Pehrsson (2007) posited that standard supervision training falls short in recognizing the unique adult-child relationship, non-verbal communication, and projective approaches inherent to play therapy. They emphasized the need for play therapy supervisors to be grounded in play therapy education, theory, and techniques. Muro, Holliman, Blanco, and Stickley (2015) found significant improvements following play therapy training on students' attitudes, knowledge, and skills following in vivo-experiences of providing play sessions under weekly supervision. They explained that students may experience increased doubt in their skill set when first working with children, and they argued that skill practice is critical to student and skill development.

Allen et al. (2007) provided a three-step model for supervising novice play therapists that focuses on developing content, feeling (at a distance), and interpersonal reflection skills. Following a developmental model, Ray (2004) highlighted how play therapy supervisors often provide structure and specific skills feedback to novice supervisees and peer consultation to those with more advanced training. She asserted that play therapy supervisors aid in developing a supervisee's basic skills, such as nonverbal behaviors and verbal responses, and advanced skill sets, such as limit-setting, identifying themes, and interpreting play behaviors. She further advised that supervisors remain aware of their supervisee's personal and professional limitations and how these may affect the clients with whom they work. She suggested using supervision to process the supervisee's feelings that arise when working with a child who is rejecting or hurtful within the therapeutic relationship.

Teaching How to Supervise Through Tiered Supervision Experiences

Training and supervising students in play therapy requires a different skill set than practicing as a clinician. As such, the GSU Center of Play Therapy Education takes a first-hand role in developing the next generation of play therapy educators and supervisors. Doctoral-level counselor educator/supervisor and counseling psychology students may serve as teaching assistants and supervisors-in-training (SIT) in play therapy courses and supervision groups through tiered teaching and supervision experiences.

Current CPS doctoral students may engage in a full-year SIT experience. These students partner with a CPS faculty member and assist with a variety of teaching and supervision responsibilities. SITs co-facilitate weekly group supervision classes with their assigned faculty member. In addition to co-facilitating weekly master's-level practicum supervision groups, SITs are required to meet for one hour a week individually with one or two master's-level students who are also members of the larger weekly group. Each year, one or two doctoral students who manifest an interest in learning to supervise play therapy interns are permitted to do so as SITs.

In a tiered format, SITs from all different supervisory disciplines (e.g., clinical mental health, school counseling, and play therapy) also meet once a week in an advanced supervision class with a different faculty member to take supervision on their supervisory experiences. This class allows SITs to focus on their roles as instructional and supervisory managers (of master's-level individuals and groups), advocates for multicultural competency, and gatekeepers. All of these skills are paramount to furthering child mental health practice in general and the play therapy profession more specifically.

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Incorporating Trauma-Informed Practices

Play therapy courses offered through GSU's Center of Play Therapy Education are designed and facilitated in ways that are consistent with trauma-informed practices. SAMHSA's (2014) 4R trauma-informed approach includes *realizing* the widespread impact of trauma and understanding potential paths to recovery; *recognizing* the signs and symptoms of trauma; *responding* by integrating knowledge about trauma into policies, procedures and practices; and *resisting re-traumatization*. SAMHSA (2014) further highlighted the importance of several principles of trauma-informed care, such as promoting safety, trustworthiness, transparency, collaboration, and empowerment; giving voice; and recognizing cultural, historical, and gender issues present within the trauma and more globally within the person's life.

Trauma-sensitive counseling is taught and modeled in parallel structure to trauma-informed practice. Each semester-long course begins with an overview, purpose statement, and opportunity for the instructor and students to share about themselves and their relation to the course. In the beginning phase, instructors are intentional in establishing safety and connection to allow students a space to fully engage in play therapy. In the middle phase, "the work" is accomplished: the learning, experiencing, challenging, and growing that occurs within the course. Finally, each semester ends with a dedicated space to reflect on their work and transition to other professional and personal endeavors with a sense of closure. The instructors highlight the prevalence and effects of trauma in both a specialized course and throughout all courses with the realization that students will encounter various forms of trauma while working with children, adolescents, and families.

Emphasizing Multiculturalism and Social Justice Advocacy

Multicultural competency encompasses an awareness and ownership of one's own biases, assumptions, and values (Sue, Arredondo, McDavis, 1992). Personal identities influence assumptions, values, and attitudes that can manifest in counseling (Bernard & Goodyear, 2018). As such, multiculturalism needs to be addressed within classrooms, and multicultural competencies must be developed within students. Ratts, Singh, Nassar-McMillan, Butler, and McCullough (2016) emphasized that competence begins with self-awareness that "extends to clients, to the counseling relationship, and to counseling and advocacy interventions and strategies" (p. 35). Multicultural and social justice counseling researchers and advocates have repeatedly highlighted the importance of understanding the effects of power, privilege, and marginalized identities within the counseling relationship (e.g., Constantine, Hage, Kindaichi, & Bryant, 2007; Hays, Dean, & Chang, 2007; Ratts et al., 2016). Ratts et al. (2016) further underscored the importance of understanding the impact oppression has on mental health.

To further facilitate multicultural competency, Hays et al. (2007) suggested holding open discussions involving students' reactions and biases towards clients and highlighting contextual and systemic factors that impact clients during case conceptualization. They posited that multicultural competency is linked with knowledge of privilege and oppression and argued that educators can increase students' awareness through "discussing invisible minority status" (p. 323). To meet these recommendations, GSU's Center of Play Therapy Education incorporates multicultural conversations into each course, attending to systemic and individual client factors, differences and similarities within the counseling relationship, and student self-exploration and reflection in relation to diverse clientele.

We argue that part of being multiculturally competent play therapists is to recognize and understand the multiple systemic factors impacting the lives of children. As with all clients, race, religion, socioeco-

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nomic status (SES), sexuality, gender identity, and ability status are variables that must be considered when working with children. Children, however, are also faced with additional systemic factors over which they have limited control and minimal voice to initiate change. Understanding a child's family dynamics, school life, and the state laws governing their rights and freedoms are central factors to understanding a child's world. Additionally, child mental health professionals need to be equipped to navigate and, when possible, integrate multiple systems while keeping the child's interests at the forefront of all treatment. As such, we make every effort to ensure that case vignettes, videos of play therapy sessions viewed in class, and children brought from the Child Development Center for sessions include diverse characteristics along many lines, such as nationality, race, and SES. Professors acknowledge and process different dynamics that arise in session pertaining to the client's world, his or her potential lived experiences, as well as students' reactions and assumptions that may affect the therapeutic relationship.

Understanding the role of social justice advocacy is crucial to providing multiculturally competent counseling. Social justice advocacy allows individuals to have a voice, gain information, understand their rights, and make more informed choices (Stewart & MacIntyre, 2013) by focusing on issues of oppression, privilege, and social inequity and promoting equitable treatment and allocation of resources (Chang, Barrio Minton, Dixon, Myers, & Sweeney, 2012). Furthermore, social justice advocacy within the counseling profession involves identifying needs and taking action to change inequity and systemic barriers (Ratts et al., 2016; Trusty & Brown, 2005).

Children are a vulnerable population and most often a voiceless population. Students must learn to recognize the power dynamic that exists in most child-adult relationships and that, within many systems, children are entirely powerless. Therefore, play therapists work to dismantle this power differential from their first interactions with children and parents through gathering assent and consent for services, promoting autonomy, and returning responsibility to children in play. GSU's Center and Institute helps play therapists-in-training develop these skills through discussion, modeling, and direct practice.

ADDITIONAL PROFESSIONAL DEVELOPMENT OPPORTUNITIES

Part of teaching play therapy is modeling how we advocate for children's inherent rights to protection, to express an opinion and to be heard, to be silent, and to play (United Nations, 1989, art. 15). As educators and play therapists, we are well positioned to advocate for the changes that will directly impact and assist our youngest clients in their communities. The GSU Play Therapy Training Institute offers opportunities for students to impact children in the community through philanthropic and continuing education opportunities, and awards some with a scholarship for demonstrating their commitment to the play therapy profession.

Encouraging Play Therapy Philanthropic Opportunities

Dr. McNary created "Play Therapy Serves," the Play Therapy Training Institute's service component, in 2016. The mission is to promote play therapy, advocacy, volunteerism, and to provide community service to children and families. Over 120 volunteer hours have been provided by GSU play therapy graduate students above their coursework with Child Development Center participants. This community outreach has served children and their families in Atlanta-area schools, hospitals, community-based mental health centers, and homeless shelters, and could be replicated in other communities.

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Providing Play Therapy Scholarship Opportunities

Awarding play therapy students with graduate funding opportunities recognizes their commitment to the profession. Since 2015, the GSU Play Therapy Training Institute has offered the JoAnna White Play Therapy Scholarship, a $1,000 scholarship awarded to a current play therapy graduate student in good standing who has exhibited a strong interest and commitment to the play therapy profession through research, practice, and service.

Offering Continuing Education Through the Play Therapy Training Institute

Recognized by APT as an approved Provider of Continuing Education since 2009, GSU's Play Therapy Training Institute has had four different directors since its establishment. This Institute is the state of Georgia's only college or university that trains professionals in play therapy through university-based courses or continuing education trainings. Approximately ten trainings are offered each year to current students, alumni, and community mental health professionals through GSU's Institute. Twice per year, the Institute invites nationally recognized play therapists to give a full day of training, providing continuing education to 100 attendees or more.

FUTURE PLAY THERAPY PERSPECTIVES AT GEORGIA STATE UNIVERSITY

Play therapy faculty are mindful of the developmental processes involved in becoming a play therapist and their intricate roles as educators, supervisors, models, mentors, and consultants. As GSU's Center for Play Therapy Education and Play Therapy Training Institute both look ahead into the future, there are several common themes in their goals that revolve around offering more training opportunities and continuing to provide cutting-edge teaching methods and materials.

Offer More Training Opportunities

One goal is to continue to offer five play therapy courses to graduate students in mental health professions. Additionally, we wish to expand the current course offerings, allowing additional sections to open on the academic calendar to reduce wait-lists and to promote the therapeutic powers of play (e.g., Schaefer & Drewes, 2014) more widely.

Another possibility is to connect with community agencies or directly with families by keeping GSU's website updated and placing brochures in pediatricians' offices, for example, to market free play therapy services to children in nearby communities. Students would benefit from real-world skill development, and families would benefit from increased access to mental health care through GSU's services.

Provide Cutting-Edge Teaching Methods and Materials

A strength of GSU's teaching method is that we use recorded sessions for teaching and supervision purposes. Connecting a livestream from the playroom to the adjacent classroom or utilizing a one-way mirror allows students to learn and reflect on practice issues and to observe and give feedback to oth-

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ers in real time. Following class sessions with group supervision encourages, strengthens, and provides specific feedback for students' skill improvement.

Structuring class times with didactic and experiential learning opportunities and processing encourages students to engage in, grapple with, and dialogue about the material. Creating an environment that demonstrates safety, honesty, transparency, and openness provides students with the support they need to take risks, explore ideas, self-reflect, and self-evaluate.

Intentionally integrating teaching strategies that promote creativity, play, and expressive arts-based approaches fosters clinicians' ability to move from an adult-client mindset to a child mental health perspective in engaging ways. This can be accomplished by emphasizing the importance of the child-therapist relationship and the therapeutic powers of play, promoting attunement to children's nonverbal and verbal communication, understanding the child's world, and training play therapists to enter the child's world and learn about their experiences from the child's perspective.

We will further model this mindset shift by stimulating students' thinking about individual, family, cultural, and systemic factors that may impact children, highlighting advocacy competencies and ethical considerations in each course. Providing detailed clinical examples that span race, religion, SES, disability, sexuality, and gender identity and encourage open discussion on students' responses to clients with various and intersecting cultural backgrounds helps students craft appropriate treatment responses in their practice sessions within and outside of the classroom.

CONCLUSION

As play therapists, we know that children are not little adults, that their problems are unique, and that their viewpoints are worthwhile. Play therapy courses offer many students their first in-depth exposure to considering child development in context, to counseling children, and to choosing developmentally appropriate interventions and modalities that promote children's self-expression and healing. GSU's play therapy program has embraced this responsibility for over thirty years. Because graduate students and professionals are the foundation of our future profession, when trained in the art of play therapy, they weave threads of trauma-informed practice, multicultural, and social justice competencies into the fabric of our next generation with their impact on the children they serve. We hope that our training models encourage other play therapists to establish or enhance their own programs to help current and future clinicians use the therapeutic powers of play in more creative ways in their own work.

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Chapter 25
Positive Psychology Competences of Pre-School Teachers as a Tool for Understanding and Nurturing Children's Play

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ABSTRACT

The Positive Psychology frame and definition present a natural environment for understanding and researching children's play in the context of nurturing overall positive characteristics in children's development. Therefore, this article presents a structured review of the common ground between the basic principles of positive psychology and children's play in the context of early and preschool institutions. Also, it demonstrates the implementation of positive psychology principles in children's play and the methods by which positive psychology could be promoted through children's play in kindergartens. Within that frame, the importance is given to the needed preschool teachers' competences in this area. In this context, various activities are presented that reflect a common ground of positive psychology and children's play. Finally, some significant guidelines for future research and practice enhancement are presented.

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INTRODUCTION

Children's play is crucial for their happiness, well-being, learning opportunities and healthy development in general. Gleave & Cole-Hamilton, (2012, p. 2) stated: "If children's opportunities for play are restricted there are likely to be profound effects on their life experience in general and more specifically on their physical and mental health. For example, obesity, rickets and attention deficit disorder are just some of the growing problems experienced by children that health experts have recently linked to a lack of particular forms of play." It presents a complex human activity and has been in the focus of many scientific fields such as psychology, pedagogy, sociology, ethnography, etc. (Bodrova, 2013; San Chee, 2014; Tatalović Vorkapić & Katić, 2015). Because of its complexity, children's play should be analyzed and understood through the application of holistic and multidisciplinary ideas (Kamenov, 2006). Schousboe and Winter-Lindqvist (2013) emphasized that it is impossible to separate children's play from their learning and development. "All children and young people need to play. The impulse to play is innate. Play is a biological, psychological and social necessity, and is fundamental to the healthy development and well-being of individuals and communities" (Gleave & Cole-Hamilton, 2012, p.4). Therefore, having in mind the whole frame of children' play, it is clearly observable that it presents the essence of positive psychology. Pearson, Russ and Spannagel (2008) demonstrated that pretend play and positive psychology are natural companions in presenting research on pretend play that fits under the umbrella of the positive psychology movement, and that is closely linked to the adaptive and optimal functioning in children within various environments. Even though these authors have reviewed five areas of positive psychology in relation to pretend play (creativity, coping, emotion regulation, empathy/emotional understanding, and hope), there are also other areas worth mentioning. Therefore, in this article, we present examples of proposed activities for nurturing positive emotions, thinking, traits and relationships with others.

BACKGROUND

Children's Play

Definition of children's play consists of four core aspects (Duran, 2003). The first aspect is a stimulatory behavior with features of divergence, incompleteness and inadequacy. Divergence means the children's behavior is new and unusual. Incompleteness represents that the play does not include the achievement of a specific target. Inadequacy is visible in the children's play since the play presents behavior that is not in accordance with the given situation. From the second, autotelic aspect, children' play has its own motivation sources. This means that the process of play is more important than the outcome of play. In addition, it means that the purpose of children's play is the play itself, where means dominate the goals in the absence of direct pragmatic effects. The third aspect refers to the fact that children's play realizes the private functions of players. This means that children's play releases tension, resolves conflict, and regulates the physical, cognitive and social-emotional development of children. Finally, the forth aspect is the fact that children's play is always running in an optimal condition motivational tone. In other words, it occurs in the absence of immediate biological compulsion and social threats, and in a state of moderate psychological tension. For example, if the child feel sick or (s)he is tired, s(h) will not be able to play spontaneously.

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Play is the oldest form of physical education and most autonomous activity of man, spontaneous and a freely chosen human activity, which includes the diversity of movement and a strong sense of happiness and satisfaction (Kvesić, 2008). Considering that the largest part of the game consists of fun, as such it is an ideal way to encourage the child's positive psychological aspects, which motivate them to learn, socialize and develop basic social behaviors. Play is a nice way of meeting people and making friends regardless of racial, linguistic, religious or other differences among children. When children play, they learn about natural and social phenomena, their changes and patterns in the immediate natural and social environment (Vasilj, 2008). Today, play is a basic activity in which children learn all about environment that surrounds them. That same environment enabled them to enjoy the feeling of acceptance, love and warmth, but also to enjoy playing with others, moving and speaking, as well as to communicate with others. Contemporary psychology with empirical findings supports the point of view that the fundamental frame for learning in children is the play itself considering it is the simplest and most natural children's activity (Peti-Stantić & Velički, 2009). Gleave & Cole-Hamilton (2012, p.4) stated that "play is a process that is freely chosen, personally directed and intrinsically motivated. That is, children and young people determine and control the content and intent of their play, by following their own instincts, ideas and interests, in their own way for their own reasons."

Developmental psychology looks at play as the child's inner need for activity (Vasta, Haith & Miller, 2004). Children acquire their first experiences, skills, abilities and knowledge through spontaneous play: they learn to walk, talk, and acquire first knowledge of the world around them. Through play children reveal their own opportunities, develop skills and abilities, gain experience, learn, and create. In addition, play can stimulate imagination and creativity. Considering that children greatly enjoy play, it motivates them to participate in various activities in their surroundings. The significance of play in today's upbringing is very important because it affects all dimensions of physical, cognitive and social-emotional development of the child. Contemporary educators use play to help evoke in the children a sense of curiosity, sensitivity, physical activity and the need for cooperation, tolerance and togetherness among children, regardless of their socioeconomic status or some other differences. Kindergartens are a place for play, because all the toys, picture books and materials are equally available to every child, no matter if the child has them at home or not.

Since play affects the child in different ways, its influence in the education of children noticeable from several perspectives (Kvesić, 2008). The first one relates to the biological significance of the game – it reflects a favorable impact on the functioning of internal organs, which affects the improvement and strengthening of the whole organism; physical activity makes the child's muscles stronger; lungs are releasing old and filling up with fresh air; blood circulation is faster and discharges excess energy. The second focuses on the pedagogical significance of children's play, which relates to developing positive personality traits: dexterity, endurance, resourcefulness, respect for others, self-respect, and moral personality. Creative games stimulate children's imagination, divergent thinking, creativity, and innovation.

The psychological significance of play means that through play children exercise and sharpen their perception, develop imagination, thinking and creativity, explore and exercise their memory, and express their emotions. Within the sociological aspect, children develop social skills in interactions with other children in collective plays, adopt rules of different plays, respect for the norms of behavior in play, show respect for others, learn to express tolerance, social justice, and equality. Institutional or not, when playing the children learn through trials and errors, they experiment with different materials, express their thoughts and feelings, research with various methods. With play, children develop and build their whole personality, as well as their self-regulation (Bodrova & Leong, 2003). In their environment, children

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who pay get to know themselves and develop their own individuality, i.e. their likes and dislikes. The ability of independent and mature play presents the base on which the children build their confidence, strengthen concentration, sense of identity, resourcefulness, and creativity. So, this should be strongly encouraged by parents and significant others. The basic form of activity and the most appropriate method of positive influence on the children's overall development is children's play.

In literature, there is reference to several types of children's play (Duran, 2003): functional play, symbolic play, and play with rules. Functional play relates to the new functions that are maturing, and these are motor, sensory and perceptive functions. This kind of play is present in children's early interaction with the environment and gradually in the second year of life, it decreases as the intensity of creative games increases. Symbolic play (or play of fantasy, role-playing games) represents play in imaginary situations that are associated with reality through symbols. On the other hand, a play with the rules is a play with sensory-motoric combinations (race, marmot, bouncing etc.) or intellectual combinations (cards, chess, etc.). When playing with rules, children compete and they regulate themselves by certain rules learned from adults or by their own agreed rules. This type of play has a significant impact on the cognitive, moral and social development. Preschool play is the principal activity of the child, and educators should view play as one of his/her basic needs. It should not be a reward or punishment, which depends on the obedience of a child nor it only be understood as fun and entertainment (Findak & Delija, 2001). Through appropriate play content the conditions are ensured for a normal state of health of the children's organism and development of different types of knowledge, skills, and habits, which affect the psychological well-being of the child such as self-confidence, joy, happiness, hope, a sense of satisfaction (Koritnik, 1970). That is the reason why positive psychology is foundational at the core of children's play.

Positive Psychology Approach

The concept of well-being is multi-dimensional, encompassing physical, emotional and social well-being and focusing on children's immediate as well as their future lives (Statham and Chase 2010). The scientific discipline that deals with study of psychological well-being, positive qualities, and the human condition of positive psychology (Seligman & Csikszentmihalyi, 2000). Positive psychology was a reaction to the established empirical fact that previous psychology mainly focused on the research of negative emotions and states, and that this was not giving objective findings on what human happiness and love actually are and how to achieve them. The main goal of positive psychology is to highlight the positive qualities of the individual, which means that every individual should recognize his/her strengths, fully develop them, and make his/her life more positive and fulfilling. It is not enough to live without any difficulties but also to know how to live happily and satisfied. Until now, there are numerous research studies in the fields of positive emotions and moods (happiness, subjective well-being, eudemonic well-being); positive experiences (flow, mindfulness, elevation); positive thinking (optimism, hope and self-efficacy); positive character (virtues and strengths); positive motivation; positive life-long development; positive relationships (altruism, gratitude, forgiveness, friendship and love); and positive community (positive family, positive kindergarten, positive school, positive working organization, positive society) (Rijavec, Miljković & Brdar, 2008).

If we focus on the analysis of what is vital for children's optimal and adequate overall growth and development, soon we come to an answer that refers to play. "It is widely understood that play is crucial to children's healthy development and quality of life" (Foley, 2008, p.6). Therefore, it is more than important to build such competence among educators that enable their adequate role in the children's play,

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the role that optimally supports and encourages children's play in order to achieve the highest possible levels of their well-being (Tatalović Vorkapić & Katić, 2015).

Although positive psychology goes hand in hand with children's play (Pearson, Russ & Spannagel, 2008), nowadays, very few scientific studies exist that clearly associate this field of psychology with children's play, or that recognize positive psychology within the frame of institutional care and education, at least when the Croatian cultural context is considered. The reason probably lies in the fact that it is a relatively young scientific discipline, the youngest in terms of psychology in general (Seligman, 2002). Nevertheless, preschool teachers can still recognize it (Tatalović Vorkapić & Vujičić, 2012).

This research aims to explore the preschool teachers' opinions concerning the need for positive psychology knowledge and its implementation within preschool institutions. It was determined that preschool teachers perceive Positive psychology as very much needed for their profession at all work levels. In addition, they viewed the positive psychology findings as very useful and applicable in their work and especially in their work with children.

So, taking into consideration the aforementioned, the intention behind this article if to review some of the narrow fields of positive psychology, such as positive emotions, positive thinking, positive traits or virtues, and positive relationships. In addition, we will analyze specific types of play and activities with children in relationship to these specific domains of positive psychology that are able to be nurtured and developed in early and preschool care and education.

These specific activities for children by which children are developing positive emotions, thinking, virtues and positive relationships are chosen, since they are mostly used in our country and mostly suggested by Croatian practitioners.

Positive Psychology Competencies of Pre-School Teachers

Moreover, besides all necessary competencies that modern and quality pre-school teachers should possess, positive psychology competences are very important, especially regarding pre-school teachers' role in children's play. University undergraduate and graduate study of an Early and pre-school care and education in Rijeka, Croatia is aimed to develop all necessary generic and specific competencies, so the pre-school teachers would be qualified to adequately and quality respond to every child needs with proper creation of an early and pre-school educational context.

In addition, they would be qualified to efficiently plan, program and evaluate an early and pre-school educational context taking into account all developmental areas of children. Besides, to be the reflective practitioner is one of the major competencies of pre-school teachers, who would be able to think about her/his implicit cognition and enhance practice accordingly. Continuous further professional development of pre-school teachers is very important, the teacher who think integrative in the context of one's own profession and actively pursue needed research studies in educational context. Quality initial education and continuing professional development of pre-school teachers have a direct impact on the implementation of the National Curriculum (2014) for an early and pre-school education. Moreover, it is very important to emphasize that both, initial education (undergraduate and graduate university study) and professional development should result not only advances in knowledge, but also in changes in pre-school teachers' beliefs and actions.

Therefore, the methods of pre-school teachers' education should have not only informative, but also transformative potential. In other words, quality teachers are those who have research characteristics and allow questioning of their and others beliefs, experiences and every day kindergarten practices. Beliefs

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are filtering the knowledge and managing behavior of teachers, so the promotion practices will not happen if it is not linked to questioning and modifying those beliefs and the overall educational philosophy of pre-school teachers (National Curriculum of Croatia, 2014). Within the elective course of Positive Psychology at the Faculty of Teacher Education in Rijeka, for the last seven years, pre-school teachers have being developing their positive psychology competences. The overall objective of the course is to familiarize students with the objectives and findings of positive psychology, aimed at strengthening and optimizing the positive dimension of the individual, which can provide a better quality of life and the application of knowledge in working with pre-school children. In addition, students gain knowledge and skills how to recognize and relate positive psychology elements with their practice, and how to implement some activities in their kindergarten group with the aim of developing positive psychology aspects in preschool children.

It is expected that students after passing the exam for the course Positive psychology, dispose of the following competencies:

1. To acquire basic knowledge of fundamental knowledge in the field of positive psychology;
2. To develop the capacity of analysis and synthesis of basic knowledge of positive psychology;
3. To develop the ability to define and describe the basic terms of positive psychology such as happiness, positive emotions, factors affecting positive emotions and positive relationships with other people and others;
4. To develop problem solving skills and decision-making in pre-school education by learning from positive psychology;
5. To develop the skills of team or individual work and on the basis of findings from positive psychology;
6. Develop tolerance and sensitivity to individual differences among pre-school children, the general diversity and multiculturalism, and the ethical commitment educator invitation, as well as qualitative level of communication with parents, using the basic principles of positive psychology.

MAIN FOCUS OF THE CHAPTER

Nurturing Children Play by Positive Psychology Competencies of Pre-School Teachers

Defining and Developing Positive Emotions

The only theoretical model that offers a complete framework for understanding positive emotions of humans and their functions is that of Barbara Friedrickson (2009, 2011). According to this theory, *the broaden-and-build theory of positive emotions*, positive emotions have four functions. The first function is related to the behavior that occurs during the manifestations of positive emotions. She notes that unlike negative emotions, positive emotions signal safety, expand our repertoires and allow us to build a new behavior. This behavior includes creative and accurate thinking, tolerance to uncertainty, and focus on solving problems not only in the present but also in the future. The second function of positive emotions is that they increase the number of possible behaviors for which we are preparing. Thus, they help in building the qualities that a person will use in the future. From that reason, positive emotions are an important aspect in human personality growth and development. In addition, they enable people to

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live a full life. The third function is cancellation, since positive emotions reduce existing physiological responses that are resulted from negative emotions.

Positive emotions can accelerate recovery or undo the physiological effects of negative emotions and return the body to the level of physiological functioning. The fourth function of positive emotions is that they create an upward spiral that person leads to a better emotional well-being, personal growth and development. In educational institutions, the increased interest in the application of activities aimed at developing social and emotional skills in children, such as problem solving, decision making, communication skills, recognizing own and others emotions and deal with them appropriately, control of emotions, manage own behavior etc. are widely visible (Takšić, Mohorić & Munjas, 2006). Many studies have demonstrated that positive emotions, if children properly manage them, can facilitate rational thinking, allow correct decision-making, and direct the individual to the appropriate behavior. Studies have shown that children, who are emotionally competent, are on average, in fact more responsible, more confident, popular, open, ready to help others and cooperate. All of this leads us to the conclusion that educational institutes need to implement activities, which will encourage children to focus on positive emotions so that they could develop emotional competence. Emotional competence is of major importance to the functioning of the individual, as well as learning. According to this, one dimension of David Watson (2002) relating to the self-esteem will be emphasized and it will be explained in the following through the example of an activity that can be performed in the preschool educational institution.

Recommended Activity for Self-Esteem Development

The development of children's self-esteem largely depends on the adults' behavior and their method of upbringing. It is necessary to teach children to perform everyday activities with joy and confidence, to show what they are and to feel free to express what they feel and think. All this is important so children would be able to develop self-confidence. Educators should provide children with opportunities to jointly share their experiences and adventures, to behave spontaneously and to accept their own life situations with joy. They should develop self-confidence of children in a manner that will offer them the opportunity to act independently and to achieve satisfactory results in the activities. For this reason, the starting point in the design of activities should be focused on what children can do with regard to their development, competences, and capabilities. The children will have more confidence if they are independent in finding solutions. To encourage children to develop self-confidence we should implement appropriate activities.

Applying the activity called *"Duckling Mono" ("Pačić Mono"* in Croatian) achieves that objective (Figure 1). The activity begins with a puppet show or story, which is an introduction to the conversation between educators and children. At the end of the activity, the children draw or model ducklings. The aim of the activity is to show children that feelings of uncertainty and lack of confidence can prevent ducklings to enjoy beautiful things. The task is to develop self-confidence in children and this type of activity is listening and retelling of the performance. Materials needed to perform are puppets on a stick or dolls and a CD-player for music. After the performance, they explain to the children what confidence is and that it depends on what people think about themselves.

Here is the text:

One rainy day, the rain flowed through the nest of duck Pomponius who was happy because she was surrounded by her children. The ducklings are constantly peering under the wings of mom Pomponius and every now and then, they would jump out of the nest to shake their yellow wings. The ducklings tasted

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Figure 1. Duckling Mono: a puppet show in kindergarten

the water in the pond and decided to persuade mom Pomponium to go swimming. Mom got up from the nest and went toward the lake. ''Count me out,'' said Moni Duckling, "I don't know how to swim, and if I go in, all water will go to my mouth''. His mother responded: ''Moni, don't you know that ducks do not need to go to the school of swimming? Ducklings can swim as soon as they are hatched from eggs." ''That may be true for the other ducks, but not for me." ''Well'', said mother Pomponia, "you stay at home while we go to have fun." The duckling watched them go and he was very sad because he wanted to be with them. ''I wish I knew how to swim,'' he thought. He walked to the part of the lake where nobody could see him and told himself, "I can do it, and one, and two....." He threw himself on the head and realized that he knew how to swim. ''Weeeee'' he shouted floating toward mother and his brothers. ''Mom, look, I am a water duck, I know how to swim!'' he shouted. His mother, brothers, and sisters laughed when they saw the duckling swimming toward them, confident that he knows how to swim. Moreover, Moni was now sure that all the ducks could swim even though nobody taught them to do so. The only thing they needed was self-confidence, he thought as he proudly glided over the water like a small boat (http://www.waece.org/paz/bosnia/13.%20Samopouzdanje.pdf).

The questions that they children could be asked are: "Why did Mono not want to get into the lake? Could he not swim or was it just his imagination? What did he need to go into the water? Did he believe

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in himself that he could do it? Questions may continue in the direction in which children begin to answer, but not too far from the topic activities. After speaking, the children can draw or model ducklings, his brother, sister or mother. In addition, the children can retell what has happened to the duckling. Educator can follow the children's responses and record whether they recognized the duckling's low self-esteem or not, and if they could relate the story with some experiences in their own lives.

Defining and Developing Positive Thinking

Apart from hope and self-efficacy, optimism is one type of positive thinking that was investigated the most. When discussing optimism, most people think that it is the standpoint from which we see the glass as half full, or always notice the good side, or habitually expect happy endings (Seligman, 2005). An optimist expects his future mostly to be good, while a pessimist expects something bad will happen. In addition, the optimist is determined by the positive way of thinking about the causes of a situation, based on which optimism is defined as an explanatory style of a person. Each person is accustomed to a certain style of explaining causes or an attributional style. It develops in childhood and becomes lifelong. When optimists encounter difficulties, they do not give up on their goals and continue trying. They have an efficient coping style with unpleasant emotional states, which have resulted from difficult life situations, but they keep on going and usually succeed to achieve their goals. Parents of optimistic children explain the negative events in their lives in such a way so that children would feel good, while they explain positive events in such a way so that they feel extremely good (Rijavec, Miljković & Brdar, 2008). Although there is a significant positive correlation between optimism of children and optimism of their parents (Pavlic & Tatalović Vorkapić, 2015) parents are not the only people who unwittingly impose their explanatory style to children. Preschool, primary school, and secondary school teachers also have a tremendous impact. On a daily basis, they deal with the children's success and failure, so through the process of learning and teaching strongly affect the children's perception of how life works (Seligman, 2005). Fortunately, irrespective of the influence of genetics and early experience, research shows that optimism can be learned (Rijavec, Miljković & Brdar, 2008). Development of optimism depends on the mental health of the parents, parental modeling of optimism and pessimism, and the degree to which parents encourage and reward optimism (Gillham, 2000; Seligman, 2002; Pavlic & Tatalović Vorkapić, 2015). In addition, it could be enhanced through various educational activities within the institutional care and education of children.

Recommended Activity for Optimism Development

Most situations in which a child is sad can be used for the development of optimism in the kindergarten. This activity is called *"I'm sad, but ..."*. When educators detect that a child is showing signs of sadness and that this is constantly repeated throughout the course of several days, they can do the activity with the children through which they encourage and stimulate an optimistic view of that sadness. A practical example is when a boy is constantly crying upon arrival to the kindergarten and is very sad when the mother leaves. The aim of this activity is to show children that it is okay to share sadness with someone you love and that person will always provide you with a warm hug and love. In conversation with children, an educator can show how sadness is part of life, so the child will more easily accept sadness. Educator first asks the children what sadness is and after the introductory talk, he recounts the story of grief, followed by questions and a longer conversation about happiness and sorrow. The story goes like this:

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Figure 2. Children drawing a rainbow

For me, sadness is like winter, winter comes after autumn, long rains and cold winds which disturb our heart and soul. However, winter is a time of peace, when all is a sleep and eventually goes into oblivion with many soft snowflakes. Sadness occurs after some events that have deeply impacted us. We should not run away from sadness, we must wait and it will help us to restore peace. It is not bad to be sad, it's okay to cry and sadness will slowly leave us. It is good to share sadness with friends or any other person we love. With love and warm embrace even the coldest winter does not last too long (Veronek-Germadnik, 2001).

Every child tells what saddens means to him or her, and children all together seek for solutions to specific problems. If a child is sad, the educator can lead the children to come up with a solution how to help a friend who is sad by asking questions. Children together conclude that each of them could share his/her sadness with his/her friends and that (s)he is never alone. Children could have a group hug and continue with various activities in the art center. All together could draw a rainbow on a flip chart that will remind them of how many colors (happiness) exist even though when we are sad everything seems futile. The activity in which children are drawing rainbow could be seen at the Figure 2 and 3. In addition, Figure 4 presents the children art activity that was done with their hands and at the same time, it presents their solidarity and togetherness.

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Figure 3. Finished drawing of rainbow

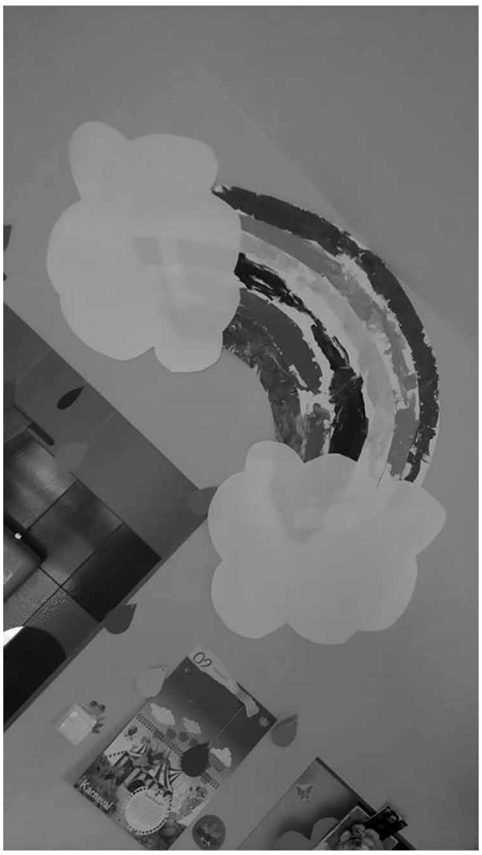

Figure 4. Art activity: children's hands

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Defining and Developing Positive Traits

The earliest attempt at a classification of positive traits occurred when Confucius systematically described the human virtues of humanity, justice and wisdom (Habermas, 1988). Contemporary positive psychology has developed three classifications of virtues of which the most empirically proven is VIA (Values in Action) classification of characters' strengths created by the VIA Institute of Character (Rijavec, Brdar & Miljković, 2008). According to this classification six groups of basic virtues have been identified that are culturally and temporal universal. These are: wisdom, courage, humanity, justice, temperance, and transcendence. For the purpose of easier defining and measuring, 24 traits have been described which can be classified in any of the listed categories. In this review, one of these human strengths and virtues will be emphasized, and that is modesty. Humble people have a reduced need to impress others and dominate them, they are less concerned with material things and are less likely to go against someone. Such behavior brings benefits to a modest person in the area of emotional well-being and self-regulation. In some situations, modesty and humility can protect humans from risk and bad decisions. A modest person will be more careful and will not take risks in situations where there is a realistic estimation of a certain failure.

Recommended Activity for Modesty Development

The name of this activity is *"Listening to the story of the Hedgehog's House and a visit to a nursing home."* During holiday seasons, various activities that promote and encourage modesty in children are more often performed than throughout the year. Perhaps the reason for that is the fact that holidays are periods of giving, but also that we want to show the children how good it is to be humble. With the aim of developing modesty, preschool teachers could use the story *Hedgehog House* by Branko Čopić (2008). In this story, the love of hedgehog for his very modest but lovely home is vividly demonstrated. The educator reads the story *''Hedgehog's house,''* (Figure 5) which is then followed by a discussion about modesty. Then educator explains where to go before Christmas (visit a nursing home), talks about the nursing home, who lives there, why, and how. Children are asked to come up with ideas what to give to people who live there. Their creativity and imagination are very much encouraged. Before visiting a nursing home, the following activities are dedicated to making small gifts. Therefore, the children make ornaments for the Christmas tree with the materials that are collected together during a walk in the nature. After visiting a nursing home, the teacher and children talk about their impressions.

Except for the mentioned topics for discussion in the context of presented activity, it is certainly more than helpful to encourage the development of social equality and justice. This could be accomplished by implementing the concept of reframing the issue of inequalities into an inequality of agency rather than and inequality of money (Jarden, 2012). In other words, Jarden (2012) postulates that money should not be the only reason for human happiness or the lack of it for human unhappiness. Therefore, he emphasized: *"So it's not about throwing benefits and such things to those at the lower end of the income spectrum, it's actually about giving them a sense of agency, and actually getting them to critically and wholly participate in society, or helping them to participate"* (Jarden, 2012, p.111). Through the story of the *Hedgehog's House*, children can clearly see how the hedgehog is happy in his own home, although he is not rich, and is very modest. His happiness is only related with the atmosphere of his home, and

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Figure 5. Hedgehog's house
http://www.pjesmicezadjecu.com/bajke-i-price-za-djecu/jezeva-kucica-branko-copic.html

not with money and wealth. In this way, the conversation with children could be initiated about the differences that exist between them. The same talk could be brought into connection with certain toys - are we lucky if we play with those toys that we love the most, or if we play with the most popular and the most expensive toy?

Defining and Developing Positive Relationships

In order to achieve happiness and a sense of life satisfaction people need other people, especially the closest ones such as family members, friends, and acquaintances, colleagues at work or school, neighbors, and other significant others. Relationships with other people greatly affect an individual's life satisfaction and well-being therefore this is one of the research fields within positive psychology that should be thoroughly explored (Rijavec, Miljković & Brdar, 2008). Altruism, gratitude, and forgiveness are essential processes for the successful regulation of relations with others. For the purposes of this review, symbolic play and activities with children that promote and encourage altruism in children are selected. Altruism is a special and selfless form of motivation of one person whose behavior benefits another person (Batson et al., 2002). This prosocial behavior aims to achieve some kind of benefit for another person. The reasons why someone helps others may be different on the motivation continuum: from a true concern for the other person to the desire to realize their own interests. This benefit can be used to reduce their own tension, reduce feelings of guilt or achieve some personal and social gain. Altruism means genuine, disinterested affection for others. An altruistic person is ready to help everyone, not only his family and friends. To consider a social behavior as prosocial it should satisfy the following conditions: it should be willingly initiated, undertaken with the intention of improving or maintaining the well-being of others and it should exclude an expected material or social reward (Raboteg-Šarić, 1995). Prosocial behavior can be encouraged by provoking empathy. A simple way to do this is to bring people in contact with those who need help and put them in a position where they can understand their perspective and motivations (Snyder & Lopez, 2007). Another way is to point out the similarities that

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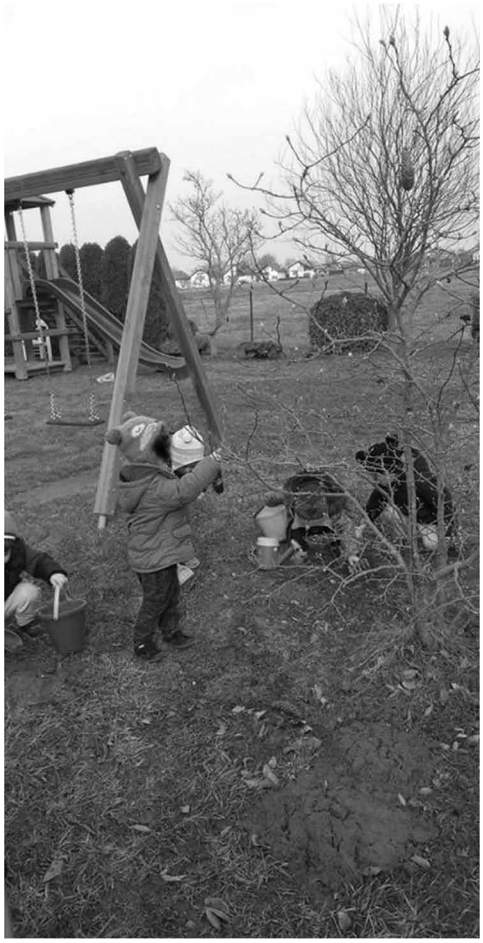
Figure 6. Adopted tree



exist between those who could help and those who need help, which is leading to the understanding of connectedness between people. When someone shows their altruism to someone, a positive reaction toward a person to whom it was directed, this will increase the probability that they will repeat this behavior in the near future (Rijavec, Miljković & Brdar, 2008).

Recommended Activity for Altruism Development

The development of social skills and overall interpersonal functioning among children is highly facilitated with the integration of affective and cognitive domains in children's play (Russ, 2004). Therefore, this activity is named *"Adopted tree"* (Figure 6). In the preschool period, children develop responsibility for their own health and the health of others. Developing upbringing and education about the environment around children could enhance their development of altruism. This activity starts with the conversation in which children should be explained that taking care of nature and their environment is self-rewarding, since if we care about our surroundings, it provides us with health and life pleasure. This activity lasts for an entire year or as long as the interest of children for this exists. During usual walking, children choose

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a tree that will be adopted. When the tree has been chosen, they take of it throughout the whole year, by taking walks with the educator and observing any changes related to the tree. After selecting the tree, the children could draw it. In addition, children could measure the height of the tree, its circumference, and its smell. They could embrace it, in order to help children to better experience the tree. Children should visit the tree during all seasons. When it is hot, they should water it, when its leaves fall they should collect them, during winter they should build a snowman for its friend, and clean the snow around the tree. In the spring when the tree's flowers are blossoming, leaves and branches are becoming green the children will feel proud because their tree has come to life after a long winter. If it is possible, the children could paint a tree in different seasons and can later make a poster that will be displayed as the tree is advancing. Depending on the season, children can be offered a variety activities related to the tree. One of them is in the fall when the leaves are falling and when children collect them, then the same leaves can be used for making prints on paper (Rothschild & Daniels 1999). Children develop a sense of altruism with the overall activities, realize that they feel good when help the tree, and do not expect anything in return. With this activity, children are indirectly prepared for life in the society.

CONCLUSION AND RECOMMENDATIONS

Psychology is no longer focused only on alleviating negative states and phenomena. One of its branches, i.e. positive psychology, deals with what is good in people and studies the conditions and processes that contribute to the higher levels of well-being of the individual in the society. When we talk about the practice of positive psychology, one of its first applied fields is the field of education, since the teaching is the most organized part of that process. Apart from teaching in schools, institutional care and education that could be recognized in the Kindergarten classrooms should be mentioned. According to the contemporary paradigms of early education (Tatalović Vorkapić, Vujičić & Čepić, 2014) we can conclude that there is a strong connection between teaching in schools and the educational work in kindergartens. The child is the subject of its own development, he/she is an active social individual, and his/her experiences are important in the overall development since they provide guidelines for the activities in the kindergarten.

Watching a child at play, it is easily perceivable that his/her imitation and dramatization actually present typical behaviors of how a child presents or relives his/her experiences. That is why we say that play encourages experience in the children and through it they create their own picture of the world. In educational institutions, an interest is evident in the application of activities that are aimed at developing social and emotional skills of the children. Children who develop these skills indicate a higher level of accountability, confidence, popularity, and openness, and are more willing to help and cooperate (Tatalović Vorkapić & Lončarić, 2014). Children's play presents an indicator of children's resilience and is at the same time a facilitator of its enhancement (Pearson, Russ & Spannagel, 2008). Therefore, it is very important to encourage the development of positive features, such as hope, optimism, gratitude, modesty, prosocial behavior, creativity, emotion regulation, etc. There are many activities, that can develop positive features, but it is important to follow the child's interests, because some activities simply do not match the ability/need/interest of the child. Therefore, it is important to encourage the development of those virtues that have to be determined as the child's own strengths.

Many activities can be an incentive for the development and maintenance of positive emotions, opinions, features, and the relationship between children. These activities are preparing the children for

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a future life in the society, a community that would be better if such education went from family, from upbringing educational group in kindergarten through to primary and secondary schools. By introducing and nurturing the fundamental principles of positive psychology in kindergartens through various types of play and systematic methods of analysis, a valuable base could be created for research. This base for research would clearly imply those games and activities that can be used not only for quality work with children, in order to achieve their highest levels of well-being, but also for various prevention programs which aim to reduce the negative emotional states of children who are now on the rise, i.e. anxiety and depression. In addition, as Pearson and colleagues have already emphasized (2008), on the one hand, specific processes during play that facilitate adaptive and optimal functioning in children should be thoroughly analyzed and, on the other, various educational activities should be explored whose aim is to detect which part of them clearly provides a solid structure for developing positive features in children.

Therefore, the modern high-quality kindergarten should provide all materials and methods that encourage children's free play. Different environments, different places from where the children enter the kindergarten and diversity among children in itself have their own interests, and they should serve to encourage the development of tolerance and respect. Chosen activities should aim to develop positive features in children, and pretend play should be especially encouraged since it presents "*…a vital resource which naturally promotes flourishing"* (Pearson, Russ & Spannagel, 2008, p.117). The kindergarten as a children's home means creating an environment in which children will be appreciated as a personality. They will be happy and pleased to be encouraged to learn in a way that suits their age, style of learning, and developmental needs because the child's enjoyment is the central point at the crossroads between children, the kindergarten and play.

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KEY TERMS AND DEFINITIONS

Play: A biological, psychological and social necessity, and is fundamental to the healthy development and well-being of individuals and communities. It has four major properties: it is stimulatory, divergent, incomplete, autotelic; it fills the private functions of players, and it is running in an optimal condition motivational tone of the child.

Positive Emotions: The emotions that are positive by their valence, primary and secondary, which are thoroughly described within Barbara Friedrickson's the broaden-and-build theory of positive emotions.

Positive Psychology Competencies: The competencies of pre-school teachers of having contemporary knowledge and skills in the field of positive psychology, so they could be able to strengthening and optimizing the positive dimension of the individual, which can provide a better quality of life and the application of knowledge in working with pre-school children.

Positive Psychology: The scientific discipline that deals with study of psychological well-being, positive qualities called virtues, the positive human conditions and optimal states.

Positive Relationships: They consists of positive feelings for every person included in specific relation, and they are: altruism, gratitude, and forgiveness since they are essential processes for the successful regulation of relations with others. Altruism presents a form of prosocial behavior in which is the aim of helping other person with no self-benefit.

Positive Thinking: It consists of everyday thoughts that are mostly positive by its content. There are three types of positive thinking: optimism, hope and self-efficacy. Optimism reflects the positive way of thinking in which mostly good things and solutions are expected to be in the future.

Positive Traits or Virtues: According to VIA classification, human virtues are: wisdom, courage, humanity, justice, temperance, and transcendence. Modest people have a reduced need to impress others and dominate them. They are less concerned with material things and are less likely to go against someone. Such behavior brings benefits to a modest person in the area of emotional well-being and self-regulation.

Self-Esteem: It consists of all information (objective and subjective) that child has about him/herself. This set of information determine child's behavior (positive or negative), the possibilities of self-expression and related emotions (positive or negative). Higher self-esteem developed on prior success is the solid ground for positive self-development in children.

Types of Children's Play: A functional play, symbolic play, and play with rules. Functional play is related to the new functions that are maturing, and these are motor, sensory and perceptive functions. Symbolic play (or play of fantasy, role-playing games) is related to play in imaginary situations that are associated with reality through symbols. Play with the rules is a play with sensory-motoric combinations (race, marmot, bouncing, etc.) or intellectual combinations (cards, chess, etc.) in which children compete, and that are regulated by certain rules learned from adults or by their own agreed rules.

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Chapter 26
A Hybrid Approach for Facial Expression Recognition Using Extended Local Binary Patterns and Principal Component Analysis

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ABSTRACT

Facial feature extraction and recognition plays a prominent role in human non-verbal interaction and it is one of the crucial factors among pose, speech, facial expression, behaviour and actions which are used in conveying information about the intentions and emotions of a human being. In this article an extended local binary pattern is used for the feature extraction process and a principal component analysis (PCA) is used for dimensionality reduction. The projections of the sample and model images are calculated and compared by Euclidean distance method. The combination of extended local binary pattern and PCA (ELBP+PCA) improves the accuracy of the recognition rate and also diminishes the evaluation complexity. The evaluation of proposed facial expression recognition approach will focus on the performance of the recognition rate. A series of tests are performed for the validation of algorithms and to compare the accuracy of the methods on the JAFFE, Extended Cohn-Kanade images database.

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INTRODUCTION

Facial expression plays a very crucial role in human verbal and non-verbal communication. In human interactions, enunciation and perception facial expression built a communication channel that is auxiliary to voice and that carries prominent information about the mental, emotional and even physical states of the persons. Facial expression is one of the factors among pose, speech, behaviour and actions which are used in conveying information about the intensions and emotions of a human being. The level of accuracy of facial expressions in humans is very high in determining their behaviour and emotions. In recent years a lot of research has been made in facial expression recognition but still recognizing facial expression with a great perfection is not achieved due to the complexity and instability of expressions.

Facial expression recognition steps (FERS) is a three-step process which includes face detection, feature extraction and expression classification (De, Saha, & Pal, 2015). Yang's survey (Yang & Waibel, 1996) states that the face detection techniques has four main types i.e., knowledge-based, feature invariant, template matching, appearance-based. Many algorithms have been proposed by the researchers in their respective research for face detection. One of the widely used face detection algorithm was proposed by Paul Viola and Michael J Jones in 2001. Viola and Jones method (Agarwal & Khatri, 2015; Viola & Jones, 2001) method proved to be a major milestone face detection method. Viola and Jones face detection model is based on three key unique features. First, they introduced concept of 'integral image' that allows features used by their detector that made the computation very fast. Second, they built their efficient and simple classifier using AdaBoost learning algorithm. Third, they developed a method which combines classifiers in a 'cascade' which allows background regions in the image to be quickly suppressed while contributing more computation time on detecting features i.e. nose, eyes, chin and mouth.

The feature extraction process aims at extracting specific data from an image or video that can produce relevant information. Accurate and effective recognition rate is only achieved when adequate features are extracted (Yacoob & Davis, 1996; Essa & Pentland 1997; Yeasin, Bullot, & Sharma, 2004; Hoey & Little, 2004). Geometric-feature based methods and appearance-based methods (Lai & Ko, 2014) are the two most commonly used approaches to extract facial feature extraction. Geometric feature-based methods yield comparable or better results than appearance-based approaches in AU identification (Valstar, Patras, & Pantic, 2005; Valstar & Pantic, 2006). However, the geometric feature-based methods majorly need correct and reliable facial feature detection and tracking crucial points in the face region, which is difficult to achieve in many situations. One of the most widely used geometrical feature-based method is Local Binary Patterns (LBP). The first Local Binary Patterns (Ojala, Pietikäinen, & Harwood, 1996) was proved a vigorous means of texture analysis.

LBP is majorly designed for texture analysis and texture description. It is mainly used because of its excellent light invariance property and low computational complexity. LBP operator works with a 3 X 3 pixel matrix where centre pixel which is surrounded by eight neighbours is used as threshold. Pixels surrounding the central pixel are marked as 1 if they have higher or equal gray value than centre pixel, otherwise marked as 0. A binary code is produced by concatenating marked values anticlockwise. Now the original LBP operator has a limitation that it could give good result because of its small 3 X 3 neighbourhood which is unable to capture required main features with large scale structure. So to enhance the original LBP operator, it is extended to a multi-resolution LBP operator which is denoted by $LBP_{P,R}^{u2}$ (Shan, Gong, & McOwan, 2009).

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In appearance-based method, the whole image of the face is taken as input to extract image features. Among the various algorithms of appearance-based methods, PCA (Turk & Pentland, 1991a), LDA (Martinez & Kak, 2001) and ICA (Bartlett, Lades, & Sejnowski, 1998) are the most commonly used. Turk and Pentland (Turk & Pentland, 1991b) in 1991 developed PCA using eigenspace projection. The PCA aims to minimize the dimensionality of data into reduced dimensional feature space that describe the image data effectively and economically. A method was proposed (Chakrabarti & Dutta, 2013) for expression recognition that uses eigenfaces for recognizing the different standard expression. Zilu and Xieyan (2008) proposed an approach for FER which combines LBP and ADABOOST. A model was developed (Pukhrambam, Das, & Saha, 2015) which initially takes the static image as input and extracts the different skin regions using the hue saturation value to recognize facial emotions and uses support vector machine as classifier. Tawari and Trivedi (2013) developed a model which uses audio and visual data information for expression recognition. Happy and Routray (2015) developed a model which uses different prominent facial patches for human expression recognition. Ahonen, Hadid, and Pietikainen (2006) developed a method which divides images into different blocks and their description is evaluated by LBP. The obtained different descriptors are united to get histogram and the combined texture descriptors of every region present in overall face geometry.

In this work a hybrid approach combining Extended Local Binary Patterns and Principal Component Analysis is proposed for improving the accuracy of recognition rate for FER system. First the quality of image is enhanced by applying image pre-processing and then prominent features of the face are extracted by using ELBP. Feature extraction is the process of obtaining reduced feature set from input data to represent original data without redundancy. It plays very crucial role in pattern classification/ recognition because redundant information in input data affects the performance of classification/ recognition. The feature extraction process aims at extracting specific data from an input image that can produce relevant information. PCA will be applied on the output of ELBP images to lower down the dimensionality of data into reduced dimensional feature space that describe the data efficiently and finally classification of expression is done by Euclidean distance method which compares the projections of the sample and model images.

This paper is dived into six sections including first introduction section. The second section of the paper gives a brief view of the work which has been previously implemented. The next section three explains the traditional Local Binary Pattern operator. Next section four gives objective and methodology of the proposed work and in section five results are discussed and compared with different existing methods. The paper will be concluded in section six.

BACKGROUND

Expression representation and classifier method are the two indispensable aspects of facial expression recognition system (Fasel & Luettin, 2003). Expression representation considers the feature extraction to represent face data effectively taking optimized variations within all class of expressions. A combination of active infra-red illumination and kalman filtering is used to account enormous changes in head pose (Zhang & Ji, 2005). Lai and Ko (2014) suggested the significance of perfect human emotion feature extraction method for expression recognition. Authors proposed a two-stage algorithm and in first one global data information and in second one subtle data information of required image is extracted. Valstar, Patras, and Pantic (2005) categorize the attributes evaluated from facial points and identify the minute

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changes in human emotional behaviour by analyzing facial muscle AUs. Deriving the feature set is not an easy task, because features should be descriptive and possibly not correlated with each other. Shape of face and position of facial components i.e., geometry of face points is widely taken into account for optimized feature extraction process (Pantic & Rothkrantz, 2000; Tian, Kanade, & Cohn, 2001; Pantic & Rothkrantz, 2004; Pantic & Patras, 2006). Different fiducial points are studied and features are extracted to represent an image (Zhang, Lyons, Schuster, & Akamatsu, 1998). Salmam, Madani, and Kissi (2016) proposed a novel geometric feature extraction method which evaluate distance on face points like eyes, mouth, eyebrow and nose and for comparison between different distances on face decision tree algorithm is used. One of the most widely used geometrical feature-based method is Local Binary Patterns (LBP) (Ojala, Pietikäinen, & Harwood, 1996). Ojala, Pietikäinen, and Mäenpää (2002) proposed a robust approach for different resolution gray scale variant and rotation independent texture identification. Authors implemented LBP for texture feature extraction and analysis. Shan, Gong, and McOwan (2005) states that LBP is best suited for feature extraction of low-resolution images and have excellent light invariance property and low computational complexity. LBP operator is used to eliminate the environmental lightning effect on human faces and texture features are captured (Zilu & Xieyan, 2008). With the help of LBP histograms facial features are represented into several regional blocks. To decrease the time complexity modified ADABOOST select the features with great discrimination and SVM is used as facial expression classifier. Zhang, Chen, Wang, and Liu (2012) proposed a hybrid method for feature extraction which combines geometrical attributes as well as appearance based features. Miyakoshi and Kato (2011) without stuffing the crevices of occluded features detect the human emotions by applying Bayesian network. Dixit and Gaikwad (2015) proposed a method by which they detect emotions on Zernike moments and result gained is classified using Naïve Bayesian classifier. The unique property of Zernike moments i.e. rotation invariance is also tested.

Saaidia, Zermi, and Ramdani (2016) proposed a method which uses combination of different feature attribute vectors for expression recognition. First face localization is done and after that Zernike moments vectors are extracted, then AR model is compiled and finally LBP is used for statistics distribution analysis. Agada and Yan (2015) extracts the human facial features using sobel textures with μLBP and edge detection method to detect the human emotion expressions. The whole face image is taken as input to extract image features in appearance variations of faces. It is the technique where face is considered as a complete unit and analytic where co-occurrence of distinctive feature facial elements is analyzed. Among the various algorithms of appearance-based methods, Gabor Wavelet (Lyons, Budynek, & Akamatsu, 1999), PCA (Turk & Pentland, 1991a), LDA (Martinez & Kak, 2001) and ICA (Bartlett, Lades, & Sejnowski, 1998) are the most commonly used and their applications vary from one data set of facial images to another. But applying Gabor Wavelet for facial image representation is costly due to its computational complexity and time taking nature (Lyons, Budynek, & Akamatsu, 1999; Zhang, Lyons, Schuster, & Akamatsu, 1998). PCA algorithm is used to divide input image into sub spaces and these sub spaces are used to calculate eigenfaces (Chakrabarti & Dutta, 2013). Calculating eigenfaces using sub spaces gives advantage in lighting directions and illuminations. Sopa et al. (2016) proposed a method in which PCA is also used for identification of required region on the face plane and the information which is redundant in facial expressions is stamp out. The cross points of each sub region is measured and the information is used for evaluating momentous level of every sub region. Kaur, Vashisht, and Neeru (2010) combined the singular value decomposition (SVD) with PCA for feature extraction to obtain all universal emotions and the obtained results have been critically analyzed and compared with the conventional PCA which illustrate that the implemented novel method achieves higher rate of recog-

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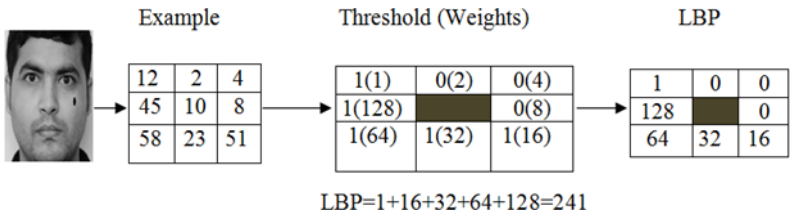
nition. Geetha, Sundaravadivelu, and Singh (2009) proposed a novel method which uses optical neural network for detecting facial expressions and KLT method is used for expression identification. Chen, Lin, Takiguchi, and Ariki (2014) proposed a novel approach which does not depend on huge data sets and will provide a classification framework which recognizes both expression and objects. The proposed framework is a support vector machine based which uses three main different techniques i.e. first PSM is implemented for creating training database and then SURF method is used for features extraction suitable for real time circumstances and finally region characteristics based on SVM are evaluated. Zheng and Liu (2016) presents a technique that is based on active appearance model which uses distinctive face feature points and texture data of required area of the face. The approach initially determines the texture and shape values by evaluating the unique physical significant specifications of given input face and after the evaluation of these features expression classification is made based on machine learning methods. Ozbey and Topal (2018) proposed active shape models to get discriminant subsets of LBP features from the facial landmarks. Alam, Vidyaratne, and Iftekharuddin (2018) proposed sparse deep simultaneous recurrent network technique which glean sparsity property and curtail the parameters and diminish complexity for expression recognition.

LOCAL BINARY PATTERN

LBP is majorly designed for texture analysis and texture description. It is mainly used because of its excellent light invariance property and low computational complexity. The local binary pattern (LBP) operator was initially illustrated by Ojala et al. (1996) for local image contrast as a complementary measure. The starting personification of the LBP worked with the eight-neighbourhood approach (3x3) with centre pixel as a threshold. The operator code for neighbouring pixels can be calculated by multiplying the threshold values with respective pixels weights.

Figure 1. Original LBP code calculation



All Pixels surrounding the central pixel are represented as 1, if they have higher or equal gray value than centre pixel, otherwise marked as 0. So, the binary representation of this is 11110001and decimal value is 241for this basic LBP operator as shown in Figure 1. Inventors of local binary pattern operators must go through three fundamental points. First point is to describe various local patterns & extraction of these patterns of facial elements. In Figure 2 different local patterns edge, line end, spot, corner and flat area are illustrated (Shan et al., 2009). As per LBP operator's definition, local patterns are denoted with binary codes. So, ones can be shown by white circles & zeros with black circles.

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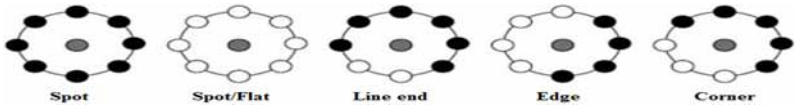
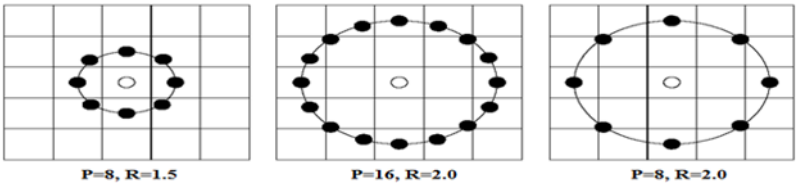
Figure 2. Generic methods based on generic image processing features



The limitation of eight neighbourhood approach occurs with large structures because of not capturing dominant features. Thus, the LBP later was extended with different size neighbourhood approach as shown in Figure 3 (Ojala et al., 2002). Hence, two neighbourhood approaches came into existences which are known as circular neighbourhood & bilinear interpolation. These approaches allow any radius and neighbourhood pixels. The pixel neighbourhoods will be (P, R) for above notation.

Figure 3. Extended local binary patterns



Second point is to prefer the essential subset of local patterns to show facial elements. Last point is to form an effective facial element descriptor with these selected patterns. Moreover, select the local pattern in such a manner that contains major portion of all patterns. Thus, the uniform pattern approach is introduced. It consists of two bitwise transitions either from 0-1 or from 1-0 in case of circular binary string i.e. 11111011, 00001110 and 11000001. LBP is known as uniform if it has zero transition (00000000, 11111111) and two bitwise transitions whereas four bitwise transitions (10001001) and six bitwise transitions (10101101) are non-uniform. Uniform patterns are involved in computing LBP labels. The fundamental LBP operator is nothing but the summation of threshold differences weighted by power of 2 & illustrated in Equation 1:

$$LBP_{P,R}\left(x_c, y_c\right) = \left\{\sum_{q=0}^{P-1} u\left(y_q - y_c\right) 2^P\right\} \tag{1}$$

For each and every uniform pattern having separate label, but all the non-uniform patterns are merged with a single label. This single label concept makes it tough to efficiently recognize some local patterns. Thus, the information is lost which is contained by these labels, especially in larger structures. So, the uniform patterns are noise sensitive. To overcome this hurdle, we assign different labels to all non-uniform patterns, so that we can extract more information as more kinds of local patterns. This phenomenon for local binary patterns is known as extended LBP.

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PROPOSED WORK

Background analysis states that human emotions recognition system gain great interest in many research areas and various different techniques have been proposed and implemented on different databases to gain accuracy in recognition rate and it has been found that the texture-based feature extraction methods are robust and achieve high recognition rate with the variations in lighting, illumination and facial pose. But still a lot of research is to be made in order to increase the accuracy of recognition rate in expression and emotions recognition systems. Combination of local feature extraction method and global feature extraction method may give enhanced results in terms of accuracy. In this paper Principal Component Analysis (PCA) and Extended Local Binary Pattern (ELBP) will be implemented and compared in terms of recognition rate for JAFFE and Extended Cohn-Kanade images database. An efficient method will be implemented by performing dimension reduction using PCA on the ELBP images and comparing the similarity by Euclidean distance.

EXTENDED LOCAL BINARY PATTERN

The LBP operator was initially illustrated by Ojala et al. (1996) for local image contrast as a complementary measure. Inventors of local binary pattern operators face three fundamental points. First point is to describe various local patterns & extraction of these patterns of facial elements. Second point is to prefer the essential subset of local patterns to show facial elements. Last point is to form an effective facial element descriptor with these selected patterns. Moreover, selecting the local pattern in such a manner that contain major portion of all patterns was a big issue. Thus, the uniform pattern approach is introduced. It consists of two bitwise transitions either from 0-1 or from 1-0 in case of circular binary string i.e. 11111011, 00001110 and 11000001. This uniform pattern value can be illustrated by the Equation 2:

$$U_{LBP_{P,R}} = \left|u\left(y_{P-1} - y_c\right) - u\left(y_0 - y_c\right)\right| + \sum_{q=1}^{P-1}\left|u\left(y_P - y_c\right) - u\left(y_{P-1} - y_c\right)\right| \tag{2}$$

In $U_{LBP_{P,R}}$, value of less than or equal to two are represented as "uniform" local binary pattern. Thus, the generalized LBP operator can be defined as:

$$LBP_{P,R}^{riup} = \begin{cases} \sum_{q=0}^{P-1} u\left(y_{P,R,q} - y_c\right) & if \;\; U_{LBP_{P,R}} \le 2 \\ P+1 & otherwise \end{cases} \tag{3}$$

The "riup" illustrate the use of rotation invariant uniform patterns for U values less than or equal to 2. This U represent the spatial bitwise (0/1) transitions in circular representation of the LBP. As per literature P+1 uniform binary patterns exist in circularly symmetric set of pixel value P. Some drawbacks are focused for this LBP operator which is shown in Equation 3. First, point is that it might be tough to describe the complete characteristics effectively because of merging non uniform pattern into single pattern. Second drawback is that this operator is sensitive to noise because local pattern can be treated

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as non-uniform pattern with addition of noise according to definition of uniform patterns. So, here are some extensions of LBP operator in which some operation applied over non-uniform patterns before combining it.

Extension 1: In this every non-uniform pattern is assigned with respective uniform pattern on similarity basis. The similarity measure (SM) can be illustrated by using following equations:

$$SM_{RRC}^{\min}\left(LBP_{P,R}\right)=\min\left\{SM_{RRC}\left(LBP_{P,R},LBP_{P,R}^{uniform}\right),allLBP_{P,R}^{uniform}\right\} \tag{4}$$

$$SM_{RRC}\left(LBP_{P,R},LBP_{P,R}^{uniform}\right)=\min\begin{Bmatrix}\beta\left(RRC\left(LBP_{P,R},i\right),LBP_{P,R}^{uniform}\right),\\ i=0,1,2....,P-1\end{Bmatrix} \tag{5}$$

$$\beta\left(X,Y\right)=\sum_{i=0}^{P-1}\left|x_i-y_i\right| \tag{6}$$

where, this $LBP_{P,R}$ is local and $LBP_{P,R}^{uniform}$ is uniform patterns in neighboured (P, R). These two patterns can also be represented by y_q and y^U. $RRC\left(LBP_{P,R},i\right)$, shows "i" times rotate right circular shift on P bit no. ($LBP_{P,R}$). The similarity measure estimates the minimum sum using Equation 4. According to result finding of Equation 4, it is easy to assign $LBP_{P,R}^{uniform}$ for a particular local pattern ($LBP_{P,R}$).

Extension 2: It is noticed that extension 1 does not give optimum discrimination. Thus, all the non-uniform patterns are needful for classification. Furthermore, some non-uniform pattern which contain desired information but not similar to any uniform pattern causes loss of information. A collective set of uniform & non-uniform patterns is described by Equation 7:

$$C\left(LBP_{P,R}\right)=\frac{1}{2}\left(\left|y_{q-1}-y_0\right|+\sum_{q=1}^{P-1}y_q-y_{q-1}\right) \tag{7}$$

Equation 7 shows the concatenation of 0/1 in local pattern. Larger value of C defines less probability of concatenation. If C=1, gives uniform pattern. With C=2, resulting pattern having regular as well as more obvious structure like 10011110, 10001100 & C > 2 result frequent spatial binary transitions like 11010100, 01010101. Thus, C can be acknowledged as a structural measure of LBP. This extension can be illustrated by following Equation 8:

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$$LBP_{P,R}^{Extended} = \begin{Bmatrix} \sum_{q=0}^{P-1} y_q & if\ \ C\left(LBP\right) \le 1 \\ \sum_{q=0}^{P-1} y^U & if\ \ C\left(LBP\right) = 2 \\ \&SM_{\mathbf{R}RC}^{\min}\left(LBP\right) = 1, P+1+A\left(LBP\right) & if\ \ C\left(LBP\right) = 2 \\ \&SM_{RRC}^{\min}\left(LBP\right) = 2, P+2+A\left(LBP\right) & if\ \ C\left(LBP\right) = 2 \\ & if\ \ C\left(LBP\right) > 2, where, \\ \&SM_{RRC}^{\min}\left(LBP\right) > 2, P+3+A\left(LBP\right) & A(LBP) = 3 * \left[\sum_{q=0}^{P-1} \frac{y_q}{8}\right] \end{Bmatrix} \quad (8)$$

The factor A is used to differentiate similar local patterns like $LBP_{16,2} = 0000000011100111$ & $LBP_{16,2} = 0001111100011111$. Both differ each other that is why different label is assigned with the help of A. This extension has some peculiar features like different pattern assignment to every non-uniform patterns and the extended LBP operator is insensitive to noise.

PRINCIPAL COMPONENT ANALYSIS

The objective of PCA is to diminish the dimensionality of data into reduced dimensional feature space that describe the data efficiently. PCA evaluates the eigenvectors which renders the subspace of an image. Here faces are depicted by linear conflation of weighted eigenvectors termed as eigenfaces. Eigen faces are the eigenvectors of the covariance matrix which renders the principal component of face distribution.

Implementation of PCA on training and test database is shown in Figure 4. Below is the explanation of PCA steps:

Step 1 - Creating Data Matrix D: All the training images of each subject are converted in 1-D vector and concatenated to form a final 2-D matrix in which each row is corresponding to each image.
Step 2 - Normalized Data Matrix: Mean corresponding to each image is subtracted from the data matrix.
Step 3 - Covariance Matrix Computation: The covariance matrix is calculated by multiplying the normalized data matrix with it transpose.
Step 4 - Eigenvalues and Eigenvector Computation: Covariance Matrixx:

$V = \mu \times V$

where μ is eigenvalues and V is the eigenvectors.

Step 5 - Eigenvectors of Normalized Data Matrix: By Multiplying the transpose of normalized data matrix by eigenvectors of covariance matrix we get the eigenvectors of original data set.
Step 6 - Projection of Training Images: Every face is then projected on to the eigenspace by multiplying the normalized data matrix with eigenvector of normalized data matrix.
Step 7 - Projection of Test Images: The projection of the test images is obtained by the same way as calculated for training images.

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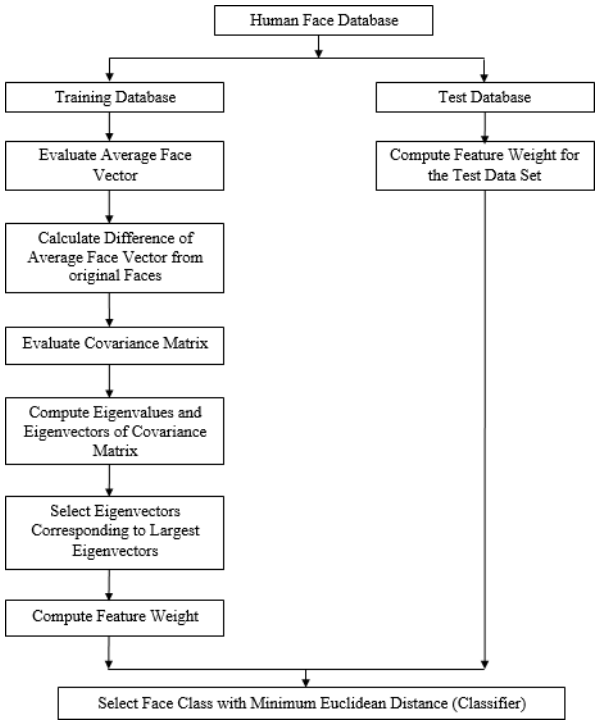
Figure 4. Implementation steps of PCA



Step 8 - Finally the projected test image is matched with the test projections: Using distance metric (Euclidean Distance). A best match is chosen which has minimum distance with test face:

$$Ed(i) = \sqrt{\sum_{j=1}^{MN} \left(testp\left(i,i\right) - trainp\left(i,j\right) \right)^2}$$

The objectives of this proposed work are:

- To explore the various facial expression recognition algorithms and identify the suitable algorithm for expression recognition;
- To improve the recognition rate of facial expression recognition approach by combining local feature extraction with global feature extraction;
- To analyze the performance of the proposed technique with existing techniques for JAFFE and Extended Cohn-Kanade-images database;
- To extend the implemented techniques for real environment images acquired at different frame rates and compared the accuracy of the methods.

The main work of this paper is to enhance the accuracy of recognition for images with variation in lightening condition, pose, and occlusion and also compare the performance analysis of proposed method with the already existing techniques. The facial expression recognition is performed on JAFFE and Cohn-Kanade images database by ELBP and PCA separately for training database. Recognition rate

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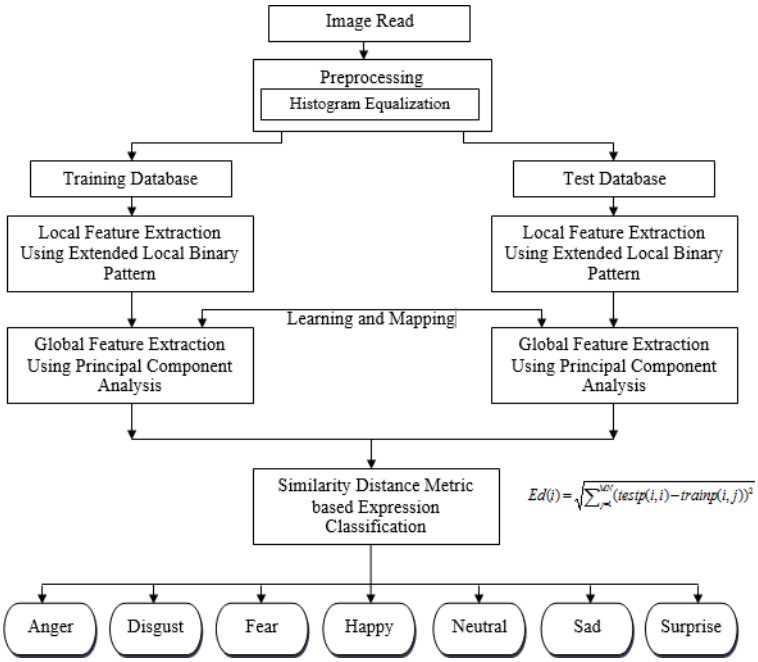
Figure 5. Block diagram for proposed facial expression recognition system



is improved by performing PCA after extraction of ELBP features. The comparison is made in terms of the accuracy/ recognition rate. The proposed work is divided into two phases i.e. training phase and test phase as shown in Figure 5. The process of each phase is explained as follows.

Algorithm for Training Phase

Step 1: Read image from training database.
Step 2: Every image from training set with size M x N is to be reshaped in a vector of size MN.
Step 3: Histogram equalization is performed for quality enhancement.
Step 4: Obtain feature vector $D^{j,1}$, $D^{j,2}$, …, $D^{j,q}$, for each expression class:

1. Divide the face image to sub-image blocks of resolution m × n;
2. Find the ELBP values and Calculate histogram bins for each block;
3. Histograms of each block are Concatenated to get the feature vector $D^{j,i}$.

Step 5: The mean feature vector for individual class is calculated by Equation 9:

$$m = \frac{1}{N}\sum_{i=1}^{N} D^{J,i} \tag{9}$$

Step 6: Normalized Data Matrix is calculated by subtracting the mean corresponding to each Image from the feature vector as shown in Equation 10:

$$\overline{D} = D^{j,i} - m \tag{10}$$

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Step 7: The covariance matrix for each class expression is obtained by Equation 11:

$$C = \bar{D}\bar{D}^T \tag{11}$$

Step 8: Let V be the eigenvector and α be the eigenvalues. The evaluation of eigenvectors and eigenvalues are obtained by Equation 12:

$$CV = \alpha \mathrm{V} \tag{12}$$

Step 9: Eigenvectors of normalized data matrix $\bar{D}$ is calculated by Equation 13:

$$P = \overline{D}^T \times V \tag{13}$$

Step 10: Choose Eigenvectors Corresponding to Largest eigenvalues.

Step 11: Every image is then projected on to the eigenspace by multiplying the $\overline{D}$ with Eigenvector of normalized data matrix (i.e P) as shown by Equation 14:

$$\text{Training_Projection} = \overline{\mathrm{D}} \times \mathrm{P} \tag{14}$$

Algorithm for Test Phase

Step 1 to 11: These are the similar steps illustrated in training phase.

Step 12: Finally, the projected test image is matched with the test projections using distance metric (Euclidean Distance) as shown in Equation 15. A best match is chosen which has minimum distance with test face:

$$Ed(i) = \sqrt{\sum_{j=1}^{MN} \left(testp(i,i) - trainp(i,j) \right)^2} \tag{15}$$

Above steps will be implemented for each method and comparison is made in terms of expression recognition rate.

Figure 5 shows the detailed flow diagram of proposed approach used for expression recognition. The main steps involved in facial expression recognition system are reading of image from the database, pre-processing of the images followed by the feature extraction and finally classification of expression is made by suitable classifier.

Step by step explanation of all the process in the proposed approach is presented below:

- **Image Read:** First of all, images are read from standard database and camera in frame-by-frame process. The images are captured with resolution of 224 × 224 pixels at a frame rate of 30 fps with normal webcam. For colour image captured, an additional stage of RGB to Gray colour conversion is also carried out before localizing the faces in the frame;

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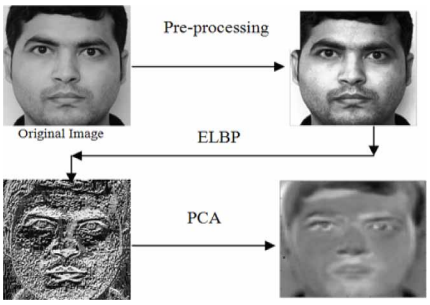
Figure 6. Sample images of proposed work



- **Pre-Processing:** After reading the images, pre-processing is to be executed on the face images to improve the visible quality. Histogram equalization which is considered to be the photometric normalization technique is used for enhancing the visual representation of image. This step accepts the face images and produces enhanced image for further processing;
- **Feature Extraction:** The main objective of this step is to derive the features from the pre-processed face images. In proposed facial expression recognition system local feature extraction is followed by global feature extraction. ELBP is used to extract the local features while PCA is used for dimensionality reduction. It is used for describing the texture and shape of a digital image. This is performed by dividing a face image into number of small segments for extracting the features. These features are consisting of binary patterns that depict the neighbourhood of pixels. The evaluated features are then concatenated into a single feature histogram to represent an image. ELBP based expression recognition produces very well results, in terms of speed and discrimination performance. This approach is a robust against face images with variations in expression, lightening conditions, age and pose as it well describe the texture and shape of image;
- **Matching With Similarity (Distance) Metric:** To compare the projections of the sample and model images Euclidean distance method is used. Minimum distance is chosen as the best suitable match of model image. The output image of the proposed work after applying pre-processing, ELBP and PCA steps are shown in Figure 6.

RESULTS AND DISCUSSION

A very momentous part of the proposed work is the experimentation, result analysis and comparison of expression recognition approaches which are implemented. Number of methods has been proposed and implemented over the past decades as potential solutions to the expression recognition problem. However, automated expression recognition is still considered to be an open problem for the researchers in terms of accuracy gain in recognition rate. Although number of expression recognition methods is tested as part of their development. Moreover, expression recognition is a wide area for the researchers where the proposed techniques use widely different approaches and tools to get the solution of same problem.

The evaluation of implemented facial expression recognition approaches will focus on their performance of recognition under various conditions for different data sets. A series of tests will be performed to compare the accuracy of the methods on JAFFE, Cohn-Kanade images database. The same series

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of the tests will be carried for real environment image database. More specifically, two standard databases i.e., JAFFE and Cohn-Kanade images database and one real environment database are used for the evaluation of the proposed approach for expression recognition. Two different sets are created from all three different databases. These sets will be referred to as the training sets while the input image that is to be recognized will be the test image. Correct identification is obtained if the correct subject is returned as the best match for each method. If multiple images per subject are used, in this case it will be enough for any one of the images to appear as the close match. The recognition rate, which is the measure that a facial expression recognition system will correctly recognize the attempt, is calculated by below given formula:

$$\text{Recognition Rate} = \frac{\text{No. of right recognition}}{\text{Total Matching Attempts}}$$

As far as testing of the expression recognition algorithm is concerned, selection of the appropriate standard database becomes very vital. In the proposed work two standard face expression database i.e.: JAFFE and Cohn- Kanade image database are chosen to validate the implemented techniques. Description of each database is presented in brief.

The Japanese Female Facial Expression (JAFFE) Database

The JAFFE database (Lyons et al., 1999) was created at Psychology Department in Kyushu University. This standard database consists 213 static images with 7 universal face expressions i.e., happy, fear, anger, sad, surprise, neutral and disgust given by 10 different Japanese female models.

It is one of the most widely used standard databases for research purpose like expression recognition, face detection methods etc. Image size of 256x256 pixels, with 256 grey levels per pixel is stored in tiff format. The complete planning and management of database was done by M. Lyons, M. Kamachi and J. Gyoba. The preview of the images is shown in Figure 7.

Figure 7. Sample of JAFFE face database

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The Cohn-Kanade (CK+) Database

The Cohn-Kanade image database (Lucey et al., 2010) is comprises of 593 image sequences of 123 different individuals with all 7 universal expressions images per subject. It is also one of the most widely used facial expression database in the research field for various different applications like image and video processing, computer vision, medical science and human behaviour studies. Image size of 640x490 pixels, with 256 grey levels per pixel stored in png format. These images are captured with different facial expression or configuration such as: without glasses, centre-light, happy, normal, right-light and surprised. The preview of the images is shown in Figure. 8.

Figure 8. Sample of Cohn-Kanade (CK+) face database

The Real Environment Database

The real environment database is comprises of 210 image sequences of 5 different individuals with all 7 universal expressions images per subject. Image size of 224x224 pixels, with 256 grey levels per pixel stored in tiff format. These images are captured with different facial expression or configuration such as: without glasses, centre-light, happy, normal, right-light and surprised. The preview of the images is shown in Figure 9.

Results for JAFFE Database

Using PCA

Table 1 depicts the validation of the PCA algorithm for training database containing face images from JAFFE database. For each training image set PCA recognition method is executed and through which recognition rate is calculated. Complete comparison of the recognition rate for JAFFE facial expression

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Figure 9. Sample of real environment database

image database using PCA has been depicted in Table 1. The Table 1 shows when individual expression is compared with all seven expressions the recognition rate gain is 60% when anger state is tested and 60% when disgust state is tested and 90% when fear state is tested and 88.24% when happy state is tested and 86.67% when neutral state is tested and 70.60% when sad state is tested and 90% when surprise state is tested.

Using LBP

The Table 2 depicts the validation of the LBP algorithm for training database containing face images from JAFFE facial expression image database.

Table 1. Confusion matrix on JAFFE database using PCA

	Anger	Disgust	Fear	Happy	Neutral	Sad	Surprise
Anger	60	33.33	6.67	0	0	0	0
Disgust	26.67	60	13.33	0	0	0	0
Fear	0	0	90	3.33	0	0	6.67
Happy	0	0	0	88.24	5.88	5.88	0
Neutral	0	0	0	0	86.67	13.33	0
Sad	5.88	5.88	11.76	0	0	70.60	5.88
Surprise	0	3.33	3.33	0	3.34	0	90

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Table 2. Confusion matrix on JAFFE database using LBP

	Anger	Disgust	Fear	Happy	Neutral	Sad	Surprise
Anger	66.67	20	13.33	0	0	0	0
Disgust	26.67	66.67	6.66	0	0	0	0
Fear	0	0	90	0	0	3.33	6.67
Happy	0	0	0	94.12	0	5.88	0
Neutral	0	0	0	0	80	20	0
Sad	5.88	5.88	11.76	0	0	70.60	5.88
Surprise	0	0	0	6.66	0	0	93.34

For each training image set LBP recognition method is executed and through which recognition rate is calculated. Complete comparison of the recognition rate for JAFFE facial expression image database using LBP has been depicted in Table 2. The Table 2 shows when individual expression is compared with all seven expressions and the recognition rate gain is 66.67% when anger state is tested and 66.67% when disgust state is tested and 90% when fear state is tested and 94.12% when happy state is tested and 80% when neutral state is tested and 70.60% when sad state is tested and 93.34% when surprise state is tested.

Using ELBP

The Table 3 depicts the validation of the ELBP algorithm for training database containing face images from JAFFE facial expression image database. For each training image set ELBP recognition method is executed and through which recognition rate is calculated. Complete comparison of the recognition rate for JAFFE facial expression image database using ELBP has been depicted in Table 3. The Table 3 shows when individual expression is compared with all seven expressions the recognition rate gain is 66.67% when anger state is tested and 66.67% when disgust state is tested and 93.75% when fear state is tested and 94.12% when happy state is tested and 86.67% when neutral state is tested and 70.60% when sad state is tested and 100% when surprise state is tested.

Table 3. Confusion matrix on JAFFE database using ELBP

	Anger	Disgust	Fear	Happy	Neutral	Sad	Surprise
Anger	66.67	26.67	6.66	0	0	0	0
Disgust	20	66.67	13.33	0	0	0	0
Fear	0	0	93.75	6.25	0	0	0
Happy	0	0	0	94.12	0	5.88	0
Neutral	0	0	0	0	86.67	13.33	0
Sad	11.76	5.88	5.88	0	0	70.60	5.88
Surprise	0	0	0	0	0	0	100

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Table 4. Confusion matrix of proposed method (ELBP+PCA) on JAFFE database

	Anger	Disgust	Fear	Happy	Neutral	Sad	Surprise
Anger	80	13.33	6.67	0	0	0	0
Disgust	13.33	73.34	13.33	0	0	0	0
Fear	0	0	93.75	6.25	0	0	0
Happy	0	0	0	100	0	0	0
Neutral	0	0	0	0	86.67	13.33	0
Sad	5.88	5.88	5.88	0	0	76.48	5.88
Surprise	0	0	0	0	0	0	100

Using Combination of ELBP and PCA

The Table 4 depicts the validation of the fusion of Extended Local Binary Patterns and Principal Component Analysis (ELBP+PCA) algorithm for training database containing face images from JAFFE facial expression image database. For each training image set ELBP+PCA recognition method is executed and through which recognition rate is calculated. Complete comparison of the recognition rate for JAFFE facial expression image database using ELBP+PCA has been depicted in Table 4. The Table 4 shows when individual expression is compared with all seven expressions the recognition rate gain is 80% when anger state is tested and 73.34% when disgust state is tested and 93.75% when fear state is tested and 100% when happy state is tested and 86.67% when neutral state is tested and 76.48% when sad state is tested and 100% when surprise state is tested.

Results for CK+ Database

Using PCA

The Table 5 depicts the validation of the PCA algorithm for training database containing face images from CK+ database. For each training image set PCA recognition method is executed and through which recognition rate is calculated. Complete comparison of the recognition rate for CK+ facial expression image database using ELBP has been depicted in Table 5. The Table 5 shows when individual expression is compared with all seven expressions and the recognition rate gain is 83.33% when anger state is tested and 86.66% when disgust state is tested and 63.34% when fear state is tested and 90% when happy state is tested and 73.33% when neutral state is tested and 66.66% when sad state is tested and 90% when surprise state is tested.

Using LBP

The Table 6 depicts the validation of the LBP algorithm for training database containing face images from CK+ facial expression image database. For each training image set LBP recognition method is executed and through which recognition rate is calculated. Complete comparison of the recognition rate for CK+ facial expression image database using LBP has been depicted in Table 6. The Table 6 shows when individual expression is compared with all seven expressions the recognition rate gain is 86.66%

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Table 5. Confusion matrix on CK+ database using PCA

	Anger	Disgust	Fear	Happy	Neutral	Sad	Surprise
Anger	83.33	0	0	0	16.67	0	0
Disgust	0	86.66	0	0	13.34	0	0
Fear	0	0	63.34	0	33.33	3.33	0
Happy	0	0	6.67	90	3.33	0	0
Neutral	3.33	6.68	3.33	10	73.33	3.33	0
Sad	0	0	6.68	0	26.66	66.66	0
Surprise	0	3.33	3.33	0	3.34	0	90

Table 6. Confusion matrix on CK+ database using LBP

	Anger	Disgust	Fear	Happy	Neutral	Sad	Surprise
Anger	86.66	0	0	0	13.34	0	0
Disgust	0	86.66	0	0	13.34	0	0
Fear	0	0	66.66	0	33.34	0	0
Happy	0	0	0	96.66	3.34	0	0
Neutral	0	10	0	10	80	0	0
Sad	0	0	0	0	13.34	86.66	0
Surprise	0	3.34	0	0	0	0	96.66

when anger state is tested and 86.66% when disgust state is tested and 66.66% when fear state is tested and 96.66% when happy state is tested and 80% when neutral state is tested and 86.66% when sad state is tested and 96.66% when surprise state is tested.

Using ELBP

The Table 7 depicts the validation of the ELBP algorithm for training database containing face images from CK+ facial expression image database. For each training image set ELBP recognition method is executed and through which recognition rate is calculated. Complete comparison of the recognition rate for CK+ facial expression image database using ELBP has been depicted in Table 7. The Table 7 shows when individual expression is compared with all seven expressions the recognition rate gain is 86.66% when anger state is tested and 93.33% when disgust state is tested and 70% when fear state is tested and 96.66% when happy state is tested and 80% when neutral state is tested and 83.33% when sad state is tested and 96.66% when surprise state is tested.

Using Combination of ELBP and PCA

The Table 8 depicts the validation of the fusion of Extended Local Binary Patterns and Principal Component Analysis (ELBP+PCA) algorithm for training database containing face images from CK+ facial expression image database. For each training image set ELBP+PCA recognition method is executed

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Table 7. Confusion matrix on CK+ database using ELBP

	Anger	Disgust	Fear	Happy	Neutral	Sad	Surprise
Anger	86.66	0	0	0	13.34	0	0
Disgust	0	93.33	0	0	6.67	0	0
Fear	0	0	70	0	30	0	0
Happy	0	0	0	96.66	3.34	0	0
Neutral	0	10	0	10	80	0	0
Sad	0	0	0	0	16.67	83.33	0
Surprise	0	3.34	0	0	0	0	96.66

Table 8. Confusion matrix of proposed method (ELBP+PCA) on CK+ database

	Anger	Disgust	Fear	Happy	Neutral	Sad	Surprise
Anger	96.66	0	0	0	3.34	0	0
Disgust	0	80	0	0	20	0	0
Fear	3.33	0	73.33	0	23.34	0	0
Happy	0	0	0	100	0	0	0
Neutral	0	10	3.33	13.33	66.68	3.33	3.33
Sad	0	0	0	0	13.34	86.66	0
Surprise	0	0	0	0	0	0	100

and through which recognition rate is calculated. Complete comparison of the recognition rate for CK+ facial expression image database using ELBP+PCA has been depicted in Table 8. The Table 8 shows when individual expression is compared with all seven expressions the recognition rate gain is 96.66% when anger state is tested and 80% when disgust state is tested and 73.33% when fear state is tested and 100% when happy state is tested and 66.68% when neutral state is tested and 86.66% when sad state is tested and 100% when surprise state is tested.

Results for Real Environment Database

Using PCA

The Table 9 depicts the validation of the PCA algorithm for training database containing face images from real environment database. For each training image set PCA recognition method is executed and through which recognition rate is calculated. Complete comparison of the recognition rate for real environment facial expression image database using PCA has been depicted in Table 9. The Table 9 shows when individual expression is compared with all seven expression the recognition rate gain is 76.66% when anger state is tested and 76.66% when disgust state is tested and 83.33% when fear state is tested and 96.66% when happy state is tested and 90% when neutral state is tested and 96.66% when sad state is tested and 90% when surprise state is tested.

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Table 9. Confusion matrix of on real environment database using PCA

	Anger	Disgust	Fear	Happy	Neutral	Sad	Surprise
Anger	76.66	0	10	0	6.67	6.67	0
Disgust	20	76.66	0	0	0	3.34	0
Fear	13.33	0	83.33	0	0	0	3.34
Happy	0	0	0	96.66	3.34	0	0
Neutral	6.66	0	3.34	0	90	0	0
Sad	3.34	0	0	0	0	96.66	0
Surprise	0	6.66	3.34	0	0	0	90

Using LBP

The Table 10 depicts the validation of the LBP algorithm for training database containing face images from real environment facial expression image database. For each training image set LBP recognition method is executed and through which recognition rate is calculated. Complete comparison of the recognition rate for real environment facial expression image database using LBP has been depicted in Table 10. The Table 10 shows when individual expressions is compared with all seven expression the recognition rate gain is 86.68% when anger state is tested and 80% when disgust state is tested and 76.66% when fear state is tested and 96.66% when happy state is tested and 90% when neutral state is tested and 93.34% when sad state is tested and 90% when surprise state is tested.

Table 10. Confusion matrix of on real environment database using LBP

	Anger	Disgust	Fear	Happy	Neutral	Sad	Surprise
Anger	86.68	0	6.66	0	6.66	0	0
Disgust	0	80	13.33	0	0	6.67	0
Fear	20	0	76.66	0	0	0	3.34
Happy	0	0	3.34	96.66	0	0	0
Neutral	6.66	0	3.34	0	90	0	0
Sad	0	0	3.33	0	3.33	93.34	0
Surprise	3.33	0	3.33	0	3.34	0	90

Using ELBP

The Table 11 depicts the validation of the ELBP algorithm for training database containing face images from real environment facial expression image database. For each training image set ELBP recognition method is executed and through which recognition rate is calculated. Complete comparison of the recognition rate for real environment facial expression image database using ELBP has been depicted in Table 11. The Table 11 shows when individual expressions is compared with all seven expression the recognition rate gain is 80% when anger state is tested and 83.33% when disgust state is tested and

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Table 11. Confusion matrix of on real environment database using ELBP

	Anger	Disgust	Fear	Happy	Neutral	Sad	Surprise
Anger	80	0	10	0	6.66	3.34	0
Disgust	0	83.33	10	0	6.67	0	0
Fear	13.33	0	83.33	0	0	3.34	0
Happy	0	0	0	96.66	3.34	0	0
Neutral	0	0	6.66	3.34	90	0	0
Sad	3.34	0	0	0	0	96.66	0
Surprise	0	3.34	0	0	0	0	96.66

83.33% when fear state is tested and 96.66% when happy state is tested and 90% when neutral state is tested and 96.66% when sad state is tested and 96.66% when surprise state is tested.

Using Combination of ELBP and PCA

The Table 12 depicts the validation of the fusion of Extended Local Binary Patterns and Principal Component Analysis (ELBP+PCA) algorithm for training database containing face images from real environment database. For each training image set ELBP+PCA recognition method is executed and through which recognition rate is calculated. Complete comparison of the recognition rate for real environment facial expression image database using ELBP+PCA has been depicted in Table 12. The Table 12 shows when individual expression is compared with all seven expression and the recognition rate gain is 83.33% when anger state is tested and 100% when disgust state is tested and 76.66% when fear state is tested and 100% when happy state is tested and 96.66% when neutral state is tested and 100% when sad state is tested and 100% when surprise state is tested.

Table 12. Confusion matrix of proposed method (ELBP+PCA) on real environment database

	Anger	Disgust	Fear	Happy	Neutral	Sad	Surprise
Anger	83.33	0	10	0	6.67	0	0
Disgust	0	100	0	0	0	0	0
Fear	20	0	76.66	0	0	3.34	0
Happy	0	0	0	100	0	0	0
Neutral	0	0	0	3.34	96.66	0	0
Sad	0	0	0	0	0	100	0
Surprise	0	0	0	0	0	0	100

Present State-of-the-Art

This section depicts the validation of the implemented algorithms for 3 different databases i.e., JAFFE, Extended Cohn-Kanade image database and Real environment database which consists of training

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database containing facial expression images. First step include reading of an image from the database and then pre-processing for image enhancement is done. Image is divided into different sub region and texture-based feature extraction methods over each region is applied. The local features are extracted by applying texture-based feature extraction process and then global feature extraction method is applied for dimensionality reduction which will be stored in the database. For each set of training database individual facial expression recognition method is executed and through which recognition rate is calculated. In Table 13 existing methods for expression recognition are implemented and result of proposed method is also shown on two standard databases and one real environment database. The results are shown in terms of percentage on successful and correct identification of expression among all the seven universal expressions. The complete summary of the results is shown in Table 13. The state of art shows that proposed approach on JAFFE database gives better recognition rate in different states like fear, happy, neutral, sad and surprise. Likewise, on CK+ database proposed method also gives improved result for anger, happy, sad and surprise states. The proposed (ELBP+PCA) algorithm is also best suited on real environment database for different states rather existing ones as shown in Table 13.

Table 13. Comparative analysis of present state-of- art

Database	**Expression**	**(Chakrabarti & Dutta, 2013)**	**(Salmam et al., 2016)**	**Proposed**
Jaffe	Anger	95	90	80
	Disgust	80	79.31	73.34
	Fear	90	84.37	93.75
	Happy	80	93.55	100
	Neutral	-	86.67	86.67
	Sad	75	77.42	76.48
	Surprise	85	100	100
Database	**Expression**	**(Salmam et al., 2016)**	**(Happy & Routray, 2015)**	**Proposed**
Extended Extended Cohn-Kanade (Ck+)	Anger	66.67	87.8	96.66
	Disgust	84.74	94.33	80
	Fear	84	93.33	73.33
	Happy	92.75	94.2	100
	Neutral	94.17	-	66.68
	Sad	82.14	96.42	86.66
	Surprise	97.59	98.46	100
Database	**Expression**	**(De et al., 2015)**	**(Chen et al., 2014)**	**Proposed**
Real Time Image Database	Anger	86.2	70.9	83.33
	Disgust	-	-	100
	Fear	77.7	-	76.66
	Happy	93.1	69.3	100
	Neutral	-	78.3	96.66
	Sad	78.9	-	100
	Surprise	91	86.3	100

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CONCLUSION

Facial expression recognition's first step is to read an image then followed by some pre-processing to improve image quality and then feature extraction stage is executed, in which, unique and most informative properties (features) are extracted from face image. Using these features, image is compared with the database images, which is done in classification step. The classification unit provides the best match of image with database images. To sum up, this work manifests an investigation and implementation of various expression recognition approaches which analyze and improves the accuracy of the recognition rate and also diminish the evaluation complexity. ELBP is used for feature extraction process and PCA is used for dimensionality reduction and to compare the projections of the sample and model images Euclidean distance method is used. The recognition rate achieved while implementing proposed method (ELBP+PCA) in anger, disgust, fear, happy, neutral, sad and surprise is 80%, 73.34%, 93.75%, 100%, 86.67%, 76.48% and 100% respectively on JAFFE database and 96.66%, 80%, 73.33%, 100%, 66.68%, 86.66% and 100% respectively on Extended Cohn-Kanade (CK+) database and 83.33%, 100%, 76.66%, 100%, 96.66%, 100% and 100% respectively on real environment database. The recognition rate achieved in proposed algorithm (ELBP+PCA) when implemented on JAFFE database get superior result when compared with (Chakrabarti & Dutta, 2013; Salmam et al., 2016) and when implemented on Extended Cohn-Kanade (CK+) database results are also better when compared with (Salmam et al., 2016; Happy & Routray, 2015) and results are also have an edge over (De et al., 2015; Chen et al., 2014) for various expression states as shown in Table 13.

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Chapter 27
Using Cognitive Psychology to Understand Anticipated User Experience in Computing Products

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ABSTRACT

User Experience assessment is an evaluation of user's experience with the product, system or service during 'use' (i.e., actual interaction experience) as well as 'anticipated or before use' (i.e., pre-interaction experience).Whereas many user experience researchers may be conversant with explaining a person's experience during use of a product, system or service, they find it difficult to explain experience before a product or service is used (Anticipated Use), which in this chapter is referred to as Anticipated User Experience (AUX). This chapter applies the theory of cognitive psychology and its principles to best explain how Anticipated User Experience occurs and how this experience can be achieved. This chapter goes a long way in informing user experience researchers and practitioners on the relevance of attaining AUX in a computing product and how it can be achieved.

INTRODUCTION

User experience is the delight and fulfilment a user gets before, amid and after utilizing an item or service. User Experience has been under broad review throughout the most recent decade, producing various User Experience models and assessment techniques. However, the greater part of these models do not show how the delight and fulfilment a user gets before utilising the product can be achieved. In this paper, it is referred to as ''Anticipated User Experience'' (AUX). Understanding Anticipated User Experience (AUX) till now is a challenge to many user experience designers. The greater part of existing user experience theories and models concentrate on comprehending and accomplishing user experience

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during and after product use. Yet, AUX is an extremely important aspect in any product or service if the acceptance of that particular product or service is to be guaranteed. AUX in simple terms is an anticipated, pictured or imagined pleasure and satisfaction the user feels about the product even before it's made available to the user. AUX plays a great role in product acceptance. There is need to understand UAX and how it can achieved in computing products. One of the theories that can help user experience researchers and practitioners better understand AUX and how it can be achieved in computing products is the Cognitive Psychology theory.

This Chapter

This chapter attempts to use Cognitive Psychology theory and its principles to better understand AUX and how it can be achieved in mobile computing products. This chapter goes a long way in informing designers of computing products on the relevance of attaining AUX in a computing product and how it can be achieved

BACKGROUND

According to Pakanen (2015), the foundations of user experience research is rooted on usability. As defined by ISO 9241-11 (1998), usability is the extent to which a product [a portal] can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use. According to the revised definition of usability in ISO FDIS 9241-210, it is the extent to which a system, product or service can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use. Designing for effectiveness and efficiency in computing products has rather been successful. However designing for satisfaction has somewhat been under looked. However, the swift of ideology from compulsory work-oriented use of a computer (effectiveness and efficiency) to leisure and personal use (satisfaction) has led to an interest in expanding usability research to focus on User Experience (Pakanen, 2015). During the past 20 years, designing for user experience has been admired (Arhippainen, 2003, 2009). According to Kaikkonen (2009), research in the 1990's was focusing on user interface and interaction, and usability was synonymous with this. In recent years, User Experience has been recognized as an important and determinant factor in design, development and evaluation of human-computer interfaces and man-machine interfaces (Adikari et al., 2010). The raise of the term '*user experience'* came up during mobile devices and services error. It showed that the ease of use, efficiency and effectiveness are not adequate to warranty user satisfaction, in addition to cognitive aspects; wider perspective to humans was needed (Kaikkonen, 2009). Everything has influence on user experience including those that the designer and developer cannot influence, like user past experiences, environmental factors, and many others. Consequently, the increasing use of the term shows the need for a wider approach to the user than 'usability' can offer (Kaikkonen, 2009). Product development in user experience is no longer only about applying features and testing their usability, but it is about designing products that are enjoyable and support essential social, cultural and economic needs and values of the user (Väänänen et al., 2009). A part from optimizing human performance like usability does, user experience aims further at optimizing user satisfaction with achieving both pragmatic and hedonic (pleasurable) goals (Bevan, 2010). According to Arhippainen (2003, 2009) user experience initially was included in usability issues, but afterwards, it has been understood that even a product with

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good usability can cause negative experiences or dissatisfaction and vice versa. User experience explores much more than just usability of product, even if the usability is an important aspect, without doubt- deficiencies in usability of product will affect user experience in a negative way (Arhippainen, 2003, 2009).

However, despite the growing interest in user experience, it has been hard to arrive at a common agreement on the definition, nature and scope of user experience (Law et al., 2009). Different definitions for user experience have emerged (Arhippainen, 2003, 2009). With McMullin (2004) defining user experience as a systematic cycle that attempts to satisfy hopes, dreams, needs, and desires of the systems' user. While Khambete & Athavankar (2010) define user experience as something that involves the dynamics of space, time, objects, the states of the participants and the context in which the experience occurs. However, the most accepted and adopted definition of user experience is the one forwarded by ISO and (Bevan, 2010). ISO FDIS 9241-210 defines user experience as a person's perceptions and responses that result from the use or anticipated use of a product, system or service. Bevan (2010) in his definition equates user experience to users' culture, attitude, views, emotions, beliefs, preferences, perceptions, physical and psychological responses and behavioral accomplishments that occur *before*, during and after using a service or product. Emphasis in the two definition is on *'' Use''* and *''Anticipated Use''* in ISO and *''Before Use''* and *''During Use''* from (Bevan, 2010). According to Adikari et al. (2010) User Experience assessment is an evaluation of user's experience with the product, system or service during 'use' (i.e., actual interaction experience) as well as 'anticipated or before use' (i.e., pre-interaction experience such as needs and expectations). Whereas many User Experience scholars do agree with the two definitions, there is still a challenge in understanding experience before use, the experience which is normally referred to as *''anticipated''* or "*desirability''* (Law et al., 2009; Hassenzahl, 2009).

This kind of experience (before use-experience) normally creates a desire to use a product or service. It is this kind of experience that someone gets even before the person uses the product or service. It is like watching an advertisement of a product on Television, the intended user would see it important to vividly imagine use cases with contextual factors and this is likely to evoke realistic experiences out of anticipated use (Law et al., 2009). Hasselzahl and Tractinsky (2006) identified *anticipated use* as the user's internal state which is associated with the user's tendency, expectations, needs, motivation, mood and many others. Law *et al* (2009) calls it *''imagined use''*. In this paper, it is referred to as Anticipated User Experience (AUX). According to Roto et al. (2011), AUX can be achieved through expectations created from previous experiences and other sources of information. In the design domain, Yogasara (2014) observes that the importance of emphasizing AUX in computing products and services has been acknowledged. Therefore, when AUX in a given product or service is emphasized, there are high chances for such a product or service to be accepted and used by the user. According to Yogasara (2014), AUX in any product or service plays an important role in user experience. It influences users' desire for the product even before the product is made available to the user. It is closely associated with the marketing and awareness stage of a product or service, where the product's image is formed in a user's mind either through marketing (advertisements) or a product's appearance (Yogasara, 2014). He admits that that these experiences and expectations before actual interaction are normally shaped by advertisements, brand image, other people's opinions, and prior experiences with similar products. It is an imagined experience. According to Yogasara (2014), AUX contributes to the current behaviour of the intended user. People often make decisions, select their actions, and adjust their behaviour according to anticipated emotions or feelings usually based on a number or a combination of past emotional outcomes and present affects (Baumeister et al., 2007). In other words, AUX has the ability to positively influence perception and change people's attitude towards using a given product or service. Anticipating a certain

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out-come may trigger certain specific emotions, and it is these emotions that may stimulate behavioral adjustments (Huron, 2006). Human-product or service interaction does not only include instrumental and non-instrumental interactions, but also non-included physical interaction such as recalling, fantasizing about a product, or anticipating product usage (Desmet & Hekkert, 2007). From Desmet & Hekkert's assertion, the potential outcomes of the interaction can also be imagined, anticipated, or fantasized about, which in turn may evoke positive emotional responses. This response leads to the acceptance and usage of a product or service. Based on the above discussion, this chapter therefore defines AUX as *a positive imagination, fantasy and excitement that a user feels about a given product or service before the product is made available to the user.*

As stated earlier, Law et al. (2009) and Hassenzahl (2009) observe that whereas many user experience researchers may be conversant with explaining the experience that can be attained during usage of a service, they find it difficult to explain how a service or product can create good experience before it is used. Yogarasa (2014) for example studied over 10 definitions of user experience and many of the definition defined user experience as satisfaction a user get during actual interaction with the product or service. Only a few, however, touch on the subject of AUX and no further explanations regarding this subject are provided. Also, of the 27 user experience definitions listed on ''all about UX'' website, less than 15% consider the influence of AUX as a major determinant of user experience (Yogasara, 2014). This further indicates a research gap in the area of AUX that needs to be filled. Owing to all discussions on AUX made so far, this Chapter makes 3 major observation that underlie AUX. Firstly, AUX is a cognitive process. It is linked to imagination, fantasy, recalling, perception etc (Hasselzahl &Tractinsky, 2006; Desmet & Hekkert, 2007; Law et al., *2009;* Yogasara, 2014). *S*econdly, for AUX to occur, there should be a stimulating factor (Roto et al., .2011; Yogasara 2014). Thirdly, AUX influences user behaviour (Huron, 2006; Baumeister et al., 2007; Yogasara, 2014). It appears these three observations or characteristics associated with AUX are closely related to Cognitive Psychology and its principles. Cognitive Psychology theory and its principles could be a key to better understand AUX and how it can be achieved. Basing on these observations, this paper goes ahead to probe the following questions

Research Questions

1. What is Cognitive Psychology and how does it help understand AUX.
2. What factors can stimulate AUX cognitive process.
3. To what extent do these factors stimulate AUX cognitive process to lead to behavior change (acceptance).

Two methods were used to probe the above stated questions.

Methodology

Literature Review

Literature review was one of the methods used to address the first and second research questions. Literature from different sources was reviewed namely; journals, conference proceedings, books and research reports. Through a thematic review of literature, this chapter was able to identifying the key concepts in the principles of cognitive psychology and its relationship with AUX. This chapter was able

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to understand what cognitive psychology is and its application on AUX. Through thematic review also, this chapter was able to elicit a number of stimuli that can positively influence AUX cognitive process.

Systematic Review

Systematic Review was used to answer research question three. Systematic Review method aided in providing empirical data on the extent the factors identified through literature can stimulate AUX cognitive process and therefore lead to behaviour change. Systematic Review is a 'rigorous method used to map the evidence base on an unbiased way as possible, and to assess the quality of the evidence and synthesize it' (DFID, 2013). A systematic review answers a defined research question or research questions by collecting and summarising all empirical evidence that fits pre-specified eligibility criteria. Systematic reviews are useful where:

- There is a substantive research question.
- Several empirical studies have been published.

According to Zanker & Mallett (2013), Systematic Review is considered by some to offer 'the most reliable and comprehensive statement about what works and how it worked. Systematic Review has many times been employed in evidence-informed policymaking within the arena of international development (Zanker & Mallett, 2013). In 1984 Cooper (1984) proposed a five stage systematic review process that was followed in this chapter'

- **Problem Formulation:** Statement of objective 3 of this chapter. This chapter used systematic review to investigate the extent to which factors identified in the literature stimulate AUX cognitive process which leads to behavior change.
- **Data Collection:** An unbiased literature search Reports, Journals, Conference proceedings, Books and many others. This effort resulted in 26 citations from which relevant studies were selected for the review. Their potential relevance was examined, and about 8 citations were excluded as irrelevant. The full papers of the remaining 18 citations were assessed to select those primary studies that explain how the elicited stimuli from the literature would positively stimulate AUX cognitive process.
- **Data Evaluation:** Assessing the studies for inclusion in the review. In data evaluation, a simple data extraction table was used to organize the information extracted from each reviewed study (e.g., authors, publication year, abstract, study design and particularly the outcomes of these researches).
- **Analysis and Interpretation:** Narrative Synthesis was the main form of analysis used in this chapter. Narrative synthesis refers to an approach to the systematic review and synthesis of findings from multiple studies that relies primarily on the use of words and text to summarize and explain the findings of the synthesis. Narrative synthesis adopts a textual approach to the process of synthesis to 'tell the story' of the findings from the included studies.
- **Public Presentation:** Discussion and context of findings. Through systematic review, this chapter was able to establish the extent each of the stimuli elicited from the literature influences AUX cognitive process using empirical evidence

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MAIN FOCUS OF THE CHAPTER

Results from Literature

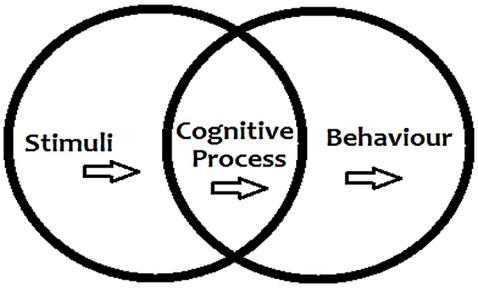
Cognitive Psychology and Its Application on AUX

First introduced by K. S. Lashley in the 1950s. Cognitive psychology is the scientific investigation of mental processes that affect behaviour, this includes all our mental abilities such as perceiving, learning, remembering, thinking, reasoning, imagining, understanding etc (Lin Lu & Dosher, 2007). Cognitive psychology is a relatively modern approach to human behaviour that focuses on how we think, with the belief that such cognitive processes affect the way in which we behave (Robert & Sternberg, 2012; Psychologist World, 2016). Cognitive phycology is based on two assumptions as stated in (Lin Lu & Dosher, 2007; Robert & Sternberg, 2012; Psychologist World, 2016). These two assumptions in Cognitive Psychology help to better understand the three observations in AUX. The assumptions state that;

- Behaviour is controlled by our own cognitive processes, as opposed to genetic factors.
- Human behaviour can be explained as a series of responses to external stimuli.

In other words, Psychologist World (2016) observes that cognitive psychology is based on the principle that our behaviour is a direct result of a series of stimuli and the outcome is determined by cognitive processes as represented below in Figure 1.

Figure 1. The principle of cognitive psychology
(Psychologist World, 2016)



In summary, the principle of cognitive psychology claims that human behaviour is a direct result of a cognitive process, and the cognitive process is often influenced by a stimuli. Detailed discussion of this principle is presented in the next section.

AUX as a Cognitive Process

As observed earlier, AUX is a cognitive process (Hasselzahl &Tractinsky, 2006; Desmet and Hekkert, 2007; Law et al*., 2009;* Yogasara, 2014). In Cognitive Psychology, human behaviour is controlled by human's own cognitive processes. Whereas there is no standard procedure of presenting the cognitive

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process, McLeod (2015) observes that cognitive psychology recommends the following assumptions, among others, that guide the cognitive process;

1. A series of cognitive processing systems that transform, or alter the information in systematic ways.
2. Information should be made available from the environment (Stimuli) to influence and to be processed by a series of cognitive processing systems.

The presentation of AUX cognitive process in this section is guided by the above assumptions. There are three processing systems in the entire AUX cognitive process and these include; Reproductive Imagination, Fantasy and Excitement. These processing systems transforms information from the environment in a systematic manner. The AUX cognitive process begins with Reproductive Imagination process, followed by Fantasy process, and finally Excitement process. According to ChangingMinds.org (2016) a renowned psychology website, Imagination and Fantasy (also generally referred to Cognitive arousal) leads to Excitement (also sometimes referred to as Affective arousal). Excitement finally triggers physical arousal or physical behaviour, such as taking physical action or change in behaviour. It should also be noted that reproductive imagination is the key that leads to fantasy (Brenner, 2003; Juan, 2006; Roy, 2011). The three processing systems identified in the cognitive process (Reproductive Imagination, Fantasy and Excitement) specify the processes and structures that form the basis of AUX cognitive process. The detailed AUX cognitive process is described below;

Reproductive Imagination Process in AUX

The entire though process begins with reproductive imagination, which becomes the first phase of AUX cognitive process. Imagination, to begin with, is part of cognition psychology, which in particular is a cognitive process, and deals with the ability to form a mental image of something that is not available at that moment. It is a vital component of creative visualization, positive thinking and affirmations (Maher, 1915; Sasson, 2016). Maher (1915) and Angel (2015) observe that, psychologists over years have identified several forms of imagination. However, imagination is largely perceived in two forms, that is, Reproductive Imagination and Productive Imagination. Reproductive imagination is a term employed to designate the power of forming mental pictures of objects and events as they have been originally experienced before (Maher, 1915; Angell, 2015). For example, a voter may visualize a mobile device that he saw in a demo somewhere. Such an application according to Angell (2015) would illustrate what psychologists mean by reproductive imagery. Productive Imagination on the other hand signifies the power of constructing images of objects not previously perceived (Maher, 1915; Angell, 2015). Reproductive imagination experience is an internal experience a person enjoys from visualizing a recently seen or experienced phenomenon. Reproductive imagination is comprised of three phases, namely crystallization, dialectics and effectiveness (Liang et al., 2012; Liang, 2013).

Fantasy Process in AUX

This is the second phase of the AUX cognitive process. Fantasy is a product of imagination, or Imagination is the key that leads to fantasy (Jaun, 2006). The word fantasy is most often referred in psychology as a "mental apprehension of an object of perception; the faculty by which this is performed" and further as "the fact or habit of deluding oneself by imaginary perceptions or reminiscences" or "a day-dream

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arising from conscious or unconscious wishes or attitudes" (Brenner, 2003). In psychology, Fantasy is an imaginary thought or image, or a set of images that provides a pleasurable experience for an individual, or as a means of visualizing other possibilities (Psychology Glossary, 2016). The term fantasy and imagination in many cases are used interchangeably. However, Albertus Magnus differentiates the two and considers imagination *"the repository of images and fantasy the active power operating them"*. Other psychology scholars such as Reynolds compares imagination with genius, and fantasy with taste. Fantasy, which is the lower and more restricted term, is defined in relation to imagination, which is a higher and more comprehensive term (Brenner, 2003). Roy (2011) considers fantasy as an imagination in its extremes and an important part of our cognitive thinking, it demonstrations how far our minds can stretch beyond the normal and the natural. Fantasy experience is putting reproductive imagination in to imaginary action while enjoying the whole experience, drawing imaginary use cases of a particular product. This therefore leads to excitement.

Excitement Process in AUX

The outcome of reproductive imagination is fantasy, the end result of fantasy is excitement (Changing-Minds.org, 2016). According to Merriam Webmaster (2015) excitement is a feeling of eager enthusiasm and interest, a quality that causes feelings of eager enthusiasm. According to Patel (2015), when a person is excited, the emotions become more powerful and in many cases affects the person's decision-making abilities. An excited person is more likely to make a decision, any decision including a bad one (Patel, 2015). Excitement in Psychology sometimes can be referred to as Affective or Emotional arousal, and this happen when someone is emotionally charged up and feels passionate about something, this creates physical agitation and 'readiness for action' (Berger, 2011). Excitement in this context, is a powerful argue to transform fantasy to reality.

The Analogy

This paper summaries the three phases in this analogy. Once a user begins to imaging a mobile device which he/she saw in recently in a demo or an advert (Reproductive Imagination), the user is likely to begin creating interesting use cases in the mind (Fantasy), once this is done over and over again, it will result to the argue to use the system in reality (Excitement). The interrelationship of the three though processes is illustrated below in Figure 2;

Factors That Stimulate AUX Cognitive Process (Stimuli)

AUX cognitive process is heavily dependent on the nature of environmental stimuli. In this chapter, there was need to establish factors (stimuli) that can influence cognitive processing systems, that is; reproductive imagination, fantasy and excitement. From the literature available, this chapter found out that persuasive techniques used in marketing and in persuasive technology design techniques, technology acceptance theory and other theories could influence the three processing systems. Fogg (2002) defines persuasive design or technology as a technology that is designed to change attitudes, perceptions or behaviours of the users through persuasion and social influence, rather than coercion. According to Fogg (2003), persuasive computing is "any interactive computing approach designed to change people's attitudes or behaviours". Central to the concept of persuasive design is the notion of persuasion, which

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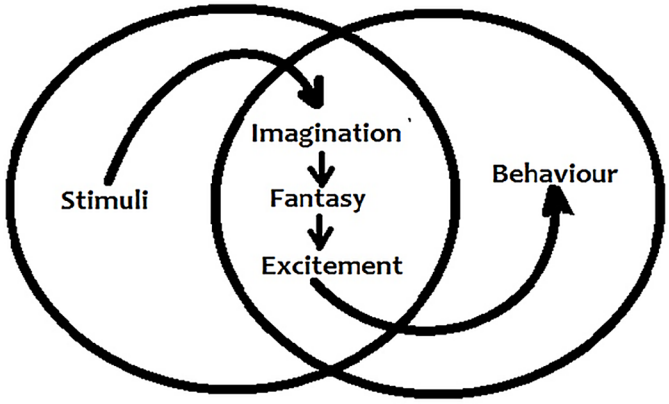
Figure 2. The processing systems in the AUX cognitive process



Fogg explained as "an attempt to shape, reinforce, or change behaviours, feelings, or thoughts about an issue, object, or action". Fogg (2004) and Cialdini (2007) forwarded a number of persuasive strategies when used in designing computing products or services would change attitudes, perceptions or behaviours of the users towards a given product.

- **Demos:** Show the product features and how they work through trial versions, on TV etc.
- **Tailoring:** Provides relevant and personalized information on the product to change a person's attitudes.
- **Reciprocity:** Uses principles of operant conditioning, such as reinforcement and shaping, to change behaviors.
- **Push Messaging/ Reminders:** Gentle and polite reminders at certain times of the day to influence behavior.
- **Social Learning:** Use of peers, role models or acquaintances to influence behavior of others.

On the other hand, Acceptance theory as originally proposed by Davis in 1986 could also influence the three processing systems. According to Park (2009), TAM is one of the well-known models related to technology acceptance and use. The TAM is an adoption of the theory of reasoned action (TRA), specifically tailored for modelling user acceptance of information systems/technology. The TRA assumes that behavioural intentions are prior to every behaviour and that attitude and biased norms are critical for the intentional behaviour (Riedel et al., 2006). The advantage with TAM is that it offers an informative representation of the mechanisms by which design choices influence user acceptance (Park, 2009). According to Park (2009), TAM accounts for more than 60 percent of user acceptance and usage of a given technology. In TAM, perceived usefulness and perceived ease of use are the significant pillars that constitute and determine user acceptance of a given form of technology.

- PU defines the degree to which a person believes that using a particular service or product could improve his or her work performance, say, reduce on the overall time a person takes doing a task or make it very convenient for a person to perform a task.

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- PEU on the other hand describes the degree to which a person believes that using a particular service or product is free of effort. The service or product should be easy to learn and use, no much effort is required.

Persuasive and acceptance design requirements were found to be able to create positive imagination, fantasy and build excitement. How besides persuasive and acceptance theories, the literature also reveals that the following requirements can influence AUX.

- Prior Success or Legacy. The legacy of a product matters. The history of success makes a product reliable and this wins trust from the users. According Murthy (2007), the legacy of the product which is associated to its reliability conveys the concept of dependability, successful operation or performance and the absence of failures. It is an external property of great interest to both manufacturer and consumer. Unreliability (or lack of reliability) conveys the opposite (Murthy, 2007).
- Trend and Aesthetics. The inclination of the time influences the design of products. Usually people want to buy up to date items and not ones based on 'last years look' (Ryan, 2004). Aesthetic on the other-hand is the branch of philosophy that deals with the principles of beauty and artistic taste (Business Dictionaries, 2015). People are not only attracted to the latest trend of products but also to beautiful things.
- Social and Cultural Environment. These are a set of beliefs, customs, practices and behavior that exists within a given population (Business Dictionaries, 2015). Some product are aimed at different cultures and countries. A product acceptable in one culture may be looked up one as offensive or less desirable in another. The most critical thing is to align the product or service with these set of beliefs and practices.

RESULTS OF SYSTEMATIC REVIEW

Stimuli and Its Influence on AUX Cognitive Process and Behaviour

Systematic review was used to establish the extent to which the elicited stimuli from the literature would positively stimulate AUX cognitive process (change attitudes, perceptions or behaviours of the users towards a given product). As already stated and illustrated in Figure 2, the end result of AUX cognitive process is behaviour change. This could be in terms of accepting a service or product by the user. In this section, the chapter goes ahead to discuss the relevance of each stimuli to mobile computing products and extend each stimuli influence user behaviour on a computing product. Ten stimuli that influence AUX cognitive process and lead to user behavioural change. For easy understanding, this chapter organises these Ten Stimuli in to two broad categories. Namely; Contextual Stimuli and Product Stimuli

Contextual Stimuli

Verschuren and Hargot (2005) defines surrounding Characteristics as existing prerequisites set by the political, cultural, economic, juridical and or social environment. These are the social, cultural, political factors that play a great role in influencing AUX as discussed below;

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Socio-Cultural System

Cultural and religious attributes of the user or group of uses should be highly observed when developing a computing product. There should be no or little conflict between socio-cultural life style of the user and the technology being used. It is right to say that social and cultural acceptance of a particular technology is very vital (Shaukat & Zafar, 2010). For example, a number of manufacturers have a good understanding of colours and colour schemes and how they influence demand of the product in different countries. In China for example, black is always associated with evil, dirt, sin, disasters and bad luck. Black garments in China may not sell as much as white or blue (Ryan, 2004). Social factors are among the major influencers of reproductive imagination. In such situations, Väänänen et al. (2009) recommends designing computing products that are enjoyable and support essential social and cultural needs and values of the users.

Social and Political Learning

According to Cherry (2014), the social learning theory was first proposed by Albert Bandura and has become one of the most influential theory of learning and development. Whereas behavioural theories of learning suggested that all learning was as a result of associations formed by conditioning, reinforcement, and punishment, Bandura's social learning theory proposed that learning can also occur simply by observing what other people are doing. His theory added a social element, arguing that people can learn new information and behaviours by observing other people (Cherry, 2014). Cialdini (2007)] explains that when someone is not sure about a certain course of action, then the person is more likely to look to those around him or her for guidance as far as that particular course of action is concerned. Cialdini (2007) gives a good example on how social validation can significantly influence motivation and persuasion. He explains that, a study found that a fund-raiser who showed homeowners a list of neighbors who had donated to a local charity significantly increased the frequency of contributions; the longer the list, the greater the effect. Cialdini (2007) further quotes Cavett Robert- a sales and motivation consultant who stated that, people are persuaded more by actions or behaviours of other people than any other proof that can be offered. A classic effect of social learning was when Lee's article (circa 2011), reported that and endorsement by Jessica Simpson and aesthetician Nerida Joy helped Beautymint attract 500,000 visitors on day one of its launch (Feldman, 2014). In a survey carried out in Uganda, there was a 32% acceptance rate in respondents who originally did not agree to use their mobile phones for voting, when there was an indication that their political leaders, neighbours, peers or influential would be using their mobile phones for voting (Eilu et al., 2014). Using social leaders, political leaders and technocrats influence wide use of computing products in today's society.

Product Stimuli

Refers to the preferred product/service functionality, features, appearance and other hedonic features. The requirements include; ease of use, perceived usefulness, Demos, push messaging/reminders etc as further discussed below.

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Perceived Usefulness

Slatten (2010) describes perceived usefulness as one of the most important factors for influencing user technology acceptance. Perceived usefulness according to Park (2009) is the degree to which a person believes that using a particular system would provide him/her with some benefits. Mobile Phone for example have proved to be a very useful tool in today's world. Mobile phones services have made it easier for people do things, it has provided services such as easy mobile money transfers and mobile bill payment to mention but a few. Through these mobile services, money transfer and bill payment has become easier and convenient in developing countries like Uganda, Kenya and Tanzania. Statistics show that, because of its portability, about 67% of users would prefer buying products using their mobile devices, while 50% of users are more likely not to use an online site if it is not available on their mobile devices even when they like the product available online. About 48% of online customers find a lot of dissatisfaction when they get to a site that is not mobile-friendly (Dholakiya, 2013).

Prior Success and Great Legacy

A good reputation represents a great marketing strategy. A mobile computing product with a good reputation inspires others to use it (Lickerman, 2010). A product with a good reputation has a higher chance of being accepted even by those who have never used it. The Moleskine notebooks for example had built a good reputation over several years as a reliable notebook with a durable cover. Though the books disappeared in the mid-1980s, in 1986 the note books resurfaced and sold out in record numbers because of their earlier reputation (Berget, 2009). Tartan is a type of Scottish cloth which is checked or cross-barred. A variety of colours are used to produce the patterns. Today, tartan patterns are exported all over the world from Scotland and these types of pattern are recognized throughout the world as Scottish. Tartan patterns materials are not only always bought because they are associated with Scotland but they are also purchased for their high quality (Ryan, 2004). For mobile computing product to gain more acceptance, there is need to build legacy or associate it with products that have a solid legacy.

Demos

Reproductive imagination depends directly on the richness of what was seen before, because this is the experience that provides the material from which the products of reproductive imagination, and later fantasy and excitement are constructed. The richer a person's experience, the richer is the material one's imagination has access to (Vygotsky, 2004). Demos are considered a rich source of material for reproductive imagination. A demo is a step by step process which guides the user on how the product works or how it is used. Demos can be done through various means, say on TV, radio, prototypes or sample products. A demo proves to a user that a computing product meets the specified standards and this reduces the level of uncertainty. Demos on TV or radios, or Test prototypes of a computing product given to the user before the user purchases the product are a great confidence and trust builders. Demos are recipe for reproductive imagination, where someone begins to form mental pictures of objects and events seen earlier. A number of researches have been carried to find out the effectiveness of demos on products and the results are stunning. For example, 58% of the respondents in a survey carried out by a research firm Knowledge Networks said they would only buy a product after trying it. In a related survey, there was an increase of 475% when product demonstration in-store were allowed, and further increased

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sales from the entire product line by as much as 177% on the demonstration day (Lovell, 2015). Khaled (2008) acknowledges that one of the major aim of a demo is to increase self-efficacy and facilitate goal completion of a computing product.

Ease of Use

In designing computing products, unnecessary long steps should be avoided and short simple steps should be made a priority when developing a computing product. Once the tasks in the demo are few and simple, it influences the degree to which a person believes that using a computing product is free of effort. Slatten (2010) believes that users will choose to avoid learning complex process because of the perceived or real difficulty associated with such a process. A survey by usability net revealed that 50% of online visitors to a site would not return if finding information they needed was difficult (Usability Net, 2006).

Tailoring or Customization

According to Fogg (2004), information availed in a computing product will provide better user experience if it is tailored to the individual's needs, interests, personality, usage context, or other factors relevant to the individual. Product customization is gaining ground in many companies. Online product customization for example, raises brand awareness, increases engagement, helps companies identify emerging trends, and adds an additional source of revenue to their online business (Margalit, 2015). Product customization has been taken so seriously, that today, many popular brands are embracing product customization and adding it to their business strategy (Margalit, 2015). Margalit (2015) argues that the decision to buy a customized product is mediated by unconscious factors. There is a tendency for a person to pay more attention to information meant for him or her. When a product is customized, the buyer's touch receptors are activated, creating a sensual stimulation. In a case where touch is not possible, the interaction with the product brings an imaginary path to life, and the imagination of ownership (Margalit, 2015). Cialdini (2007) observes that having a product with a customer's name on can increase chances of winning over the customer. A survey carried out in the United States revealed that clients were willing to pay as high as 20% more to have their products customized (Spaulding & Perry, 2013). A mailing survey found out that there was a 56% response rate for customized mails sent out to people, compared to 30% response rate for non-customized mails (Cialdini, 2007). A survey of more than 1,000 online shoppers conducted by Bain & Company in the United States revealed that more than a quarter of shoppers, 25-30%, are interested in online customization options, even if only 10 percent have tried it until now (Margalit, 2014).

Reciprocity

Reciprocation is a form of reward a user receives after performing a certain task. Computing products that are designed to reward a user attracts more attention from users than others. There is an over whelming evidence that reciprocity is a powerful determinant of human behaviour. Many scholars including sociologist, ethnologist and economist emphasize the omnipresence of reciprocal behaviour (Falk & Fischbacher, 2000). According to Molm et al. (2007), the appreciation of reciprocity in social life is by no means restricted to exchange theorists, that is ''give and take''. In contrast, as a social construct, reciprocity means that in response to friendly actions or behaviour, people are frequently much nicer and much more cooperative; in reverse, in response to hostile actions they are frequently much nastier

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and even brutal. The principle of Reciprocity is equally used in a variety of situations, businesses use it in advertising, marketing, and propaganda (Budiu, 2014). Reciprocity appeals to sub conscious part of a human to be good to those who are good. For example, in order to influence voters to use a given mobile device, rewards to users could be considered. The mobile device should have an in built rewarding service, such as free games, application downloads etc. Therefore, rewards like free airtime, free online game access etc. A survey in the United States indicated that an appeal by Disabled American Veterans organization for contributions increased from 18% to 35% when free personalized address labels where later sent. In another example, research found out that people bought twice as many raffle tickets from a stranger if the stranger first gave or promised a can of Coke (Cialdini, 2007). In another case in the United States, a waiter's tips increased by 23% when a waiter gave one mints to a client but quickly returned to offer a second mint (Cialdini, 2007).

Push Messaging/ Reminders

Push messaging notification is, in mobile marketing context, a short text message sent to remind someone to perform a certain act. These messages are send at certain convenient times. Some technologies like suggestive technologies identify these convenient times and then remind users to perform a particular tasks. For example, during the 2 years of observation at a United States hospital, safe behaviour before implementation of the '*gentle reminder'* was 55% in one ward; it increased after 2 months to above 80%; 4 months later, it was 90%. A similar pattern was documented in all wards. This is one recommended way to overcome unsafe behaviour (Erev et al., 2010). Another survey by Localytics revealed that there is a 66% higher click rate on reminders that are sent on weekdays between 12 p.m. to 5 p.m. (VentureBeat, 2014). In another case, there is a higher chance that customers will reconsider and buy a product when constantly reminded about the product (VentureBeat, 2014).

Trend and Aesthetics

A trendy computing product is the newest, the latest, and the greatest product of the day that catches much of people's attention. According to Baumgartner (2012), the brain loves trends because they are fast acting short-lived blasts of newness. Studies have shown that the substantia negra/ventral tegmental area of the brain is stimulated when presented with something new. The study also showed that humans seek novelty in order to receive reward (Baumgartner, 2012). When a person is presented with something new which he/she has not seen before, all cognitive processes involved in learning (working memory, visual processing, problem solving, etc.) are enhanced (Baumgartner, 2012). Fashion goes hand in hand with beauty. The selection of the product's features, colors and shape generates thoughts on 'how it would feel' to own that object (Margalit, 2015). Cialdini (2007) observes that people tend to be attracted to beautiful and trendy things. Physically attracted people are more likely to receive favour than the other less attractive. A study conducted in the USA in 1993 revealed that, physically attractive fund-raisers for the American Heart Association generated nearly twice as many donations (42% versus 23%) as did other requesters (Cialdini, 2007). Studies have also shown that up to about 90% of a product's assessment is based on beauty and color alone. This mental assessment is normally made within 90 seconds of initial viewing (Patel & Puri, Na). A new analysis by the Design Management Institute, a Boston-based nonprofit focused on design management released a report that, in the decade, design-driven companies such as Apple, Coca Cola, Ford, Herman Miller, IBM, Intuit, Newell Rubbermaid

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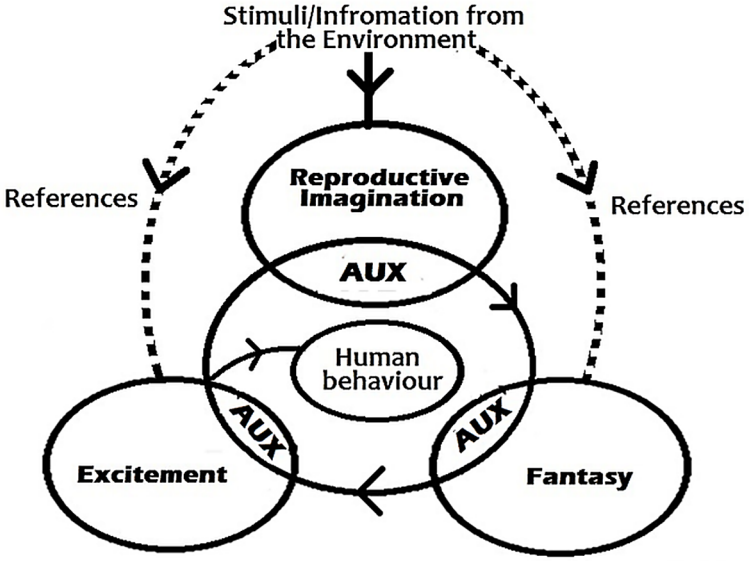
and Nike outperformed the Standard & Poor's 500—a stock market index of 500 large publicly traded companies—by 228% (Dunne, 2014)

In summary, key external stimuli that designers should consider when designing for AUX in computing products are presented. As illustrated in figure 3 below, the stimuli discussed in this chapter influences reproductive imagination first, however, fantasy and excitement are further stimulated through constant reference to the stimuli as illustrated in Figure 3.

Figure 3. Processes and structures in cognitive performance that influences AUX



AUX Influences User Human Behaviour

Human behaviour refers to a collection of every physical action and observable emotion associated with individuals. In computing products, this could be displayed in form of acceptance and usage of a computing product. One of the assumptions in cognitive psychology is that behaviour is controlled by our own cognitive processes, as opposed to genetic factors. Meaning that the outcome of the cognitive process influences behaviour. However, before 1940s this cognitive psychology assumption on the cognitive process leading to human behaviour was widely contested. The "father" of radical behaviourism (human behaviour) John Watson (1878–1958) objected to this theory and dismissed cognitive process as nothing more than subvocalized speech (Robert & Sternberg, 2012). Until early 1940s, the behaviorist view that human behaviour is directly influenced by the surrounding environment and no thinking process is required- dominated experimental psychology (Riegler & Riegler, 2012). Behaviorist scholars such as B. F. Skinner emerged as the most extreme advocate for behaviorism claiming that mental events such as cognitive processes have no place in the science of psychology. He insisted that behaviour is directly influenced by the environment only, and no thinking process is involved. He argued that though cognitive processes are real, they are unobservable and hence unnecessary to a scientific explanation of behavior (Riegler & Riegler, 2012). However, towards the end of the 1940s and early 1950s there was an abrupt

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change in research activities, interests, and the scientific beliefs, which marked a definitive break from behaviorism (Riegler & Riegler, 2012; Robert & Sternberg, 2012). The rapid change in research is seen by some as a revolution in which behaviorism was rejected and replaced with cognitive psychology (Riegler & Riegler, 2012). This changes referred to as the "cognitive revolution" which took place in response to behaviorism (Robert & Sternberg, 2012). Cognitivism is the belief that much of human behaviour can be understood in terms of how people think. Cognitive psychologists assume that behaviour is the result of cognitive process. It rejects the notion that psychologists should avoid studying mental processes because they are unobservable (Robert & Sternberg, 2012).

FUTURE RESEARCH DIRECTION

Although little attention has been given to AUX, a number of user experience researchers and practitioners are currently trying to understand AUX and how it can be achieved. There is need to focus more on identifying and categorising AUX stimulants against particular computing products.

CONCLUSION

The term '*user experience'* came up during the explosive wide spread use of mobile devices and services error. User experience shows that the ease of use, efficiency and effectiveness of a product or service are not adequate to guarantee user satisfaction. In order to guarantee satisfaction, user experience research commenced. However, understanding user experience and how it can be achieved has always been quite challenging to researchers. Particularly, Anticipated User Experience (AUX), one of the tenets of user experience. In this chapter, I attempt to address this gap. This chapter applies the theory of cognitive psychology and its principles to best explain how Anticipated User Experience occurs and how it can be achieved. This chapter makes 3 major observation that underlie AUX; AUX is a cognitive process. It is linked to imagination, fantasy and excitement. For AUX to occur, there should be a stimulating factor such as conducive Social Environments, Social Leaning, Reciprocity, Tailoring, Push Messaging, Trends and Aesthetics, Demos, Ease of Use, Perceived Usefulness and Legacy. Thirdly, AUX influences user behaviour displayed inform of acceptance and usage of computing products. This chapter goes a long way in informing designers of computing products on the significance of attaining Anticipated User Experience and how it can be achieved.

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KEY TERMS AND DEFINITIONS

Anticipated User Experience: A positive imagination, fantasy and excitement that a user feels about a given product or service before the product is made available to the user.

Cognitive Psychology: The scientific investigation of mental processes that affect behaviour, this includes all our mental abilities.

User Experience: Defined as a person's perceptions and responses that result from the use or anticipated use of a product, system or service.

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Chapter 28
Hinduism and Counseling: Karma, Women Empowerment, Grief and Death, Anger Management, Bhagavad Gita, and Psychotherapies

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ABSTRACT

Indian psychology lays enormous importance on the research of religious experiences and the expansion of approaches by which to accomplish them. In addition to that, it also provides understanding of the different states of consciousness. Hence, it is undeniable that Indian psychology will be able to make a definite therapeutic contribution to many psychological problems. For mental health practitioners dealing with Hinduism, there are teachings within various texts that directly strengthen counseling and mental services. Some of the examples include perceiving the conscious and the unconsciousness aspects of the mind, utilizing meditation to support people with mental health issues, yoga exercises to curb anxiety and stress, and many others. Therefore, this chapter intends to elucidate the application of Hinduism in therapy.

INTRODUCTION

Hinduism is one of the five largest practiced religions in the World. There are so many books and beliefs that are part of Hindu practices that some see Hinduism as more a way of life rather than a dogmatic religion. While Hinduism is seen as pantheistic religion, that are practitioners of Hinduism that are monotheistic and even atheist believing in the concepts rather than the ritualistic practices of the religion. Conceptually however there are concepts that guide Hindu, this article looks at the beliefs of Hindus that has an impact on counselling and therapeutic practices.

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Our basic philosophy is trinity. Trinity means we believe there are three basic things: matter, soul and God. God to us is all pervading. It is not something that is static and sitting on one place. It is matter through which this world came out of. And the third thing is soul. Regarding soul we believe in transmigration: the circle of life and death. And that circle is according to our Karma. Our deeds become our destiny.

(Quoted from a Hindu participant for Research Karma, reincarnation, and medicine: Hindu perspectives on biomedical research, Sharp &Hutchinson, 2008).

What Is Karma?

Many Indian religions such as Buddhism, Jainism, and Sikhism share karma as their core concept (Berkeley, 2017). Despite that, their specific views on karma vary. Before talking about Karma, I think it's crucial to talk about the atman, (the real self). In Hinduisme, the atman (the soul/ real self) is distinct from both the body and the mind. The atman refers to the self beyond gender, race, species, religion, and nationality.

Karma is a concept in Hinduism which dominantly elucidates causality in which good actions, words, thoughts, and commands directs to favorable repercussion for a person or vice versa (Berkeley, 2017). Hindus more often than not believe that good or bad fortune encountered in life may be the consequence of good or bad actions carried out in a past life. These effects may not necessarily be instantaneous as it can be visited upon a soul in future lives through reincarnation. Unfortunately the misconception here is Karma dictates what to do. As a matter of practice Karma creates situations, how one chose to behave is based on their freewill. One's choice of action determines either they will be accumulating positive karma or negative karma. For instance if you had been wrong by an individual in the past, Karma will put you in a situation where you can continue the negative relationship, forgive and cut the karmic ties or simply just walk away. The choice of what to do is that individuals.

Transmission of a Soul

Transmission of soul is believed to be facilitated by one's karma. One's accumulation of good and bad karma unfolds to determine one's destiny. The family you are born in is Karmic, you have the choice to rise above or sink in the situation that you are born in. Since Hindus believe in transmission of the soul, the focus of Hindu philosophy is on the development of the soul in relation to the body. The driver in the vehicle analogy can be used in further comprehending the soul or atman concept. A body will never function without a soul just like how a car can never move without the driver. Just like how many drivers form attachment with their cars and get concerned about the car's needs, most people without the proper enlightenment may begin identifying with the body and it's needs without finding and acknowledging the soul within it. Failure in acknowledging the soul within may lead to one being trapped, a broken and ignored car however will not be able to move the driver effectively. Therefore the individual while focusing on the soul must ensure the health and safety of the car, which has led to the development of Ayurveda, Yoga and breathing practices which are strongly rooted in Hinduism.

In the nutshell, Karma entails the notion that we are all responsible for our own lives. As such, all therapies that address freedom of choice can utilize the concept of Karma in empowering their client. Karma entails the notion that karma creates circumstances yet how we choose to react depends on our choice. Therapist can utilize this understanding in empowering clients to make up the right choices.

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Besides that, Karma in a way suggests the notion that one can only control one's own behavior which would lead to accumulation of karma.

Besides that, the concept of Karma can also be incorporated in behavioral Psychology. In behavioral Psychology, more often than not reinforcements are used to influence probability of an action. Positive reinforcements like rewards enhance the occurrence of an event while negative reinforcements like punishments reduces the occurrence of the event. However, often time negative reinforcements like scolding, yelling and punishing could cause negative repercussions to the psychological well-being of a person. Desired behavior is probably attained using this technique yet it causes adverse effects on social relationships which will lead to accumulation of bad karma. Positive reinforcements on the other hand amplify self-contentment and happiness. As such, they accumulate good karma. On one hand with this, when people use ignorance technique while being confronted by situations that they don't like, they avoid accumulation of bad karma.

Women Empowerment

Sakthi (Divine Feminine Energy)

The significance of women is so intense in Hinduism to the extent it cannot be comprehended in just one distinct way. According to Hindus, the Supreme Being is ultimately believed to be the divine output of the entire universe. As such, Hindus also believe the Shakthi (divine feminine energy) is pertinent for the existence of the Supreme Being to exist. Essentially, Sakthi means "power". In the words of Kolluru, (2011), energy of divinity manifests itself in many forms. Kolluru further described this by categorizing energy manifestation in the masculine form as a male and feminine form as female.As a matter of fact, Hinduism worships the Supreme Being as a divine mother in the form of Shakthi because just like how mothers are accountable for birth, Shakti is accountable for creation (Johnson, 2017).

The Main Goddesses and Their Roles

The only major religion of the world with both God and Goddess is Hinduism. Prominently, most major male Gods have Goddess as their partners. Lord Shiva has goddess Parvati, Lord Vishnu has Goddess Lakshmi, and Lord Brahma has Goddess Saraswati. Ultimately, Hinduism implies the notion that all living beings are fraction of the similar great consciousness which is the almighty. The Almighty is neither male nor female. Within manifest creation, a balance of male and female energy is vital.The goddess in Hinduism displays various roles and freedom of choices.

Ultimately, the goddess portrays the universal truth that all woman are entitled to have their own choice whether to get married, have children, pursue higher education, or stay single. For example, Goddess Parvati is married to Lord Shiva and has children; Lord Ganesha and Lord Muruga. Goddess Lakshmi is married and does not have any children. She is on her mission which is to protect the universe along her husband, Lord Vishnu. However unlike the regular superstitious whereby married woman with no children are considered as inauspicious, Goddess Lakshmi is seen as the symbol of auspiciousness and happiness. On the other hand, Goddess Saraswathi is never seen in any pictures with her husband. Goddess Sarawathi is known as the goddess of knowledge of wisdom and art. Lord Saraswathi is more career oriented as she is mostly pictured with her veenai and books. On one hand with this, fierce and protective Kali Ma, doesn't have a male counterpart.

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Navarathri

Navarathiri is celebrated as the divine feminine element of Shakthi. This is a nine day celebration whereby the divine form of Shakthi in its' nine different form: Durga, Bhadrakali, Amba Devi, Annapoorna Devi, Sarvamanagal Devi, Bhairavi Devi, Chandika Devi, Saraswathi Devi, Bhavani Devi, are worshipped. Each forms illustrates on the different portrayals of Shakthi. Durga is depicted as the invincible mother, Bhadrakali refers to the mother of fortune and wealth while Amba Devi refers the mother of the universe. Annapoorna Devi mother of Anna (rice) and is responsible to provide food. Sarvamangala Devi is the divine mother that brings peace and joy to the world. Bhairavi Devi on the other hand is the divine mother of good who does goodness to good people and evil for bad people who demolishes the negative energies in the Universe. Chandika Devi is the fierce goddess who is the Supreme one. Saraswati Devi and Bhavani Devi are depicted as the Goddess of beauty and the Goddess of mercy respectively.

By close inspection of this nine day celebration, it can be clearly noted that this celebration was devoted to celebrate the different traits and qualities in woman. The different forms of shakthi have simply elaborated the equality of man and woman. Women are as capable of man in fighting against injustice. In session, these stories can be used to bring woman to a sense of awareness of their situations and awaken the power within them in fighting against discrimination.

Hindu Stories of Strong Roles Portrayed by Female Figures

So while the Hindu Goddess themselves empower women, historically and culturally male dominance has been practiced the significance of the goddesses themselves lost in translation. Essentially, most women are expected to portray traits like compassionate, forgiveness, compassion, and tolerance of others' misbehavior. Women that comply with the cultural norms are accepted while women that attempts to portray independence and assertiveness are seen as destructive and as a disgrace to family reputation. Women are forbidden from expressing their opinions and views boldly. The actual pantheon of Hinduism, the concept of Shakti can be used to empower women in fighting against patriarchy. In Hinduism, women are acknowledged as the vessels of shakti with both creative and destructive power (Kolluru, 2011). Ultimately, each forms of Shakthi portray different roles of a woman .While Shakthi is mostly seen as the gentle and loving Uma, Shakthi is also portrayed as the fierce Kali and warrior Durga .

Apart from that, equality was also strongly emphasized in Hinduism. The form of Ardhanarishvara, which is the merging of Lord Siva and Goddess Parvati represents the union of the masculine and feminine energies (Kolluru, 2011). Ardhanarishvara is evidential in demonstrating the fact that female element (Goddess Parvati) is inseparable from the male element of God (Lord Shiva) .With respect to the Ardhanarishvara form, it can be clearly noted that Hinduism also shatters all questions with regards to its' perspectives on homosexuality.

A look at the Hindu puranic stories will further illustrate the freedoms and the unique roles played by women. For instance, Goddess Dhurga is depicted as a courageous battle queen with many arms, with each carrying a weapon. Draupathi was known as the heroine of Mahabharata who has stood strong despite going through many trials. As a matter of fact, Draupathi was married to five different husbands (the Pandavas) at the same time. As such, it definitely demanded lots of skills and responsibilities to be the wife of the Pandavas. Draupathi had to spend one year with each husband. Her other husbands were forbidden from having any sexual contact with her while she spends one year with each husband. Drau-

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padi was adored for being compassionate and humble to good people and was volcanic to her enemies. In addition to this, Draupadi was also well-known for her firmness and for having a unbreakable will.

On the other hand, Kannagi was known for her bravery. Kannagi took revenge on the great Pandyan King of Madurai for wrongfully putting her husband to death. Kannagi's curse burned the whole town of Madurai. Besides that, Avvayar was a famous female poet whose poems and stories are widely used to educate young children till today. These stories have depicted some of the bold roles played by women of those days who did not comply to the expectations and norms of the society, these stories can be used in sessions to help women break away from oppressive situations.

Grief and Death

Perceptions About Death

For sure is the death of all that comes to birth, sure is the birth of all that dies. So in a matter that no one can prevent thou hast no cause to grieve. (Mascaro, 1962, chapter 2, verse 27)

Maya (an illusion) is termed in the Hinduism as an attempt to find permanent happiness in this world (BBC, 2014). A person's atman (spirit) based on the Hindus believe is eternal. Unlike the atman, the physical body is not enduring and can change. Without proper enlightenment people will get trapped in the samsaric cycle (reincarnation). As such, Hindus view death as a natural event that would facilitate the process of the atman attaining Moksha (ultimate release from rebirth).

Reincarnation

Reincarnation simply refers to life continuing after death. Referring back to the driver in the vehicle analogy, just like how people change their car once it gets old, not functioning, people will be using a new body after their death. We buy cars on the basis of what we want and what we can afford. Similarly, the nature of the new body is influenced by their desires and their respective karma. Bhagavad Gita has three main listings for human actions: Karma: those which elevate; Vikarma: those which degrade; Akarma: those which create neither good nor bad reactions. This is believed to lead towards liberation. For most Hindus, this can be an important belief that facilitates grieving process. In addition to this, funeral rituals in Hinduism are designed in such a way to facilitate grieving process. Funeral prayers help people to come out of shock and accept the reality. Longer mourning period often times give a long time frame to survivors of the deceased to come in terms with the death of their loved ones. Psychologically speaking, the hindu funeral rites and rituals are specifically targeted to help the relatives of the deceased in coping with the loss.

After-Life Beliefs

Hinduism elucidates on the four main paths that a man will follow upon his death. Devayana the first path is known as the path of the gods (Ramakrishna, n.d.). This path is taken by spiritually advanced souls who have devoted themselves to meditation yet have not succeeded in accomplishing self knowledge prior to their death. Pitriyana is known as the second path. This path is followed by ritualists and philanthropists who have done worship, charity, vows and austerity. People here enjoy immense happiness for their

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good will before returning back to earth as they still possess earthly desires .Hell is referred as the third course. This path is followed by those who led an impure life .Such people are born as sub-human species to expiate their evi actions before being reborn as humans. The fourth path is for those who have done extremely unpleasant actions. They are reborn as insignificant creatures like mosquitoes countless times to eliminate their evil actions before being reborn as human form (Ramakrishna, n.d.). Souls that have attained self-knowledge however do need to pass through any of these realms. Such souls attain Moksya.

Suicide and Euthanasia

Suicide in Hinduism is perceived as an act against humanity (Lakhan, 2008) as it causes pain to the family and friends of those who complete suicide. As such, suicide is deemed as a bad death which is violent, premature occurring at the wrong time and wrong place. However there are two prominent distinctions made to distinguish suicide and euthanasia. One killing him or herself for selfish reasons such as financial burden portrays one's ignorance on nature of life. Hindus believe that a person who dies by committing suicide will continue the samara cycle of birth and death. In addition to this, committing suicide will cause negative repercussions in next birth. Ultimately the point of life is to develop and attain self-knowledge. Suffering is part of life. Bliss is just an illusion, (maya). As such when one chooses suicide as an alternative path to end his sufferings, it creates negative repercussions in next birth and hence lessons have to be repeated till next birth. In the nutshell, suicide is never encouraged in Hinduism. On one hand with this, death is seen as a natural occurrence in Hinduism whereby one is karmicly bound to die in time. As such, one should not blame himself or herself when they are unable to save someone from dying. A therapist dealing with suicidal clients could use this explanation to help client understand the consequences of killing themselves. Euthanasia on the other hand is seen as an act of compassionate in case of extreme suffering and lack of consciousness. A doctor does euthanasia by injecting lethal drugs to patients. Euthanasia is not seen as a sin in Hinduism (Lakhan, 2008).

Anger Management

Perceptions on Anger

According to the Gita, desire and anger provoke a man into sinful action (Hindu Dharma, 2017). Desire is deemed as a deadly enemy as if we want something, we will get it by fair or foul. This will drive us to committing sin. As such, anger is also seen as an equally deadly enemy. Anger is caused by unfulfilled desire. The concept of throwing a ball against the wall can be used to comprehend how anger is caused by desire .Desire represents ball being thrown against the wall meanwhile anger is represented by the ball bouncing from the wall (Hindu Dharma, 2017).

While we attack people in our anger, we are hurt more than those we wanted to hurt (Hindu Dharma, 2017). Our whole body shakes when we are angry .Anger triggers pain both to the body and the mind In addition to this, we make ourselves appear ugly when we are angry (Hindu Dharma, 2017).

Sadness and anger are two different types of unreciprocated cravings (Hindu Dharma, 2017). If a person that hampers us from attaining our desire is inferior to us, we turn our anger on them . In contrast to this, if the respective person happens to be superior than us, we have no other choice than mourning by ourselves. Thus, anger is best when it is kept at a distant (Hindu Dharma, 2017).

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Stories Relating to Anger

Dhritaraashtra's wrath is an example of story used to elaborate on effects of anger. Pandavas visited their uncle Dhritarasshtra after defeating his sons in the final war (Bhide, 2007). Bheem who killed Dhritaraashtra's son Duryodhana was called closer by Dhritaraashtra so that he could embrace Bheem. Krishna, holds Bheem back and placed a solid metal statue of Bheem before the blind Dhritaraashtra. The statue was reduced to rubble by the vigorous hug of the old man. Such is the intensity of the anger that burns inside him . Dhritaraashtra's Queen, Gandhari blindfolds herself since her husband is blind. When Yudhisthira bends to touch the feet of Gandhari, her partially covered vision falls on his' fingernails. As a consequent, Yudhisthira's fingernails turned black . The anger of the mother was also very profound and literally burning. These stories are significant enough in portraying the dangerous consequences of intense anger .

Focusing Emotions on God

However as humans we are prone to experience anger, so how are we to control it. Associate Professor Dr. Anasuya Jegathevi Jegathesan in her experience with dealing with adolescents and young people with anger issues from a Hindu perspective said this "Your parents, your family, your friends, they cannot take your anger. You will say words that will hurt them and that creates more Karma. So what do you do when you are angry, get angry with God. Sit in your alter scold God, express your anger to God. The Almighty can take your anger, God absorbs it, forgives it and accepts it. Anything offered to God has no Karmic backlash, like the story of Shishupala . Do not of course take your anger out on God in public places like in a temple because there your anger will upset other who does not understand and their upset will create negative Karma. But scolding God in your private space can be a huge anger management too." (Talk, Hindusim and Counselling, HELP University April 2016)

Krishna and Shishupala's Story

The story of Shishupala from the Mahabaratha is as follows he was a prince born with three eyes and four arms. It was said that a heavenly voice told Shishupala's parents that the additional eyes and arms will disappear when a certain person took the child on his lap. However, that person will be the cause of Shishupala's death. When Krishna placed Shishupala on his lap, Shishupala's third eye and additional arms vanished indicating the fact Krishna will be causing Shishupala's death. Witnessing this scene, Shishupala's mother who was Krishna's aunt requested a boon from Lord Krishna. The boon was that Lord Krishna would forgive Shishupala for 100 offences. Krishna agreed, Shishupala's father decided to save his son it was best to let him be brought up by a very powerful rival of Krishna, who instilled hate in the young man, who would openly insult Krishna. As Krishna did not retaliate, he mistook the forgiveness as cowardice, and the young was obsessed with bringing Krishna down.

Both Sushipala and Lord Krishna were invited to a ceremony at Indraprastha by the King. At that event, the King decided to credit Lord Krishna as the guest of honor. Hearing this, Sushipala got furious and insulted Lord Krishna finally exceeding the hundred pardons. A duel commenced and Krishna to the shock of everyone watching when Krishna finally killed the man, the audience witnessed a light of the soul of the man rise from his body and merge with the Krishna who is seen as an incarnation of God on earth. How could someone who had insulted Krishna merge with God?

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Focusing emotions on god will help one in regulating their anger. In Hinduism, it's okay to get angry with god. We can blame god and have a conversation with God. This would give an avenue to express our anger out. When we scream or yell out of anger, it creates negative energy in the surrounding. This would then create unnecessary karma for us. The notion of taking god's name in vain is not a concept in Hinduism. Hindus believe Gods are above emotion. As such, they are non-reactive to emotions. The story of Krishna and Sushipala implies that by focusing emotions on God we are able to express those emotions without negative consequences. This is a powerful anger management practice for young Hindus.

Bhagavad-Gita and Contemporary Psychotherapies

Bhagavad Gita

Bhagavad Gita has approximately 700 verses from Hindu scriptures and is a prominent part of the famous Hindu epic known as Mahabharata. Ultimately, the Gita is based on the conversation between Lord Krishna and Arjuna during the Kurukshetra war. According to Reddy, (2012) Mahatma Gandhi was cited as declaring he would refer to the Bhagavad Gita whenever he encounters a problem as the Gita provides him with the answer and solution to his problem. Resolution of conflict and flourishing recommencement of action from a state of acute anxiety and guilt laden depression are precious case study lessons in psychotherapy for psychology students Many psychotherapeutic principles is believed to have been implemented in The Bhagavad Gita (Bhatia,Madabushi, Kolli, Bhatia, & Madaan, 2013).

The Story Line of Mahabharatha

Essentially Mahabharatha depicts on the Kurushethra war between the Kaurava and the Pandava princes. It is also seen as the longest epic in world literature comprising of 100000 of two line stanzas (Davis, 2001). As such, the Mahabharaha is seen at eight times longer than Homer's Iliad and Odyssey together as well as three times longer than the Bible .However, in the words of Naramsin only about 4000 lines recount to the main story, whereas the rest part of the Gita contains additional teachings In the nutshell, Mahabharatha bears a resemblance to a long journey with many diversions. Hence it was concluded that *"Whatever is here is found elsewhere. But whatever is not here is nowhere else."* (Davis, 2001).

Psychodynamic Psychotherapy

Conflict related to unacceptable aspects of self is the central theme of psychodynamic theories (Bhatia,Madabushi, Kolli, Bhatia, &Madaan, 2013).. Adaptation is encouraged when distress arises due to incongruence between internal dissonance and external requirement. Healthy ego defense mechanisms according to Freud's structural theory resolve the conflict between id, ego and superego (Bhatia et al., 2013). The Gita illustrates on the victorious resolution of discord confronted by Arjuna which shows similarities with id, ego and superego concept .As described in the Gita, the senses (*indriyas*) construct attractions which in turn direct to desire, and a hunger for for possession. Anger displays itself in quest to nurture and conquer that desire.

As elaborated in the id functions, attributes like *kaam* (lust), *krodh* (unadaptive anger), *lobh* (greed), *moh* (insatiable attachment) and *ahankar* (unfounded self glorification) which are are *tamsic* in nature shows significant similarities (Bhatia,Madabushi, Kolli, Bhatia, & Madaan, 2013).. On one hand with

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this, the Gita also has affirmed that mind is superior than senses which is in harmony with theories illustrating the relationship between ego and super ego (Bhatia et al., 2013). A stable mind is often times carried away by the stable mind. Several layers of consciousness and subconscious were illustrated in the Gita just like how it was illustrated in the Jung's idea of collective unconscious. *Tamas* also displays self-centeredness and deficiency in regard for consequences. This again shows evidential resemblance with the concept of id. On the other hand, *Rajas* and *Satwic* are in many ways analogous respectively to the ego and superego. Good thought, altruistic action and relationships are referred as *satwic* qualities. Doing an action with an expectation of reward similar to ego function refers to *Rajas* qualities Symptoms of anxiety according to the Gita are caused by conflicts among the Gunas As such, Gita advocated rising above the *Gunas* in attaining a stable and a peaceful mind .

Cognitive Behavioral Therapy

Arjuna associating guilt by visualizing the death of his relatives scene during the Kurushthra war was one of the earliest CBT documented sessions illustrated in The Gita (Bhatia,Madabushi, Kolli, Bhatia, & Madaan, 2013) . Dry mouth, tremors, dizziness and confusion were the symptoms of his anxiety (Bhatia et al., 2013). Arjuna was so distressed to the extent he wanted to withdraw from war by dropping his weapon. Arjuna was then inspired by Lord Krishna who described the laurels of a warrior and humiliation with regards to non-participation. However, this method was still inadequate. As such, Lord Krishna conveyed the Gita discourse. This was helpful for Arjuna in identifying his thought process and thus coaching him for an action. Arjuna was experiencing guilt and anxiety as a result of catastrophizing the future. With regards to this, Arjuna also demonstrated several other cognitive distortions. As a method of helping Arjuna, Lord Krishna elucidated the misery he is in transient. In harmony with that, Lord Krishna emphasized on the prominence of possessing an undistorted view of the world. This is pretty much similar to how a therapist would explain the temporary nature of anxiety following psychoeducating on how cognitive distortions affect the symptoms .

Mindfulness

A way of paying attention that is sensitive, accepting and independent of thoughts is known as "Mindfulness"(Bhatia,Madabushi, Kolli, Bhatia, & Madaan, 2013). This is a way to prevent one from being affected or attached (Bhatia et al., 2013). This principle is harmonious with the concept of Zen and Gita has several references with regards to this practice. Mindfulness in the Gita is prescribed as a way of attaining *Sthithapragna* (a state of unperturbedness) by being disconnected from the onslaught of the senses . "One should be tranquil like the ocean which is unaffected by rivers flowing into it","one should draw self away fromthe senses as a tortoise withdraws its limbs", "being similar to water drop on a lotus leaf which does not havean attachment to the leaf."are some metaphors from the Gita that will be useful in directing clients towards mindfulness . The mindfulness state can be reached using meditation. In the western concept of psychotherapy, mindfulness if often times a widely accepted concept. More models along with the proliferation of eclectic therapies are utilizing these techniques.

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Notions on Mindfulness

Even as all waters flow into the ocean, but the ocean never overflows, even so the sage feels desires, but he is ever one in his infinite peace. (Mascaro, 1962, Chapter 2; Shloka 70)

Offer all thy works to god, throw off selfish bonds, and do thy work. No sin can then stain thee, even as waters do not stain the leaf of the lotus. (Mascaro, 1962, Chapter 5; Shloka 10)

When in recollection he withdraws all his senses from the attraction of pleasures of sense, even as a tortoise withdraws all its limbs, then his is serine wisdom. (Mascaro, 1962, Chapter 2; Shloka 58)

Grief Therapy

Death of our precious ones is definitely a throbbing phenomenon to accept and as such grief counseling has become an important part of therapy these days (Bhatia,Madabushi, Kolli, Bhatia, & Madaan, 2013). In Hindu Funerals, listening to a discourse on the Bhagavad Gita is seen as one cultural practice. Theory of reincarnation from the Bhagavad Gita is pertinent in helping people to move on with life. In the body, the Gita is referred as the carrier of the soul. Death and reincarnation is inevitable as illustrated in the Gita. This will be helpful in minimizing the intensity of grief.

In interpersonal therapy, re-establishing interests and relationships are seen as crucial process in resolving grief (Bhatia,Madabushi, Kolli, Bhatia, & Madaan, 2013). "the supreme being carries off all things" is a key concept in Gita (Bhatia et al., 2013). Visiting this concept can facilitate the alleviation of guilt with regards to the deceased by directing responsibility towards God However, therapist has to ensure that exploration of beliefs of client was done before using extracts from the Gita.

Shlokas Useful in Addressing Grief

"*Bereavement*"

Thy tears are for those beyond tears; and are thy words of wisdom? The wise grieve not for those who live; and they grieve not for those who die for life and death shall pass away. (Mascaro, 1962, Chapter 2; Shloka 11)

"*Imperishable nature of soul*"

Weapons cannot hurt the Spirit and fire can never burn him. Untouched is he by drenching waters; untouched is he by parching winds. (Mascaro, 1962, Chapter 2; Shloka 23)

"*Reincarnation*"

For all things born in truth must die, and out of death in truth comes life. Face to face with what must be, cease thou from sorrow. (Mascaro, 1962, Chapter 2; Shloka 27)

This article is only the tip of the ice-burg in applications of Hinduism in Therapy.

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CONCLUSION

Possible conflict may arise when counseling a client with Hindu values due to lack of congruence between values of a Hindu client as well as values of therapist primarily derived from western theories. As such if a therapist could enhance his or her cultural competence by understanding the worldviews of client, the therapeutic relationship between counselor and client could be further enhanced. However, it is very important for therapist to note that great diversity exists within the beliefs in Hinduism. Existence of the immortal soul, law of karma, reincarnation are some of the core concepts of Hinduism. The soul is believed to be immortal and as such death is seen as a natural event that would facilitate the process of atman attaining Moksha. Without proper enlightenment people will get trapped in the samsaric cycle (reincarnation). In addition to this, the concept of Shakti in Hinduism can be used to empower women in fighting against patriarchy. In Hinduism, women are acknowledged as the vessels of shakti with both creative and destructive power. Each forms of Shakthi are portrayed with different roles of a woman. Along this, it was also mentioned that expressing anger to god is a huge anger management method as it does not create bad karma for one unlike scolding or screaming to someone out of anger. Bhagavad Gita or better known as the Gita with approximately 700 verses from the Hindu scriptures is an important narrative in Hinduism. This chapter has also included some slokas which can be beneficial in therapy.

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Chapter 29
Preemployment Psychological Screening of Police Officer Applicants:
Basic Considerations and Recent Advances

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ABSTRACT

The psychological screening of law enforcement officer applicants represents a core practice area in police psychology. Significant advances have been made in recent years regarding the development of practice guidelines and standards. This chapter provides an overview of the essential components of this specialized form of high-stakes psychological assessment. Important legal principles are highlighted and key resources are identified. The core steps in a contemporary screening model are described and the psychological self-report measures most widely used in psychological screenings are profiled. Factors impacting the validity and usefulness of psychological test results are discussed. The critical need for preemployment psychological screenings of police officer candidates to be culturally sensitive is addressed, as are some of the criticisms that have been identified in the literature. The chapter stresses the need for preemployment assessments of police officer candidates to be evidence-based, ethically attuned, and consistent with recent advances in police psychology.

INTRODUCTION

The preemployment psychological evaluation of law enforcement officer applicants represents one of the earliest real-world applications of modern psychological assessment. For nearly one hundred years psychologists in the United States have utilized their competence in assessment to contribute to the selection of public safety officers. One of the first examples is that of Terman (1917), who early in the 20th century conducted preemployment psychological evaluations of police and fire department applicants to

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explore whether this contributed to the effectiveness of selection. By 1939 the cities of Wilmington, DE and Toledo, OH were requiring preemployment mental and personality assessment of all law enforcement applicants (Gottesman, 1975). More recently a national survey of municipal police departments showed that over 90% required psychological assessment of all police officer recruits (Cochrane, Tett, & Vandecreek, 2003). Today, at least 38 states mandate that peace officer applicants be psychologically screened to determine whether they are free of mental or emotional conditions that might interfere with the safe and effective performance of peace officer duties (Corey & Borum, 2013). Moreover, nearly all police agencies serving communities of 25,000 or more in the U.S. require some form of preemployment psychological evaluation (Reaves, 2010), regardless of whether they are compelled to do so by their respective state laws. It has been estimated that 100,000 preemployment assessments of police officer applicants are conducted each year in the U.S., by up to 4,500 participating psychologists (Cuttler, 2011; Corey, Cuttler, & Moss, 2009). Clearly the preemployment screening of law enforcement applicants has emerged as a core practice area of police psychology (Ben-Porath et al., 2011). And, in contrast to the early years, psychologists practicing in this area now have the benefit of a great number of published resources including empirical research findings, recommendations for best practices, and professional guidelines.

The purpose of this chapter is to provide an overview of the psychological screening process for law enforcement applicants, with particular attention to recent advances in this distinctive professional practice area. Following some background considerations and identification of key resources, a number of relevant legal principles will be highlighted, including government mandated requirements and landmark cases. The nature of the preemployment psychological screening process for police officer applicants will be described, including consideration of how screenings contribute to but differ from competitive selection. The core features of a basic screening model will be reviewed, followed by consideration of psychological disqualification and appeals. Brief introductions to the major psychological instruments utilized in screenings will be provided, including recently developed and emerging measures. Two considerations that impact the use of psychological tests employed in screenings will be explored: socially desirable responding and range restriction. Recent developments in the identification of psychological qualification standards for peace officers will be considered. Finally, the need for psychological screenings to be culturally sensitive will be discussed, and some major concerns and critiques will be identified. Preemployment psychological screening is applicable to a range of law enforcement occupations including correctional officer and public safety dispatcher. However, the focus of this chapter will be on police officers.

BACKGROUND AND GUIDELINES

The history of preemployment screening of police officer applicants has been explored in depth elsewhere (e.g., Devan, 2003; Kitaeff, 2011; Spilberg & Corey, 2014; Weiss & Inwald, 2010). It is safe to say that while the practice of psychological screenings of law enforcement applicants may have started early in the 20th century, for decades there were few resources available to guide psychologists in this form of high-stakes assessment. In the second half of the 20th century, various federal entities issued reports that called for more attention to psychological factors in the recruitment of police officers. In 1967, the Presidential Commission on Law Enforcement and the Administration of Justice recommended psychological assessment of the emotional stability of all police officer candidates. In 1973, the National

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Advisory Commission on Criminal Justice Standards and Goals stated that all police agencies should engage psychologists or psychiatrists to conduct assessments of the psychological suitability of police applicants. Currently, police departments that seek national accreditation through the Commission on Accreditation for Law Enforcement Agencies (CALEA) must have formal preemployment psychological screening programs in place.

At the state level, there were likewise significant developments that provided direction and shaped practices in this important area of police psychology. California's Commission on Peace Officer Standards and Training (POST) published its first Psychological Screening Manual in 1984, for use by state and local law enforcement agencies (Hargrave & Berner, 1984). This document summarized relevant research, addressed critical issues such as adverse impact, and provided guidelines that were consistent with state and federal laws at that time. In 2014, California's POST published a greatly expanded Peace Officer Screening Manual (Spilberg & Corey, 2014). California's POST manual is a comprehensive and informative document that represents essential reading on the state of the art in preemployment psychological screening of peace officer applicants. The standards established by California's POST are more highly developed than in most states and are impacting screening practices in other jurisdictions (Tarescavage, Corey, Gupton, & Ben-Porath, 2015).

According to Borum, Super, and Rand (2003), the most widely used and influential guidelines were developed by the Police Psychological Services Section of the International Association of Chiefs of Police (IACP). First adopted in 1998, the Preemployment Psychological Evaluation Guidelines are updated every five years and are available at the IACP website (IACP, 2014). The IACP Guidelines reflect best practices and shape the implementation of psychological screening programs throughout the U.S. (Ben-Porath et al., 2011). These and other relevant resources help equip police psychologists for comprehensive, appropriate preemployment psychological screenings.

LEGAL CONSIDERATIONS

Numerous federal and state laws directly impact the performance of preemployment psychological screenings for law enforcement applicants. Practitioners must familiarize themselves with applicable laws to ensure the interests and rights of individuals, agencies, and communities are respected and protected. Psychologists engaged in this type of high stakes practice must also commit to staying informed throughout their careers about changes and new developments in the federal or state laws that impact screenings.

The relevant federal laws include the Civil Rights Act of 1991, which makes it unlawful to engage in employment discrimination due to disparate treatment or disparate impact (Spilberg & Corey, 2014). The concept of adverse impact is particularly relevant to psychological screenings because employment practices that result in any protected class having a selection rate that is less than four-fifths of the selection rate for the majority group is likely to be in violation of equal opportunity requirements. The Civil Rights Act also prohibits the use of differing cutoff scores on job-relevant tests based on applicants' race or gender (Borum, Super, & Rand, 2003; Padilla, 2001). Consequently, combined gender norms are utilized for psychological tests in preemployment psychological screenings for police applicants.

The Americans with Disabilities Act of 1990 (ADA) protects disabled persons from discrimination in the workplace and addresses issues such as reasonable accommodation. To be consistent with ADA, preemployment psychological screenings for law enforcement applicants must take place after conditional offers of hire, must be conducted by qualified professionals, must be required of all applicants

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for the positions, must focus on the applicant's ability to perform essential job functions, and must be confidential (Spilberg & Corey, 2014). Because of public safety and officer safety concerns, there may be few degrees of freedom available in regard to reasonable accommodation for police officer positions. However, screening psychologists should be in dialogue with hiring agencies about such matters to ensure that the rights of all applicants are protected.

The Genetic Information Nondiscrimination Act of 2008 (GINA) is the federal law that prohibits discrimination in health coverage and employment based on genetic information. To be consistent with GINA, preemployment psychological screenings must not include information about family genetic or health status, including family history of mental disorders or substance use disorders. Consideration of GINA and its implications is yet another way in which preemployment screenings differ from traditional clinical evaluations and therefore call for specialized training.

State laws also greatly impact the practice of psychological screenings. For example, in California, Government Code 1031(f) stipulates that before they can be appointed, peace officer applicants must be found to be free of any physical, emotional, or mental condition that would interfere with carrying out the duties of a peace officer. California's Fair Employment and Housing Act (FEHA) also has employment-related provisions that directly impact how screenings must be conducted. Psychologists who conduct preemployment screenings of law enforcement applicants must familiarize themselves with all relevant laws and regulations in the jurisdictions where they practice.

States may also vary in the extent to which their laws and regulations emphasize screening out applicants who do not meet minimum psychological qualification standards vs. "selecting in" applicants who demonstrate positive, job-relevant psychological attributes. According to Corey and Borum (2013), 45% of the 38 states with some form of preemployment psychological suitability requirements for peace officer applicants have regulations or laws that emphasize screening out applicants with mental or emotional conditions that would interfere with the performance of peace officer duties. Thirteen states (34%) have laws or regulations that focus on suitability or fitness, and three states (8%) have laws that combine emphases on screening out and selecting in. In addition, there are three states (8%) with generally stated "pass" criteria and two states (5%) that simply defer screening decisions to an examining physician (Corey & Borum). Once again the need for screening psychologists to be well versed on all relevant laws and regulations in the states where they practice cannot be overstated.

IMPORTANT CASES

Case law has certainly been important in shaping the practice of preemployment psychological screenings of police officer applicants. For example, courts have ruled that public safety officer agencies do have the right to require psychological evaluations of applicants (*Conte v. Horcher*, 1977; *McCabe v. Hoberman*, 1969; *McKenna v. Fargo*, 1978; *Miller v. City of Springfield*, 1998). The case of *Bonsignore v. City of New York* (1982) addressed the "vicarious liability" of employers and showed that law enforcement agencies may be held liable for the actions of their employees who were not adequately screened or evaluated (Flanagan, 1995). The timing of a preemployment psychological screening has also been the focus of court rulings. For example, *Leonel v. American Airlines* (2005) showed that medical and disability-related exams, including preemployment psychological screenings, must only take place after a conditional offer of hire has been extended to an applicant.

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Confidentiality issues and the right of applicants to have access to the results of preemployment psychological evaluations have been the focus of multiple cases, with varying outcomes. Some courts have ruled that the essential features of a "doctor-patient" relationship, including patient access to records, extend also to the relationship between a psychologist conducting a preemployment screening and the police officer applicant/examinee (e.g., *Cleghorn v. Hess*, 1993). On the other hand, some courts have denied examinees access to their preemployment psychological screening records (*Roulette v. Department of Central Management Services*, 1987; *Schroeder v. Detroit*, 1997). Even in jurisdictions where the courts have denied access to records to examinees who are police officer applicants, Borum, Super, and Rand cautioned, "…an individual applicant may still be granted access under civil service rules or medical records statutes (*Cremer v. Macomb*, 1994)" (2003, p. 248).

It is generally accepted that psychologists are exempted from providing feedback to examinees in preemployment psychological screenings, however this must be explained when psychologists obtain informed consent (Corey & Borum, 2013). The agency for which an evaluation was conducted would have to consent for feedback to be provided to an applicant, and such feedback would need to be restricted to findings that were relevant to an applicant's suitability for a specific position within a particular law enforcement department (Borum, Super, & Rand, 2003). In addition to having familiarity with relevant case law, psychologists need training and supervised experience in order to learn to manage these complex considerations.

POLICE OFFICER SCREENING VS. SELECTION

Selection refers to the competitive process of identifying well-qualified applicants for peace officer positions. Law enforcement agencies typically utilize a variety of standardized procedures and criteria to identify the most qualified candidates. These include educational requirements, written examinations, individual or panel interviews, physical ability tests, comprehensive background investigations, and polygraph or computer voice stress analysis (CVSA) exams (Cochrane et al., 2003; Gamez & Collins, 2012).

The psychological screening process is qualitatively different than selection. Most typically, its core purpose is to determine whether a candidate meets minimum psychological qualification standards for peace officer employment as mandated by the statutes and regulations in force in the jurisdiction where the evaluation takes place. Candidates are screened out when there is a finding of mental or emotional conditions, including psychological disorders, personality traits, or problematic attitudes, that could interfere with the safe and effective performance of peace officer duties (Spilberg & Corey, 2014). Psychological screenings inevitably cover sensitive and personal information that would never be deemed relevant or appropriate to explore in a competitive selection process. As noted earlier, ADA stipulates that medical exams, including all psychological exams that assess for the presence of mental or emotional impairment, shall not take place until after a conditional offer of hire. Consequently, psychological screenings must take place after a legitimate conditional offer of hire has been extended and when it has already been determined that a candidate meets a hiring agency's criteria for peace officer employment (Detrick, Chibnall, & Rosso, 2001). This expectation extends to both the written and oral components of psychological exams, whenever such exams are conducted to assess for the presence of psychopathology, including substance abuse or dependence.

In addition to ruling out applicants with psychological characteristics that would significantly interfere with successful job performance (Lowmaster & Morey, 2012), screenings contribute to peace officer

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selection by helping ensure that individuals who are well adjusted and possess good coping skills are hired (Beutler, Nussbaum, & Meredith, 1988; Scogin, Schumacher, Gardner, & Chaplin, 1995). There is nothing to prevent a hiring agency from establishing psychological suitability criteria that go beyond a minimum level (Spilberg & Corey, 2014; IACP, 2014), particularly when justified for particular job classifications. In such cases, hiring agencies should work closely with screening psychologists to ensure that such additional criteria are job-relevant, well defined, and measurable at the preemployment screening level.

There is also nothing to prevent hiring agencies from assessing normal personality traits and characteristics early in the peace officer selection process, before a job offer has been extended. This is often referred to as the bifurcated model (Corey & Borum, 2013) and some have advocated for the advantages of this two-stage approach (e.g., Hitchcock, Weiss, Weiss, Rostow, & Davis, 2010). In the bifurcated model, normal-range psychological dimensions are assessed pre-offer and this information is used to help select individuals with desirable characteristics for peace officer employment (Spilberg & Corey, 2014). At the post-offer stage, the psychological screening takes place, and candidates not meeting minimum criteria for psychological suitability are disqualified. An important limitation of the bifurcated model is that pre-offer psychological evaluations must never stray into the assessment of psychopathology or impairment, including exploration of substance abuse. In other words, the pre-offer assessment cannot take on the character of a medical exam as defined by ADA.

BASIC SCREENING MODEL

The basic elements of the preemployment psychological screening process have been well described in a number of sources (e.g., Ben-Porath et al., 2011; Borum, Super, & Rand, 2003; Corey & Borum, 2013; Cuttler, 2011; IACP, 2014; Spilberg & Corey, 2014). Many of the core elements, principles, and considerations are summarized below.

1. Preemployment psychological screenings of police officer applicants are specialized assessments that take place after a conditional offer of hire.
2. The hiring agency is the evaluating psychologist's client, not the police officer applicant. However, the psychologist does have ethical obligations and professional role-related responsibilities that extend to the applicant (Corey & Borum, 2013).
3. Informed consent should be obtained from the applicant to ensure he or she understands the key features and limitations of this specialized evaluation.
4. At least two psychological tests that have been validated for preemployment screening of police officer applicants are typically used: one of normal personality and one that measures psychopathology and/or impairment.
5. A face-to-face interview with a qualified psychologist is an essential component of the preemployment screening. Psychologists must have specialized training to conduct preemployment psychological screenings; they also need in-depth understanding of the job functions performed in the law enforcement positions for which they are conducting screenings. Knowledge of law enforcement agency culture is also critically important, as is in-depth understanding of the training processes for new hires (e.g., police academy, field training program, length and scope of probationary supervision, etc.).

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6. Prior to the screening interview, the psychologist should review the written psychological test results, any psychological history questionnaires that have been used, the results of the background investigation (if available), the results of the polygraph or CVSA (if available), and psychological/psychiatric treatment and evaluation records for applicants who report prior histories of mental health treatment and/or psychiatric disability. Records pertaining to any history of job stress leaves should also be obtained and reviewed prior to the interview.
7. The psychological interview should systematically review all the relevant domains of history, behavior, and functioning, with particular emphasis upon job-relevant issues and concerns. The interview is an opportunity to contextualize and confirm the results of the psychological testing, as well as to follow up on important themes from the background investigation and other sources of information. The interview allows the examiner to address inconsistencies in the applicant's records or statements; it provides an opportunity to explore the applicant's motivation for and understanding of the nature of the peace officer position; and it allows the examiner to learn more about the applicant's psychological suitability, including strengths and coping resources.
8. Depending upon the jurisdiction and applicable laws and regulations, the examining psychologist renders a decision or recommendation regarding whether the applicant meets minimum psychological qualification standards for suitability. The recommendation or decision is based upon an integration of all the relevant evidence and information, including careful consideration of the essential job functions, the needs of the hiring agency, and all applicable laws and regulations. The outcome of the evaluation is communicated to the hiring agency in a written report that summarizes the essential and relevant findings, including any limitations or constraints regarding the decision or recommendation.
9. The hiring agency provides follow-up information to the examining psychologist about the job performance and job-relevant outcomes of candidates who were hired. Such feedback permits the examining psychologist to continually improve and refine the psychological screening process over time and better meet the needs of all the parties involved, including the hiring agency, the applicants, and the community. Follow-up also allows the hiring agency and psychologist to examine whether hiring decisions have any adverse impact upon particular classes of applicants (IACP, 2014).
10. The examining psychologist engages in ongoing educational and professional development activities, including consultation with colleagues, to ensure high levels of competence at preemployment psychological screening of police officer applicants.

While the core elements described above are generally applicable, actual practices may vary across states and jurisdictions. Ongoing communication and consultation with the hiring agency is critically important and allows the psychologist to refine, adapt, and improve the screening process. Hiring agencies may vary in their risk tolerance and in their capacity to support the development of police officer recruits. Dialogue with the hiring agency will help the psychologist better understand and respond to such parameters.

PSYCHOLOGICAL DISQUALIFICATION

Given that psychological screenings occur after a candidate has successfully cleared a background investigation and other aspects of a competitive selection process, it is not surprising that psychologi-

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cal disqualification rates tend to be relatively low. A general principle is that the more thorough and comprehensive the background investigation, the lower the psychological disqualification rate (Spilberg & Corey, 2014). Psychological disqualification rates are rarely reported or discussed in the peer review literature on psychological screenings. In a review by Cochrane et al. (2003), psychological disqualification rates that ranged from 5% to 15% are reported. Considering the recent literature, psychological disqualification rates of 24% (Tarescavage et al., 2015d), 12% (Detrick & Chibnall, 2014), and 8% (Lowmaster & Morey, 2012) are among those that have been reported. Disqualification rates will likely vary across job classifications, departments, jurisdictions, and examining psychologists. The amount of feedback a disqualified applicant receives is also likely to vary a great deal and to reflect the policies and regulations observed by the hiring agency.

APPEALS AND SECOND OPINIONS

In the interest of fundamental fairness, comprehensive psychological screening programs should include some reasonable type of appeal process for those applicants who are disqualified (Hargrave & Kohls, 1984; Serafino, 2010). Many jurisdictions permit second opinion evaluations when an applicant disagrees with a psychological disqualification. In most cases, the applicant must locate a psychologist for the second opinion and pay for it with his or her own funds (Khadivi, 2010). The quality of second opinion evaluations is therefore understandably variable. The IACP guidelines (2014) stipulate that second opinion evaluations should be based on the same criteria used in the initial psychological evaluations. However, the psychological tests used in a second opinion screening sometimes differ from those used in the initial evaluation (Ben-Porath et al., 2011; Corey & Borum, 2013).

Arcaya (2011) addresses the complexities of psychological disqualifications in preemployment screenings. He asserts that in order to manage risk, some police psychologists may be inclined to err in the conservative direction and may recommend against some applicants who should be cleared. Arcaya calls for more probing of applicants' positive accomplishments to ensure that examining psychologists have the whole picture. Khadivi (2010) recommends obtaining consent from applicants to pursue collateral information during second opinion evaluations. He reasons that interviews of an applicant's employers, coaches, and/or teachers may shed important light on the screening dimensions of concern. However, he does not articulate how such collateral information would be superior to the collateral interviews conducted by the background investigator. Moreover the costs incurred by applicants for expansive second opinion evaluations need to be considered. Regardless, the point is well taken that second opinion evaluations should be carefully planned and executed to generate appropriate, evidence-based recommendations and to ensure the rights of all involved. Preemployment psychological screening should not be viewed as a panacea or a guarantee that peace officers will not develop any psychological problems over a long term of employment (Hargrave & Berner, 1984).

PSYCHOLOGICAL INSTRUMENTS

The IACP Preemployment Psychological Evaluation Guidelines (2014) call for the use of a written psychological test battery in preemployment screenings, with particular emphasis on objective, job-relevant psychological measures. The tests used to help make screening decisions need demonstrated reliability

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and validity, and there should be empirical evidence supporting their use in the preemployment screening of law enforcement applicants. As noted earlier, a standard or basic model that has wide applicability is the use of one self-report inventory of psychopathology and one of normal personality traits. According to Serafino (2010), most preemployment screenings feature this approach and this model is likely to be useful across jurisdictions, regardless of varying legal criteria. Semi-structured interviews, conducted by qualified psychologists, are typically an essential component of the preemployment psychological screening process and must take place after the written psychological tests have been administered and scored (Ben-Porath et al., 2011). Administration of a comprehensive psychological history questionnaire is also standard practice and usually takes place at the same time of the post-offer written psychological testing. Preemployment psychological screening decisions represent a complex, high-stakes assessment task that should be evidence-based. Screening decisions are not typically made on the basis of a single data source (Spilberg & Corey, 2014), but rather reflect the thoughtful integration of multiple data sources.

Desirable characteristics for written measures to be considered appropriate for use in preemployment screenings of police officers include that adequate levels of reliability and validity have been demonstrated; that the measure has been validated specifically for use in preemployment screenings of public safety officer applicants; that the measure includes one or more scales or indices of test-taking attitude; that combined gender norms are available; and that police officer applicant norms have been published or are readily available from the test publisher (Detrick & Chibnall, 2013; Spilberg & Corey, 2014). The psychological measures that are most widely used in preemployment screenings of police officer applicants are introduced and summarized below.

Minnesota Multiphasic Personality Inventory-2

The Minnesota Multiphasic Personality Inventory-2 (MMPI-2; Butcher, Dahlstrom, Graham, Tellegen, & Kaemmer, 1989) is among the most commonly used psychological measures in preemployment screenings of law enforcement applicants (Jacobs, Cushenberry, & Grabarek, 2011). It has been referred to as one of the "workhorses of police psychology" (Rostow & Davis, 2004) and is widely utilized not only in preemployment screenings but also in fitness for duty evaluations of incumbent officers. The MMPI-2 has 567 items and a True/False response format. It is designed primarily to measure mental, emotional, and behavioral problems and therefore represents a medical test for the purposes of preemployment psychological screenings of police officer applicants (P. Weiss & Weiss, 2010). According to Graham (2012), the MMPI-2 has demonstrated its usefulness and validity for the preemployment screening of public safety officer applicants. The test includes an array of validity and clinical scales that have often been examined for their relevance to preemployment screenings of law enforcement applicants and to various aspects of job performance in law enforcement (e.g., Aamodt, 2004; Bartol, 1991; Detrick et al., 2001; Hiatt & Hargrave, 1988; Laguna, Agliotta, & Mannon, 2015; Sellbom, Fischler, & Ben-Porath, 2007; Weiss, Vivian, Weiss, Davis, & Rostow, 2013).

MMPI-2-Restructured Form

The MMPI-2-Restructured Form (MMPI-2-RF; Ben-Porath & Tellegen, 2008) is a recently developed measure based on 338 items drawn from its parent inventory, the MMPI-2. The test items are reorganized into validity and clinical scales that reflect contemporary models of scale construction and psychopathology (Ben-Porath & Archer, 2014). As described in depth in another chapter in the present volume,

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a growing body of empirical literature supports the validity and usefulness of the MMPI-2-RF in the preemployment psychological screening of police officer applicants (e.g., Detrick & Chibnall, 2014; Tarescavage, Brewster, Corey, & Ben-Porath, 2015; Tarescavage, Corey, & Ben-Porath, 2015; Tarescavage et al., 2015c; Tarescavage et al., 2015d). Research has demonstrated the equivalence of MMPI-2-RF profiles whether scored from the MMPI-2 item booklet or from the stand-alone administration of the 338 MMPI-2-RF items (Tarescavage et al., 2015b). Like the MMPI-2, the MMPI-2-RF is considered primarily a measure of psychopathology and therefore is appropriate for post-offer screenings.

Personality Assessment Inventory

The Personality Assessment Inventory (PAI; Morey, 1991) is a 344-item self-report measure of psychopathology that employs a four-point response scale (Totally False, Slightly True, Mainly True, and Very True). The PAI items are organized into 22 non-overlapping validity, clinical, treatment consideration, and interpersonal scales (Morey, 2014). Research, though limited, has supported the usefulness and validity of the PAI in the preemployment screening of law enforcement applicants (e.g., Lowmaster & Morey, 2012; Weiss, Hitchcock, Weiss, Rostow, & Davis, 2008; W. Weiss & Weiss, 2010).

Inwald Personality Inventory/Inwald Personality Inventory-2

The Inwald Personality Inventory (IPI; Inwald, 1982) is a 310-item self-report measure of psychopathology, problematic behaviors, and personality characteristics that was developed specifically for application to law enforcement and other high-risk occupations (Inwald, 2010). The IPI features a True/False response format; it includes one validity and 25 clinical scales. Multiple research studies have supported the test's usefulness for the screening of law enforcement applicants (e.g., Chibnall & Detrick, 2003; Cortina, Doherty, Schmitt, Kaufman, & Smith, 1992; Detrick & Chibnall, 2002; Inwald, 2010; Mufson & Mufson, 1998; Ones, Viswesvaran, & Schmidt, 1993; Scogin et al., 1995). The Inwald Personality Inventory-2 (IPI-2) is a briefer version of the test that includes 202 items drawn from the original IPI item pool (Institute for Personality and Ability Testing, 2011). Outdated items were removed and the 202 IPI-2 items have been reorganized into 16 discrete, non-overlapping content scales and one validity scale.

Matrix-Predictive Uniform Law Enforcement Selection Evaluation Inventory

The Matrix-Predictive Uniform Law Enforcement Selection Evaluation Inventory (M-PULSE; Davis & Rostow, 2008) is a 455-item self-report measure that was developed specifically for the assessment of law enforcement candidates. The inventory utilizes a four-point response scale (Strongly Agree, Agree, Disagree, and Strongly Disagree) and is organized into two validity scales; 18 liability scales that identify risk for officer misconduct; 16 empirical scales and subscales that measure attitudes, values, and beliefs considered to be relevant to work in law enforcement; and 10 "California POST Scales" that are considered relevant to job success in law enforcement. The M-PULSE is intended to identify risk for job problems among law enforcement applicants. According to Davis and Rostow, "The M-PULSE Inventory was specifically designed to have utility at both the pre-offer and post-conditional offer phases of the hiring or selection process" (2010, p. 145). However, the inclusion of scales that assess for risk related to chemical abuse/dependency and substance abuse raise some questions about whether M-PULSE could be construed as a medical exam (Spilberg & Corey, 2014). Though the M-PULSE has not often

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been the focus of peer reviewed publications, it was normed on a substantial number of law enforcement applicants, it has been favorably reviewed (e.g., Blackbourn, Thomas, & Fillingim, 2010; Dean, 2010), and it has generated multiple doctoral dissertations and conference presentations.

California Psychological Inventory

The California Psychological Inventory (CPI; Gough, 1975) is a 434-item self-report measure of normal personality traits and characteristics. The CPI utilizes a True/False response format and is organized into 20 individual scales, three vector or personality dimension scales developed from factor analysis, and validity scales (Groth-Marnat, 2009). The CPI is regarded as one of the most respected of the personality inventories and has a long history of application to police psychology (Kitaeff, 2011). Multiple empirical studies have supported its validity and usefulness in law enforcement applications (e.g., Hargrave & Hiatt, 1989; Hogan & Kurtines, 1975; Mills & Bohannon, 1980).

Sixteen Personality Factor Questionnaire

The 16 Personality Factor Questionnaire, Fifth Edition (16-PF; Russell & Karol, 1994) is a 187-item self-report measure of normal personality. The test utilizes a response format with three options: True, False, and Indeterminate (?). Like the CPI the 16-PF has a long history of application in law enforcement settings (Kitaeff, 2011). The inventory has three validity indices, 16 factor scales, and five global factor scales. The 16-PF's usefulness in preemployment psychological screening of peace officer applicants has been addressed in multiple studies and publications (e.g., Aamodt, 2004; Drew, Carless, & Thompson, 2008; Fabricatore, Azen, Schoentgen, & Snibbe, 1978; Lorr & Strack, 1994).

NEO Personality Inventory, Revised

The NEO Personality Inventory, Revised (NEO PI-R; Costa & McCrae, 1992) is a 240-item self-report measure of normal personality traits. It utilizes a five-point response scale (Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree). The NEO PI-R is often described as a comprehensive measure of the Five Factor Model of personality (Costa & McCrae, 2014). The inventory includes five primary factor scales, plus six facet scales for each factor, resulting in a total of 35 personality scales or subscales. Its usefulness in preemployment psychological screenings is explored in depth in another chapter of the present volume. Given that validity scales have been developed from the item pool (Schinka, Kinder, & Kremer, 1997) and that police officer norms have been published (Detrick & Chibnall, 2013), the NEO PI-R would appear poised for greater use in preemployment screenings of police officer applicants in the future. Early research findings have supported its validity and usefulness for law enforcement applications (e.g., Black, 2000; Chibnall & Detrick, 2003; Detrick, Chibnall, & Luebbert 2004; Miller, Mire, & Kim, 2009; Detrick, Chibnall, & Call, 2010; Salters-Pedneault, Ruef, & Orr, 2010).

Factors Impacting Test Results: Socially Desirable Responding

Socially desirable responding refers to selecting test responses in order to create a more favorable impression for the examiner or others. This response tendency may reflect deliberate impression management (IM), or it may derive from an internalized, dispositional, and perhaps self-deceptive (SD) tendency to

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view the self in highly favorable terms (Bagby & Marshall, 2004; Paulus, 1991; Vispoel & Kim, 2014). The context of preemployment psychological screenings has a profound impact upon how individuals approach both the written psychological tests and the face-to-face psychological interview. Given the high-stakes nature of such evaluations, it is to be expected that most applicants will engage in some degree of socially desirable responding, positive impression management, and/or underreporting of psychological problems (Detrick & Chibnall, 2014; Greene, 2011; Weiss, Weiss, Cain, & Manley, 2009). For example, research has shown that peace officer applicants often show average elevations of one standard deviation or more above the mean on MMPI-2 validity scales that measure defensiveness and socially desirable responding such as L and K (Detrick et al., 2001). In fact, the absence of socially desirable responding is unusual in preemployment screenings and might conceivably be cause for some concern (Ben-Porath et al., 2011). Nevertheless, underreporting of psychological problems has been identified as the most salient threat to the validity of psychological test results in preemployment screenings (Tarescavage et al., 2015b). Psychologists who conduct preemployment screenings of police officer applicants must therefore become adept at managing the challenges associated with socially desirable responding.

As has been described earlier in this chapter, applicants who reach the preemployment psychological screening stage have survived what is often a complex, rigorous selection process. Individuals who might have produced elevated scores on scales of psychopathology are less likely to have cleared the hurdles encountered in a hiring agency's selection process. Not surprisingly, the applicants who receive conditional offers of hire rarely show elevations on scales of psychopathology and have often been described as better adjusted than the general population (Hitchcock, Weiss, Weiss, Rostow, & Davis, 2010; Spilberg & Corey, 2014). In addition to whatever defensiveness they are inclined to show on the preemployment psychological testing, their positive adjustment itself may elevate their scores on scales of socially desirable responding (Tarescavage et al., 2015a). More research is needed on how to differentiate positive impression management from the realistic strengths or virtues that applicants possess.

An area that has received considerable attention in the general clinical psychology literature is the impact of coaching and tutorial information upon test takers' attempts to underreport psychological problems on self-report inventories (e.g., Hartmann & Hartmann, 2014). The police psychology literature would likely benefit from more attention to this concern.

Despite the challenges presented by socially desirable responding, the screening psychologist must conduct a thorough interview and psychological evaluation of each applicant. When high levels of socially desirable responding are evident in the written psychological test results, the evaluator must rely more heavily on extra-test sources to determine whether significant, job-relevant psychopathology is present and whether minimum psychological qualification standards have in fact been met.

Range Restriction

It has frequently been noted that because police officer applicants seen in preemployment screenings are often psychologically healthy, their mean scores on measures of psychopathology tend to be low and restricted in range (Chibnall & Detrick, 2003; Lowmaster & Morey, 2012; Sellbom et al., 2007). Studies have also indicated that police officer applicants are often more defensive than the general population, which adds to range restriction of their test scores (Tarescavage et al., 2015c). Despite these realities, significant associations between applicants' test scores and their job performance as police officers are often obtained and reported in the literature (Lowmaster & Morey, 2012). However, range restriction

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may obscure or limit the usefulness of self-report measures of personality and psychopathology that are utilized in screenings.

An important development in recent years has been the application of statistical corrections to address the problem of range restriction. This advancement has permitted researchers to better understand the validity of measures used in preemployment psychological screenings, including the MMPI-2, MMPI-2-RF, and PAI (Sellbom et al., 2007; Lowmaster & Morey, 2012; Tarescavage et al., 2015c). A parallel development has been the determination of relative risk ratios associated with psychological test scores obtained by applicants. This has enhanced the practical usefulness of psychological testing by indicating the increased risk of job problems associated with subclinical variations in test scores. For example, Sellbom et al. (2007) found that *T* scores as low as 55 on some MMPI-2 Clinical and Restructured Clinical scales were associated with elevated risk for job problems among police officer applicants. While *T* scores of 55 are one standard deviation below the usual cutoff for clinical significance on the MMPI-2, scores at this level (T=55) are quite rare among police officer applicants on many clinical scales. Psychologists who conduct preemployment screenings can make better use of psychological test results by understanding the empirical findings that are emerging from this line of recent research.

PSYCHOLOGICAL SCREENING DIMENSIONS

Psychologists conducting preemployment screenings must have a thorough understanding of the specific nature of the job classifications sought by law enforcement applicants. A clear sense of the psychological qualities or attributes associated with the successful performance of peace officer duties is also essential. According to Detrick and Chibnall (2013), the most sophisticated and ambitious effort yet to operationally define those psychological qualities was produced by the California Commission on Peace Officer Standards and Training (POST). Spilberg and Corey (2014) describe in careful detail the results of a comprehensive job analysis for the position of police officer that was undertaken by POST. That landmark effort yielded ten psychological screening dimensions and included identification of both productive and counterproductive behaviors associated with each dimension. POST's ten psychological screening dimensions are: Social Competence; Teamwork; Adaptability/Flexibility; Conscientiousness/Dependability; Impulse Control/Attention to Safety; Integrity/Ethics; Emotional Regulation/Stress Tolerance; Decision-Making/Judgment; Assertiveness/Persuasiveness; and Avoiding Substance Abuse and Other Risk-Taking Behaviors. The POST psychological screening dimensions represent an important advance in identifying evidence-based criteria to be considered in preemployment psychological screenings of peace officer applicants.

CULTURALLY SENSITIVE ASSESSMENT

A core requirement for the competent practice of preemployment psychological evaluation of law enforcement applicants is awareness of how cultural and linguistic factors may impact the psychological tests used in such assessments (Ben-Porath et al., 2011). For an evaluation process to have multicultural assessment validity, psychologists must take into account examinees' cultural and idiographic experiences, including factors related to cultural identity, acculturation, socioeconomic status, education, language, and other individual difference variables (Ridley, Tracy, Pruitt-Stephens, Wimsatt, & Beard,

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2008). Psychologists conducting legal and employment-related evaluations must be attuned to cultural factors and must ensure that all findings and recommendations are culturally informed in ways that are consistent with sound practice (Johnson, 2011). Moreover, psychologists conducting preemployment psychological screenings need to attend to the ethical guidelines of the American Psychological Association (2010), particularly in regard to Principle D, Justice; Principle E, Respect for People's Rights and Dignity; and Section 9, Assessment.

In a classic paper on cultural factors in psychological assessment, Jones and Thorne (1987) stressed the potential of the clinical interview as an opportunity to clarify the meaning and validity of test results in intercultural assessment contexts. The face-to-face interview conducted as part of a preemployment psychological screening represents an ideal example of such an opportunity. Consider the hypothetical case described below.

Mr. R, a 29-year-old single male for whom English was a second language, was seen for a preemployment psychological screening after receiving a conditional offer of hire for a sworn peace officer position. At the item level, the MMPI-2 findings suggested the possible presence of unusual perceptual or sensory experiences of a kind rarely reported among nonclinical samples. At the scale level, all the relevant clinical and validity scales were essentially consistent with law enforcement norms. During the interview, the screening psychologist asked the applicant to comment on whether he had ever had any unusual perceptual experiences. The applicant described having seen what he considered to be "the face of God" on one occasion after having worked a long day in a security-related job. Follow-up questioning determined that this was an isolated incident that appeared unrelated to any factors such as substance use, medications, or mental or medical disorders. The experience did not cause undue distress nor was it associated with any impairment or disturbance in the applicant's daily functioning, including his relationships and the carrying out of his varied responsibilities. The applicant coped with the experience by discussing it with a trusted mentor and he came to view it as a positive incident that was generally consistent with spiritual experiences and practices within his faith community. He added that he drew some reassurance from the experience, particularly as he was going through the demanding peace officer application and qualification process in his state. In the absence of any other job-relevant concerns, and given the applicant's excellent track record at work, at the community college he formerly attended, in his social relationships, and in regard to his substance use history, psychological history, legal history, finances, and driving record, the psychologist found the applicant to meet minimum psychological qualification standards. Follow up showed that the applicant performed satisfactorily in his law enforcement academy, and he likewise met or exceeded standards in all phases of his post-academy field training.

The generalizability of the above vignette is unknown. However, the vignette helps demonstrate the importance of the interview. In this example, the semi-structured face-to-face interview allowed the psychologist to place the psychological test findings in context and integrate all of the relevant data while making an appropriate recommendation.

In addition to the power imbalance between examiner and applicant in preemployment screenings, there may be significant differences in socioeconomic status (SES) and related variables. Smith (2005) has written thoughtfully of the subtle and overt ways that classist attitudes of psychologists can undermine their efforts to provide psychological services to consumers who vary in SES. Screening psychologists potentially face similar challenges. Serafino (2010) provides a number of practical recommendations about how to respectfully and honestly engage with applicants. Respectful, professional, and constructive engagement with applicants is certainly consistent with the ethical principles that should guide all professional practice in psychology.

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It has been noted that becoming culturally competent in psychological practice is a complex aspiration that involves self-awareness, cultural knowledge, specific skills, and key virtues such as courage, openness to other perspectives, and commitment to social justice (Fowers & Davidov, 2006). While addressing cultural factors in personality assessment Cheung observed, "…the discipline can no longer ignore the cultural contexts of our knowledge base" (2009, p. 54). Certainly more attention to cultural competence is needed in the police psychology literature, including the literature on preemployment psychological screening of police officer applicants.

CONCERNS

Khadivi (2010) posited that a major challenge in conducting preemployment screenings is that the criteria for psychological disqualification are unclear. Arcaya (2011) suggested that attribution error might lead screening psychologists to regard applicants' past instances of poor judgment as examples of stable personality characteristics rather than as problems that were transcended. Such critiques speak to concerns about the fairness and validity of decisions made by screening psychologists. Dantzker (2011) is among those who have called for greater consistency across psychologists and hiring departments in regard to how preemployment screenings are conducted. Dantzker recommends greater uniformity of practice, including one standard battery of psychological tests for screenings. However, the rationale for restricting screening psychologists and hiring agencies to a uniform battery of psychological tests when multiple psychological measures have been empirically validated for preemployment screenings is unclear. In a reply to Dantzker, Detrick (2012) noted that the IACP has generated useful, comprehensive guidelines and California's POST has produced job-relevant criteria of unprecedented scope with its ten psychological screening dimensions. Detrick also advocates for an evidence-based approach when it comes to the issue of which psychological tests to use.

Police psychology is a relatively new specialty area. Its growth and development should continue and will certainly be enhanced by well-conceived research and by the vision and commitment of the involved professional organizations and stakeholders.

CONCLUSION

Preemployment psychological screening of police officer applicants represents a core element of police psychology. This chapter provides an overview and addresses the need for preemployment psychological screenings to be characterized by sound practices that are empirically supported, ethically attuned, culturally informed, and endorsed by leading professional groups and stakeholders. Psychologists conducting preemployment screenings according to the rigorous standards that have emerged in recent years have the opportunity to make positive and substantive contributions to the communities where they practice and to the discipline of police psychology.

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Chapter 30
Devices for Rehabilitation

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ABSTRACT

Rehabilitation is an area of focus by experts and researchers from different disciplines owing to the increase in number of various types of disabilities. This chapter covers information relating to causes and need for rehabilitation devices for differently abled people with motor, vision, or hearing impairment. The chapter begins with a brief on the disability population worldwide and in India, and progresses towards presenting available devices in global market and possible improvement that can be made to improve the functionality of the device and in turn improve the quality of life (QoL) of the users. Towards the end of the chapter, a reader can acquire the fundamental knowledge about the different types of disability, suitable aids, and working.

REHABILITATION ENGINEERING

Disability Data

Many people in the world live with some form of disability. It may either be a temporary or permanent impairment leading to difficulties in quality of living. According to the World Health Organization (WHO), the estimated figure of people with disability increased from 10% as reported from 1970s to 15% of the world's population as reviewed in 2011 factsheet of disability and health (Table 1). As estimated by World Health Survey and Global Burden of Disease that 110-190 million people globally suffer from serious form of disabilities with significant difficulties in functioning (Table 2). The growth in the number of people with disabilities is due to varied reasons such as increase in the number of ageing population, chronic diseases, health conditions, environment and other factors.

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According to the Census of India 2011, "Data on Disability", information on eight types of disability namely sight, hearing, speech, motor, mental retardation, mental illness, any other and multiple disability was collected (Table 3). The report showed that the percentages of disabled population were more in rural areas as compared to urban areas and more in males in comparison to females. Also, the percentages of disabled population in each division showed a significant increase in 2011 figures as compared to 2001 records (Table 1).

Table 1. Percentage of disabled population to total population, India

Residence		Persons (In Millions)	Males (In Millions)	Females (In Millions)
Total	2011	2.21	2.41	2.01
	2001	2.13	2.37	1.87
Rural	2011	2.24	2.43	2.03
	2001	2.21	2.47	1.93
Urban	2011	2.17	2.34	1.98
	2001	1.93	2.12	1.71

Rehabilitation Engineering and Its Goal

Any form of disability cannot be fully restored but measures and efforts can be put in to improve the conditions. Rehabilitation engineering and assistive device/technology are terms which are often used interchangeably. However, there is difference between the two. In 1982, James Reswick, a pioneer in the field of rehabilitation engineering defined it as "the application of science and technology to ameliorate the handicaps of individuals with disabilities" while, assistive technology is product of rehabilitation engineering (Bronzino, 2014). For a better understanding, let us take an example of a person with one side of the leg amputee below the knee is using a prosthetic leg to aid him in locomotion. The process involved from designing to developing the prosthetic leg is known as rehabilitation engineering and the product obtained i.e., the prosthetic leg is known as an assistive device.

The area of rehabilitation is quite vast and extensive (John, 2006). It can range from correction in any deformity to replacing a whole part of the body with an aim to improve the quality of life of an individual from the current deprived condition. Major practices of rehabilitation and the assistive devices involved will be discussed in the following sections of this chapter.

When a person has some or the other forms of disability, one or more of the following functions are deprived:

1. A person may not be able to perform activities of daily living (ADL) independently and all such activities require support and assistance of another individual or caretaker. This may not only be embarrassing but at times bring about depression or disturb the mental balance of the patient.
2. Some form of disability may compensate a person with his ability to move around. They may require a minimal assistance of a walking stick or a walker for mobility or using a wheelchair in severe cases.

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Table 2. Percentage of disabled population by type of disability, India: 2011

Type of Disability	Persons (In Millions)	Males (In Millions)	Females (In Millions)
Sight	18.8	17.6	20.2
Hearing	18.9	17.9	20.2
Speech	7.5	7.5	7.4
Motor/Movement	20.3	22.5	17.5
Mental retardation	5.6	5.8	5.4
Mental illness	2.7	2.8	2.6
Any other	18.4	18.2	18.6
Multiple disorder	7.9	7.8	8.1
Total	**100**	**100**	**100**

Table 3. Definitional changes from 2001-11

Type of Disability	Definition
Sight	• In 2001, one eyed persons were treated as disabled. • In 2011, one eyed persons have not been treated as disabled in seeing. Enumerators were asked to apply a simple test to ascertain blurred vision.
Hearing	• In 2001, persons having problem in hearing through one ear although the other ear is functioning normally was considered having hearing disability. Persons using hearing aid have not been treated as disabled. • In 2011, persons using hearing aid have been treated as disabled while persons with hearing problem only on one ear were not considered as having hearing disability.
Speech	Definition was made clearer in Census 2011 to record persons with speech disability. For instance, "persons who speak in single words and are not able to speak in sentences" was specifically mentioned to be treated as disabled.
Motor/Movement	Specific mention of the following was made in the definition for Census 2011: 1. Paralytic persons 2. Those who crawl 3. Those who are able to walk with the help of aid 4. Have acute and permanent problems of joints/muscles 5. Have stiffness or tightness in movement or have loose, involuntary movements or tremors of the body or have fragile bones 6. Have difficulty balancing and coordinating body movement 7. Have loss of sensation in body due to paralysis, Leprosy etc. 8. Have deformity of body like hunch back or are dwarf.
Mental Retardation	• In 2001, Mental Retardation was covered under the category of mental disability. • In 2011, It was introduced as a new category.
Mental Illness	• In 2001, Mental Illness was covered under the category of mental disability. • In 2011, It was introduced as a new category.
Any other	New category introduced at Census 2011 to ensure complete coverage. This option enabled respondents to report those disabilities which are not listed in the question. In such cases, where informant was not sure about the type of disability this option of reporting disability as 'Any Other' was available to her/him.
Multiple Disability	New category introduced at Census 2011. The question has been designed to record as many as three types of disabilities from which the individual was reported to be suffering.

*Courtesy for Table 1, Table 2 and Table 3: "C-Series, Table C-20, Census of India 2011, Data on Disability", Office of the Registrar General and Census Commissioner, India. Website: http://censusindia.gov.in, accessed on 4th October 2016

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3. In some conditions, a person might be able to perform activities of daily living but are not functionally independent i.e., they may not be able to cook, clean, etc.
4. Disability may at times result in a person being less socially interactive or totally avoiding social participation. This may lead to social exclusion, stress and loneliness.
5. Goal setting is an important aspect in rehabilitation management, as it will help channel the plan and expedite the process of rehabilitation. In any rehabilitation process, a bi-directional goal is required for effective rehabilitation, one from the giver's end and the other from the receiver's end. With a SMART goal working in a two-way process, rehabilitation will be a sure success. Goals in rehabilitation engineering require plan and interventions to address as solutions for the above discussed functionalities.

MODERN DAY PROSTHETICS AND ORTHOTICS DEVICES

Definition of Prosthetic and Orthotic

Prosthetics and orthotics are two frequently used terms in rehabilitation. Prosthetic refers to "replacement" of a missing body part while orthotics refers to "correction" of some deformity, While prosthetics aims at replacing and restoring the functionality of a missing body part, orthotics aims at correcting, aligning and supporting, preventing deformities or to improve the function of a moving body part. "Prosthetic" or "prosthesis" and "orthotic" or "orthosis" are terms often use interchangeably. However, it is not to be confused. The "sis" is the noun form and "tic" is the adjective form of the words. Also, while prosthetic can be an external or internal artificial part, orthotic only refers to an artificial external device.

Prosthetic and orthotic have existed even before the advent of technology. Since then it has undergone transformation improving in aspects of function, strength, compatibility and aesthetic concerns. Prosthetic as stated earlier is replacement of an amputee or missing body part (Robitaille, 2010). If a person with an amputee limb is replaced with an artificial limb for the missing part then it is referred to as prosthetic. While, if a splint or brace is used to limit the movement of a sprained wrist, it is referred to as orthosis.

Need for Prosthesis and Orthosis

Limb deficient people not only faces problem in physical ability and appearance but also causes psychological damage and slowly diminishes their existence in the society. The society has a great influence on the existence of people with disability. People's attitude and reaction towards a disabled has its impact on the physical, psychological and social being of the individual. This makes survival either tough or lively.

Absence of a limb or part of a limb not only raises the concern of appearance but also the loss of function of that part. Until another part can replace the function of the lost part, need for restoring the lost function still lingers. The use of the word prosthesis often brings in mind replacement in the limbs. However, the application of prosthetic is not only limited to the limbs. Prosthesis represents an artificial part. Apart from prosthetic limbs, artificial parts of heart and breast implants are also a part of the prosthetic family. Detailed information regarding these will be discussed in section 2.3.

Orthosis refers to artificial device which is used to correct or support or prevent or assist deformities. While prosthesis can be used both external and internal, orthosis is external assist or can be referred to as assistive device like prosthesis, on the use of the word orthosis, limb orthosis often pops up. Apart

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from limb orthosis, trunk orthosis is another area of application of orthosis referring to areas of neck and spine section 2.4 discusses different types of orthosis.

The long lying goal of using prosthetic is to totally replicate the function of the missing body part. However, the human body is a unique system with unique design. It functions due to interconnection between different sub-systems. Replicating such a system completely is a difficult task. However, due to advances in technology, it is slowly overcoming this barrier. Only concerns for function do not wrap the envelope of prosthetics. Design, comfort and cosmetic concerns also arise. It is important to consider these aspects as it is the wearer who should be benefited by the prosthesis. While the design and comfort will keep in check the function and physical benefit, the aesthetic value will re-instill the social existence of the user (Whitelock, 2006). Also, the use of prosthesis should not result in other physical side-effects. Orthotic on the other hand is the field which explores different techniques to correct or prevent deformities. This will not only result in a better alignment of body parts but also improve the functions lost due to the deformities.

Prosthesis

Before the advent of technology, prosthetics were developed only to replace the missing part. However, with the advent and advancement of technology the goal of prosthetic now is not only to replace the missing part but also to replicate the function of that part. Even if medical science has explained the mechanics involved with the movement of each body part, replicating the exact function is a big challenge as the human system is a complicated complex system. Advances in prosthetics are discussed in the proceeding topics.

Limb Prosthesis

Regaining the ability to walk or perform activities is the prime goal in any prosthesis for rehabilitation. From being a passive device, prosthetic technology has advanced in using active elements such as the bio-signals for developing motorized prosthesis. The major consideration in developing prosthesis is to make use of the residual limb for the function and attachment of the prosthesis. Frequent use of prosthesis helps in delivering rehabilitation to amputees. However, due to the poor cosmetic appearance and lack of functionalities in the traditionally developed prosthesis, amputees hardly use it. In recent years, use of prosthesis by amputee is gaining popularity due to advancement in technology which delivers multiple functions and also, improved cosmetic appearance has made amputee to frequently use it making their everyday life better.

All signals for initiating and controlling movement processing occurs in the brain and follows the motor pathway (through sensory and motor neuronal pathway). These signals are made use in for initiating and controlling movement in advanced prosthesis. Signals are stronger underneath the skin and skull which can be obtained by implanting electrodes (Reinkensmeyer, 2016). However, these are invasive procedures and also may include the risk of material rejection of the implanted electrode. A safer method is by using intracranial electroencephalography (iEEG) which involves placing the electrodes on the surface of the brain to record electrical activity. This in turn initiates the functioning of the prosthesis. Another widely used non-invasive method is the use of EMG signals. EMG is signals obtained from the muscle. One such application of EMG as a driving force for prosthesis is the myoelectric arm. In this, EMG signal from voluntarily contracted muscles within a person's residual limb is used to control movements of the

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prosthesis. Movement supported by myoelectric arm includes elbow flexion/extension, wrist pronation/supination and opening/closing of fingers. Some of the developed myoelectric arm:

- **Michelangelo Hand:** It features a thumb that electronically moves into position and can perform multiple grip functions.
- **Bebionic 3:** It is a multi-articulating myoelectric hand and features 14 grip patterns. It has optimized weight distribution which makes the hand feel lighter in weight and is available in 9 different skin shades.
- **i-Limb:** The i-limb features five (5) individually powered digits and fully articulated joints. It features key grips with precision and can be used for activities which needs power.
- **Boston Arm:** It is Psychic robot limb moved just by thinking. Movement of hand will be created using motor fixed in the elbow position. The sensory electrodes are fixed at the wearer's arm. The motor will respond according to the tiny electrical charge signal captured by electrodes.

Figure 1. Michelangelo hand
Source: http://www.ottobockus.com/prosthetics/upper-limb-prosthetics/solutionoverview/michelangelo-prosthetic-hand/ on 11th June 2017.

Another method approached for prosthesis is targeted muscle reinnervation (TMR). In cases following amputation, the peripheral nerves are still active in carrying signals between the brain and the peripheral nerves for motor control. TMR makes use of these peripheral nerves in order to redirect these signals to other muscles to control prosthesis. Through surgical procedures, the nerves in the residual arm are attached to some other healthy muscle in the body such as the chest muscle. When the patient tries to move, the redirected signal causes contraction of the chest muscle. Electrodes in the chest muscle sense the electrical activity and transfer the signal to the prosthesis and control it. The TMR provides control of prosthesis using signal which is originally used to control the hand unlike traditional myo electrically controlled prosthesis which uses another group of muscle not intended for the activity to control the prosthesis. Till date, this method has been used for amputees with shoulder disarticulation but, it is being tested for possibilities in applications in other amputation levels.

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Figure 2. Bebionic 3
Source: http://bebionic.com on 11th June 2017.

Figure 3. i-limb
Source: http://www.touchbionics.com on 11th June 2017.

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Figure 4. Boston arm
Source: http://www.liberatingtech.com/products/elbows/LTI_Boston_Digital_Arm_Systems_for_Adults.asp on 11th June 2017.

Orthosis

Orthosis is a corrective measure which in turn increases the efficacy and protecting the body in long run by:

- **Resisting Motion:** For cases in which a joint or a part of the body has sustained injury and owing to which forced or use of that part can lead to greater injury, orthosis is advised to those patients. This not only resists the motion of that part but due to the restricted motion aids in the process of healing.
- **Assisting Motion:** When the movement is hindered due to deformity, orthosis provides support and assists in performing action. For example, a patient with limb length deformity will possess a different gait pattern. To correct this, he may be given a foot orthosis wherein the sole of one side of the footwear is thicker than the other side to equalise the difference in length.
- **Transferring the Force:** Force plays an important role in biomechanics and motion. Rightful origin of force is required for performing an action such as running water searching for a route to continue its flow, in case of deformities, the force also searches for alternative pathways to generate the force in order to perform the action. Such prolong practice will lead to damage in other parts of the body. Use of orthosis enables transferring the force to a valid point of origin or for work to prevent any induced damage added to the existing deformity.
- **Proper Leverage:** There are many activities which we carry out in daily life which requires following the rules of the lever system. This gives efficient mechanical advantage and lesser force required to carry out the work. Lifting of weights, balancing, walking, carrying loads on back, etc. are some of the activities which require proper leverage. For patients with deformities following proper rules of the lever system is difficult. Use of orthosis as assist enables them in performing actions with proper leverage preventing adverse injuries.

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Limb Orthosis

The limb or appendages are important parts of the body as they are the key to performing activities of daily living (ADL) and locomotion. While the lower limb is the weight bearing portion, the upper limb is responsible for carrying out activities. Simple form of orthosis used by people from all walks of life is braces, splints and straps (elastic). These orthosis are used in injuries such as sprain and aids in resisting, restricting motion and enhancing the process of healing.

The lower limb being the weight bearing portion is prone to injuries. Also, deformities in lower limb make locomotion difficult. The following are the different forms of lower limb orthosis that exists:-

- **FO (Foot Orthosis):** Heel pads, metatarsal pads, insoles, soles, footwear
- **AFO (Ankle-Foot Orthosis):** AFO devices are used to solve the major complicated issues associated with the foot slap during load response and toe-drag during swing. AFO can be designed with or without articulated joint with various motion control elements like springs, dampers, series elastic actuator and four-bar mechanism.
- **KAFO (Knee-Ankle-Foot Orthosis):** AFO plus knee control (locked or hinged). Locked KAFOs and KAFO with a posterior off-set knee joint are the different types available in the market.
- **HKAFO (Hip-Knee-Ankle-Foot Orthosis):** Extension of KAFO by adding a pelvic band.

Figure 5. Foot orthosis
Source: http://www.medicalexpo.com/prod/orthomerica/product-80482-639596.htmlon 11th June 2017.

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Figure 6. Types of knee-ankle-foot orthosis
Source: http://www.artificiallimbcenter.com/knee-ankle-foot-orthosis.htmlon 11th June 2017.

Trunk Orthosis

The human body excluding the appendages is referred to as the trunk. When talks about orthosis are done, trunk orthosis is often neglected while concentrating on limb orthosis. The trunk holds all vital organs and this is necessary for functioning of the human system in the format it is designed for. Trunk orthosis comprises of orthosis application to the skull, neck and spinal portion, cervical, lumbosacral, thora columbo sacralare are the regions for which orthosis is prescribed. These regions are vital for posture and weight distribution on the lower limbs. Compared to orthosis advised for patients in other regions, orthosis in these regions are more rigid to restrict movement and maintain posture.

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Figure 7. Hip-knee-ankle-foot orthosis
Source: http://www.artificiallimbcenter.com/knee-ankle-foot-orthosis.htmlon 11th June 2017.

Exoskeleton

Skeleton is the support system of the human body. "Exo" means external and skeleton is the internal framework. Exoskeleton is an external framework which is often a robotic mechanical suit worn by human being. It is a type of advanced orthosis used in conditions where a patient cannot use his upper or lower extremities or both (Ali, 2014).It can be considered as a type of mobile machine which moves as the wearer moves. It provides additional strength and support to the wearer. Apart from its role as orthosis, a whole body exoskeleton is used in by people with dangerous or tiring jobs. Some examples exoskeletons are:

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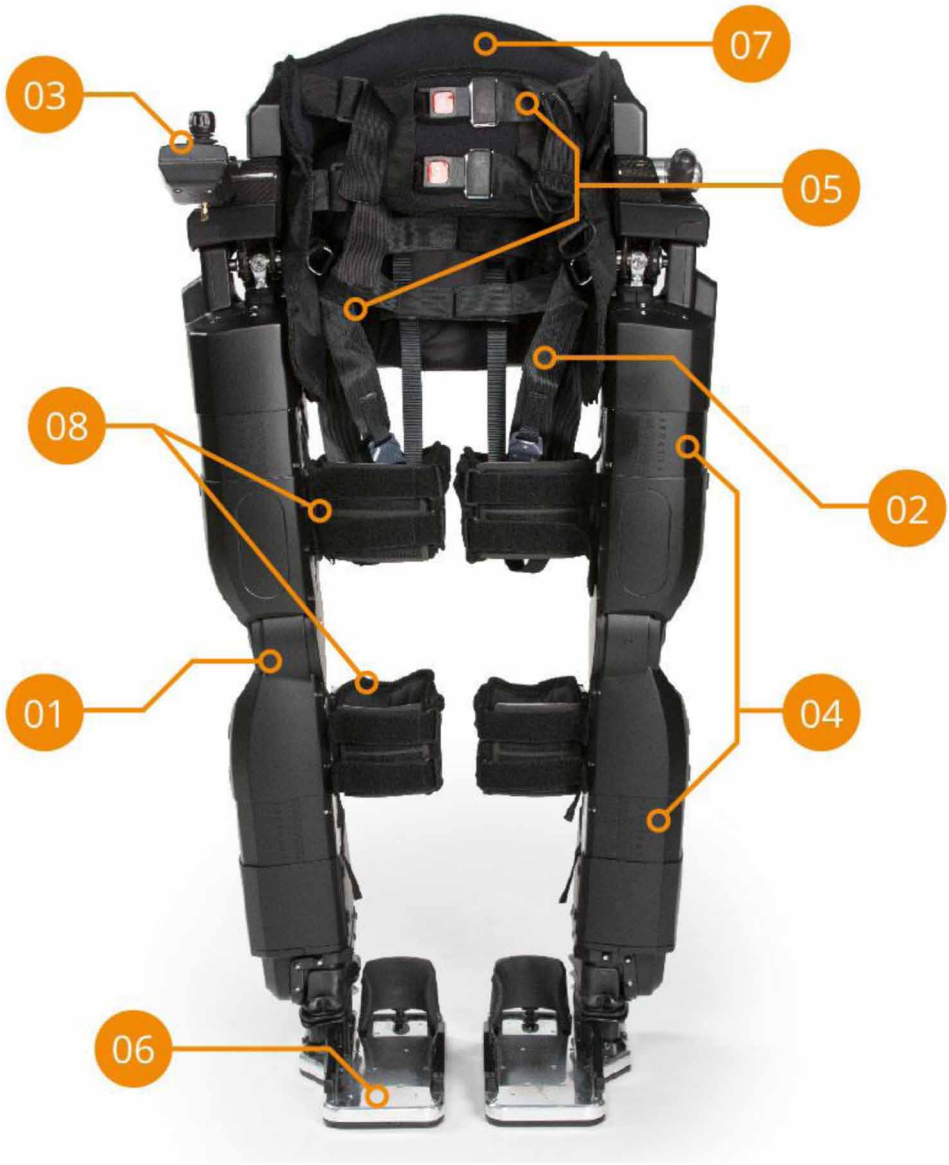
Figure 8. 01. Linear actuators 02. Carbon fibre pelvis 03. Onboard microprocessors 04. Length adjustment 05. Holding straps 06. Wide foot plates 07. Rechargeable batteries 08. Carbon fibre cuffs.
Source: http://www.rexbionics.com/product-information/ on 11th June 2017.



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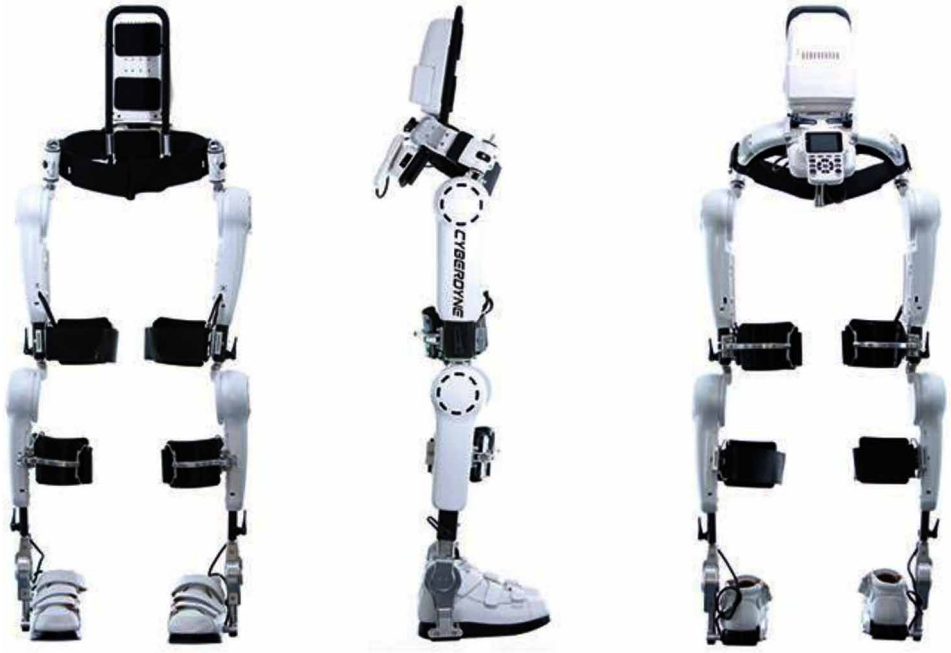
- **Rex:** It is self balancing, hands-free robotic device for rehabilitation. It will provide the power to move Rex and a user of up to 100Kg. The main benefit for patient is, he/she can get full range of movement in legs.
- **HAL 5:** Designed to help the disabled and elderly. It is used to support movement and to lift weights.
- **Ekso Suit:** Used by paralyzed patients for standing, walking and climbing stairs. I consist of pair of powered robotics legs. The users turn themselves into Ekso suit placing their feet on the foot-plates and securing straps around their legs, hips, and torso. The Ekso Suit transfers their weight to the ground, and they uses two arm braces to keep themselves from falling over.
- **Berkeley Lower Extremity Exoskeleton (BLEEX):** Lower extremity exoskeletons seek to supplement the intelligence and sensory systems of a human with significant strength and endurance of a pair of wearable robotic legs that supports a payload.

Figure 9. Hal 5
Source: http://cdn.walk-again.com/wp-content/uploads/hal_overview_700.jpg on 11th June 2017.



Components and Working of Exoskeleton

The basic components of an exoskeleton are: (i) the skeleton (made of light weight metals like aluminium, nickel, titanium and hard plastics); (ii) micro computers (for controlling movement of various motors for joint movement and signal relays; (iii) power supply (powered by an internal combustion engine, batteries or potentially fuel cells); (iv) multi-speed motors (for adjusting and performing as required); (v) control pad (enables the user to select various modes of movement); (vi) sensors (for sensing and recognizing movements such as grasping, holding, lifting etc. with precision)

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Figure 10. Ekso suit
Source: http://josefmicanekdesign.com/ekso-suit-helps-the-paralyzed-walk-again/ on 11th June 2017.

Exoskeleton functions like the musculoskeletal system involving the signals of brain for movement. When a person attempts to move, the signal from the muscles are picked up from the skin or beneath (implanted) by the bioelectric sensors. These signals are used to control and activate the motor suit for the movement of the exoskeleton along with the muscle movement of the wearer aiding the wearer to move and perform activities. This is called 'voluntary control system' that provides movement interpreting the wearer's intention from the bio signals in advance of the actual movement.

Applications of Exoskeleton

The use of exoskeleton is not only limited for use in conditions of mobility issues. Exoskeleton is used in fields of:

- **Medical:** Assist the disabled and elderly to move from one place to another and in their daily tasks. It can also be used to help paralytic patients to stand, walk and even climb stairs and to amplify muscle strength for people with muscular dystrophy and other neuromuscular disabilities.
- **Military:** It has potential use in the military as an aid to increase endurance, speed, and strength, particularly that of wounded soldiers that would otherwise be helpless. It can be used to protect soldiers from enemy fire by repelling bullets. This increases the efficiency of soldiers. It can be used for mission in places where vehicles can't access.
- **Rescue:** It can be used in any physically demanding job such as disaster rescue or construction, rescue operations in hazardous or hard-to-access environments.

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Figure 11. BLEEX
Source: http://bleex.me.berkeley.edu/research/exoskeleton/bleex/ on 11th June 2017.

- **Entertainment:** It is used in activities which demands extreme and dangerous performance while ensuring the safety of the performer such as performing superhuman stunts without risking the person's life and is used as a preventive measure in extreme sports.

Jaipur Foot

In 1968, Jaipur foot was first developed and carried forward by Bhagwan Mahaveer Viklang Sahayata Samiti, India for societal betterment in 1975. Jaipur Foot is a renowned one for its facilitation in changing lives of many physically challenged people worldwide. The development of the Jaipur Foot proved to be a remarkable triumph in the history of prosthetic foot (Coupland RM, 1991). It is an artificial limb which replaces the missing extremity. According to one research by Dr. Goutam Reddy from Massachusetts Institute of Technology it is low cost, durable, water proof and can be used without shoes.

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Jaipur Foot, named after the place where it was designed, is flexible along multiple axes, which allows natural movement of the foot. The Jaipur Foot technology is based on traditional craft using small local production methods. It has already helped over 900,000 amputees in developing and landmine-affected countries (Sethi PK 1972). The limb is so efficient that a person can walk like a normal person and sit in a crossed leg position. It helps them to go back to their jobs and earn for their families. In a world where prosthetics is a complicated and expensive industry, there is an operation of impressive scope that offers hope to the some of the most impoverished citizens of India and maybe even the world. It offers these handicapped citizens a chance to return to their livelihoods and pursue their dreams.

Working Method of Jaipur Foot

The Jaipur foot was designed according to the socio-culture needs of handicapped people of India keeping in view cost factor, ease of use and product quality. Due to its unique property it permits squatting, sitting in crossed leg position, walking on uneven surface, even in wet muddy field. It has proved to be a 'universal design' and can interface with prosthetic technology used around the globe. It is distinguished from other prosthesis because it have central keel which permits mobility in all planes despite having non articulation.

Figure 12. Jaipur foot
Sources: http://hdimagegallery.net/jaipur+foot+history 1st August 2017.

Devices for Mobility

Overview of Robotic Aids for Mobility

Over the past few decades, technology has advanced immensely serving as a boon to rehabilitation and assistive technology. Not only has it helped in developing devices with sophisticated functionalities, but also enhancing its aesthetic value. This gives the user of assistive devices a positive mental attitude towards the use of the device thus aiding in the rehabilitation process.

Apart from the basic need of food, cloth and shelter, the other needs of an individual are independence in carrying out his/her own activities and independence in movement. However, owing to unfortunate

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events, this independence may be compensated partially or totally. Engineering science and technology proves as a boon in such conditions. It has helped traditional techniques in rehabilitation become automatic and closely tailor-made as possible to suit a wide scale of patient conditions.

Basic everyday activities or often referred to as activities of daily living (ADL) include eating, cleaning, dressing, brushing, reading, etc. Performing such activities requires free movement of the body and its parts. In case of patient suffering from motor disabilities, such movements are often largely compensated. Often rehabilitation practices through occupational therapy and physical therapy serves as a helping hand in training for performing such activities. Additionally, assistive aids such as grabbers, feeders, wheelchair, etc., provide assistance in helping perform activities better.

From activities such as brushing to moving about in vicinity or beyond that, technology has come up with solutions to help people with motor disability to help them perform activities. Feeders and grabbers for people with compensated freedom of movement in the upper limb are available. This makes them hold things and transfer food without spilling or dropping all over and boosting their confidence to perform activities.

The generations of wheelchair has also advanced from manual wheelchairs to powered wheelchairs. Sophisticated features such as voice-controlled, EOG-controlled, EEG-controlled, joystick controlled wheelchairs are also available in market and research (Bourke, 2001). The design and materials used have also transformed to give best comfort and suit patient conditions. Motorized tricycle, scooters, modified licensed vehicles, walkers with brakes and many such innovative introductions are made for a better social involvement of person with challenges in mobility.

Manual and Attendant Propelled Wheelchair

Chair with wheels was invented in the 5th century. Since then, ithas undergone continuous modifications in design and technology associated with it. A basic manual wheelchair incorporates a seat, foot rests, four wheels (2 caster wheels at the front, 2 large wheels at the back).The two large wheels usually have hand rims (metal or plastic) to aid in propulsion by the patient. Push handles at the top of the back for manual propulsion by second person assisting the device user. A wheelchair acts as an assist to people for whom walking is difficult or impossible due to illness, injury or disability.

Traditional wheelchairs are manually propelled or attendant propelled. It requires physical effort for propulsion in both the cases. In case of manually propelled wheelchairs, the two hind wheels are made large enough to allow the user for proper biceps elevation and alignment for propulsion. This alignment is necessary to avoid any upper extremity problems, possibility of stroke and loading in the hand. In any wheelchair, the back-hip alignment, knee-foot alignment is always maintained at 90^{o} to maintain a proper posture in order to avoid additional problems. Cushions are fitted at seat to prevent pressure sores from long sitting hours and also at back for rest. In an attendant propelled wheelchair, included for safety. Push handle bracket are fitted at the top of the back of the wheelchair. This allows easy propulsion of the wheelchair.

There are different types of wheelchairs based on the utility, duration and patient conditions. For example, wheelchairs used in hospitals, brief outings, airports etc., are not quite comfortable but serves the purpose as it is used for a short duration of time. However, wheelchairs used at home or work (in few cases) are quite different from the above mentioned as they are ergonomically designed for longer use time and also to suit the comfort and work environment and conditions. All wheelchairs can be customized for user's need such as seat dimensions, height, seat angle, footrests, leg rests, front caster,

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Figure 13. Types of wheelchair
Source: http://www.wheelchairsmanufacturers.com/ on 11th June 2017.

and backrests etc. Wheelchair designs are based on factors such as intended use, abilities of the user, resources available, existing products, durability, function, aesthetics and comfort.

Special Purpose Wheelchair

Moving forward from traditional wheelchairs, there are other types of wheelchair which are designed for special purposes (Gomi, 1998). There are wheelchairs for different types of sports, recreational activities, racing wheelchairs, wheelchairs for staircase ascend or descend with the introduction of Paralympics and growing interests in sport activities by people with motor disabilities, wheelchairs have undergone a drastic evolution to serve the purpose. However, such wheelchairs are for recreational use and not for use in daily life and long run.

Not all environments are made friendly for people on four wheels. There are steps and irregular terrain everywhere and also presence of slides is less common compared to flights. Therefore, there are wheelchairs modified for use for staircase to ascend and descend. However, these wheelchairs are costly and not commercially available but mostly on a trial stage.

There are other types of wheelchairs for staircase ascend and descend (Chaichanasiri, 2011). However, these are not specially designed for the purpose. Instead spokes are attached as appendage on the hind portion of the wheelchair between the hind wheels.

Automated and Powered Wheelchair

Manually and attendant propelled wheelchair which requires physical effort are tiresome for long duration use. Also, it may sometimes lead to other physical and functional problems both for the attendant and the user. To remove these difficulties, implementation of technologies for developing automated and powered wheelchair is available and research for improvements are taking place. This has transformed wheelchair into a “will-chair”.

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In automated and powered wheelchair, there is no manual physical effort involved. The rotation of the wheels which in turn is responsible for the movement of the wheelchair is done with the help of motors. The motor is the source for movement of the wheelchair. Power source for the functioning of the motor is provided using battery. The motor and power source assembly is such that it produces enough power to carry the load of the wheelchair and the user sitting on it and move carrying the total load. The direction and velocity for movement is controlled by an interface between the user and the wheelchair. Another important component of an automated wheelchair is the controller.

The basic components of an automated and powered wheelchair are as follows:

- **Input Device:** A joystick is the most standard way of controlling a powered wheelchair. It is mounted on either side of the wheelchair. Some alternative ways to control a motorized wheelchair are: (i) mini joystick: These are smaller than the normal joystick used in the wheelchairs and require less force to operate, a pressure as low as 18g; (ii) touchpad: It is similar to what you find in computer for controlling its cursor. The touchpad is based on touch but not pressure. Touchpad can be configured for the user such that touching a specific spot with respect to the centre will move in a configured direction or just dragging the finger on touchpad in the desired direction; (iii) sip and puff controls: These are controlled by sucking and blowing to a mouthpiece. The sip and puff can be programmed such that it will have mode to operate other controls. It requires some practice for the user to get good at driving the wheelchair. The system can also determine the strength of sip and puff besides just distinguishing them.
- **Controller:** The controller acts as the intermediate between the user and input device i.e. joystick or other forms of input device discussed above. It includes the electronics and software that is required to modify the signal from the input device, which is then converted to output and passed to the wheelchair for control. In other words the function of a controller is to translate various commands from the input and monitor performance and provide feedback to the user.
- **Power Controller:** Its function is control the electrical power delivered to the motors which controls the wheelchair speed.
- **Motor:** The basic function is to generate driving torque and to provide steering control for the wheelchair. The wheelchairs commonly make use of permanent magnet direct current motors with brushes. Most permanent magnet motors have conversion efficiency in the range of 60-80%.
- **Drive Trains:** They provide transmission of motor's torque for driving the wheel and to provide required speed versus torque reduction. The drive trains can convert high motor speed to low speed with increase in the torque. It's done with efficiency of 50-70%.
- **Battery:** The powered wheelchairs basically use rechargeable deep-cycle batteries rated 12-80 amperes-per-hour. The batteries can be wet-cell or dry-cell batteries. Majority of the manufactures use gel-cell based batteries over wet-cell due to its low maintenance and other environmental concerns.

Advantages of Wheelchair

Wheelchairs have given mobility life to people with motor disability. This has provided them with a feel for independence to a certain extent. Use of wheelchair gives them better performance in daily life. Movement in rough terrain happens at ease. Wheelchair provides benefit in most of the aspects of its utility except that it is costly.

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Devices for Visually Impaired

Visual System

Visual system is the part of higher function of brain that is central nervous system (CNS). It gives ability to the organism to process the visual details. Visual system also detects and interprets information from visual light to build a representation of the surrounding environment. Visual system comprises (Hersh, 2008) of many parts such as eyes specially retina, optic nerve, optic chiasma, optic tract, genticulate body and visual cortex.

Function of Visual System

During the mechanism of work cornea and lens refract light into a small image and shine it on the retina. The retina transfers this image into rod and cone cell of the eyes. Optic nerve which is the part of cranial nerve carries these electric pluses through optic canal and reached to the optic chisma (Toh, 2008). The structure of eyes involve many parts such as eyes specially retina, optic nerve, optic chiasma, optic tract, genticulate body and visual cortex.

- **Eye:** It provide organisms vision, it have ability to process visual field as well as enabling many photo response function as that are dependent of vision. The main function of eye is to detect light. In eyes retina consists of a large number of photo receptor cells which contains particular protein molecules called opsins. In humans, two types of opsins are involved in conscious vision: rod opsins and cone opsins. It transmits a signal to the cell through a signal transduction pathway, resulting in hyper-polarization of the photoreceptor.
- **Optic Nerve:** It is a part of cranial nerve, it paired nerve that transmits visual information from the retina to the brain. It is derived from optic stalks during developmental period of life and composed of retinal ganglion cell axons and glial cell. In human body optic nerve extends from the optic disc to the optic chisma and continues as optic track (Vilensky, 2015, Selhorst, 2009). Optic nerve is the part of cranial nervous system because it derived from an out pouching of the diencephalon (Optic stalks) during embryonic development.
- **Optic Chiasma:** The optic nerve of both the eyes where meets and cross each other that point is called optic chisma (Turner, 2010). It situated at the base of hypothalamus of the brain.. At this point the information coming from both eyes is combined and then splits according to the visual field. The corresponding halves of the field of view (right and left) are sent to the left and right halves of the brain, respectively, to be processed(Nolte, 2002)
- **Optic Tract:** Optic tractis a part of the visual system in the brain. It is a continuation of the optic nerve that relays information from the optic chiasm to the ipsilateral lateral geniculate nucleus (LGN), pretectal nuclei, and superior colliculus (Britannica, 2011).
- **Visual Cortex:** It passes the visual information through the visual hierarchy, the complexity of the neural representation increases. It receives the impulses sent to it from the eye that contain what the image.

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Types of Visual Impairment

Visual impairment is defined as decreased ability to see to a degree that causes problems not fixable by usual means, such as glasses. Some also include those who have a decreased ability to see because they do not have access to glasses or contact lenses. Visual impairment is often defined as a best corrected visual acuity of worse than either 20/40 or 20/60. According to world health organization the visual impairment (Sinha, 2015) or visual acuity can be defined as in many forms such as given below (Maberley, 2006).

- **Low Visual Acuity:** Vision between 20/70 and 20/400 with the best possible correction in visual field of 20 degree or less than 20 degree.
- **Mild Blindness:** Visual acuity worse than 20/400 with the best possible correction, or visual field of 20 degree or less.
- **Blindness:** Visual acuity of 20/200 or worse with best possible correction in visual field 20 degrees or less.

Causes of Visual Impairment

Types of impairment are different for different causes of visual impairment.

- **Visual Impairment in Glaucoma:** In glaucoma normal fluid pressure increases as compared to normal pressure inside the eye. In glaucoma peripheries seem to be normal.
- **Age Related Macular Degeneration (AMD):** In this type of visual impairment central area of the eye becomes woolly or cottony opacity obsures the central part of the vision. The peripheries may be normally seen. In usually blurs the sharp, central vision that is needed for closely viewed activities like reading sewing and driving. Patients have no pain in the visual impairment.
- **Cataract:** There is general clouding of the vision. In this condition whole eye lens is affected the blurring or vision may be diffuse until it is totally lost.
- **Diabetic Retinopathy:** Diabetes leads to damage of the smaller arties and blood vessels at the back of the eyes over the retina. Diabetic retinopathy is the most common diabetic eye disease and a leading cause of blindness in adults. Usually vision impairment in diabetics begins as black spots or floating shapes that appear in the field of vision. Slowly compete vision may be lost if left unchecked.
- **Near Sightedness:** Myopia or near sightedness or short sightedness means a person can see nearby objects clearly but distant objects appears blurred. High myopia may lead to vision impairment.
- **Retinitis Pigmentosa:** This is genetic condition which initially manifests as night blindness. As the disease progress there may be a tunneling of vision with loss of peripheral vision followed by the compete blindness.

Cortical and Retinal Implant

Cortical and retinal implants are used to enhance vision or substitute parts of organ system function. Cortical implant consists of a chip or cable implanted in the visual cortex in the brain and the useful vision is enabled through camera or glasses. In case of retinal implants, the chip containing about 3500 solar cells with its own stimulating electrodes in about 2mm in diameter is implanted. The cells convert

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light energy into pulses to stimulate the remaining functioning part of the retina. There are two approaches for implant:

Epiretinal approach: In this, the electrode array is implanted on the surface of the retina to stimulate the overlying cells of the retina (ganglion cells).

Subretinal approach: In this, the implant is made behind the retina between the photoreceptor layer and the retinal pigment epithelium, directly stimulating retinal cells and relying on the normal processing of the inner and middle retinal layers.

Mobility Aids

Mobility for the visually impaired or blind has been a hindrance as most of the designs in the environments were not done taking such groups into consideration. Although designs are being implement in few places and transport system. However, it cannot ease up the movement problem faced by the group. Assistance acts as a boon in such cases. White cane is widely used by blind and visually impaired to aid them in mobility. An improvised version is use of ultrasound technology in white cane of the user to help them identify the presence of object on their route and traverse avoiding it.

Ultrasound is a sound wave ranging in the frequency of 15-20 kHz. Most objects in nature reflect ultrasound. This is used in developing the improvised white cane with ultrasound technology. In this, the hand held portion of the cane has control buttons that emits ultrasonic waves on a press. Around the tip of the cane, ultrasound transmitter and receiver are present. The transmitter transmits the sound waves which upon hitting an object (if any) reflect the waves and the user receives indication on object in the form of light vibrations. This has helped in making the group of users more independent with regards to movement.

Devices for Hearing Impaired

Auditory Pathway

Auditory system is a sensory system which is meant for sense of hearing. It includes both sensory and auditory parts of the sensory system.In auditory pathway cochlear nerve fibers synapse into the dorsal and ventral cochlear nuclei. Cochlear nuclei contain second order neurons so the auditory pathway is bilateral in nature (Harlow 1946). In auditory pathways fibers decussate remains ipsilateral that the pathway ascends in the lateral leminscus and then in the brachium of the caudal collicus from which neurons send their axons through the internal capsule to cerebral cortex surrounding the sylvian sulcus.

In auditory pathway cochlear nuclei receives input from the ipsilateral cochlear nerve. Similarly dorsal nucleus of trapezoid body receives input from right and left ears. Cochlear nucleus works as sound localization, for example it detecting phase and intensity different between the two ears. After detecting the sound location it sends the output to cranial nerves V and VII for reflex contraction of tensor tympani and stapedius muscle to dampen loud sound. In auditory pathway nucleus is the main source of efferent axons which tune the spinal organ for frequency discrimination.

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Functional Hearing Assessment

A hearing test provides an evaluation of the sensitivity of a person's sense of hearing. The hearing test is performed by audiologist by using instrument called audiometer. It determines a person hearing sensitivity at different frequencies. Before hearing assessment ear examination is required prior to hearing test. In this examination the ear of the patient are usually examined with an otoscope to make sure they are free of wax that the eardrum is intact, ear are not infected and the middle ear is free of fluid (Johnson 1993). There are many genetic dis-order, ageing problems, exposure to noise, environmental pollution, birth complication and side effects of medication that results the hearing loss and hearing impartment.

Type of Hearing Tests

- **Pure Tone Audiometry:** It is the most oldest and common method of hearing testing. It measure the air and bone conduction thresholds for each ear in a set of eight standard frequency from 250Hz to 8000Hz (Yusuf Kemal Kemaloglu 2005). This test is performed in sound booth using a pair of headphones connected to an external audiometer and the result of this test is ploted in form of audiogram diagram form at the tested frequency.
- **Web and Rinne Test:** This test helps to determine the kind of hearing loss is present in the patient. In this examination of hearing test vibrating tuning fork is placed behind the ear near to the mastoid process. When patient can no longer feel/hear the vibration (Yueh, 2003) the tuning fork is held in front of the ear; the patient should once more be able to hear a ringing sound. If patient so not perform this test mean there is conductive hearing loss in the ear. In that condition patient is then asked if the sound is localized ion the centre of the head. If again there is conductive hearing loss it should be louder in the affected ear and if there is only sensor neural hearing loss it will be quieter in the affected ear.
- **Physiological Tests:** Auditory brainstem response testing, oto acoustic emission audiometry and tympanometry comes under the physiological test. These tests are mainly performed to describe neurological or mechanical functioning of the auditory system but these test do not involve person being tested.
- **Behaviour Test:** It required participation of the individual being tested. Most common behaviour test involve pure tones which generate sound by machine. These machine generated sounds are very controlled for their pitch and loudness. All natural sounds, especially speech, contain a combination of different frequencies (pitch) of varying intensity (loudness). During pure tone testing, audiologists are trying to find an individual's threshold at various frequencies. Threshold is the intensity level where a sound can just be detected. There is not an exact one-to-one correspondence between auditory thresholds and what an individual can do with her or his hearing, but pure tone testing is important to use as a starting point for predictions and to use as the basis for hearing aid fitting.

Auditory Augmentation and Substitution

Hearing impairment may be mild or profound. In case of mild impairment, auditory augmentation is provided for rehabilitation of the impairment while auditory substitution is required in case of profound impairment.

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Hearing aid is a type of auditory augmentation. A hearing aid is an electronic device which amplifies the incoming sound for perception. The different components that are assembled together form a hearing aid are described below.

- **Microphone:** A microphone serves the function of the external ear of receiving sound. The received sound is then converted into electrical impulses and sent to the amplifier.
- **Amplifier:** The amplifier increases the intensity of the electrical impulses generated by the microphone.
- **Receiver:** The receiver's role is to convert the amplified electrical signals to sound with greater intensity than the perceived sound. It then delivers the sound to the inner portion of the ear.
- **Battery:** Battery serves as a source of power for the operation of the device.

Hearing aids are available in different styles to suit the requirement and choice of an individual. The components are held in a small case making the hearing aid highly portable and hardly visible. The different styles indicate the location for placement of the hearing aid. Hearing aids are mostly digital or of programmable type.

- **Behind-the-Ear (BTE):** BTE hearing aids is placed behind the ear and has a hook shaped plastic moulded extension from the case which is used for fit in concha. The sound travels from the case and is delivered into the ear through the mold. It is used for mild to profound hearing loss and can used by all ages. However, BTE is visible and might be an embarrassment to the user. Hence, other styles are preferred in many cases.

Figure 14. BTE
Source: http://www.alimco.in/content/854_1_BehindTheEarHearingAidDigital.aspx on 11th June 2017.

- **In-the-Ear (ITE):** An ITE hearing aid completely fits in the orifice of the outer ear. The components are held in a hard plastic case for a proper casing. Due to its small size, the ITE has problems for fit and also damages can occur due to earwax or fluids. It is not worn by children as the casing needs to be replaced as the ear grows. It is used for mild to severe hearing loss.

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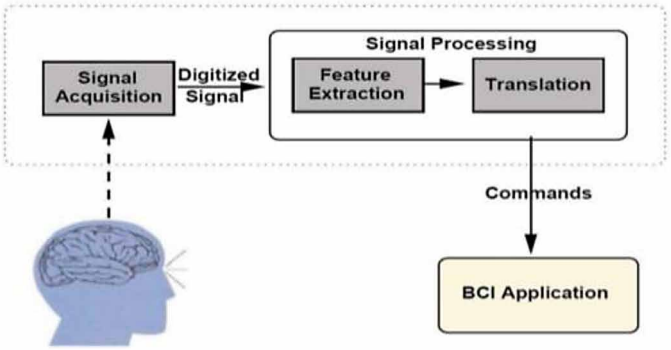
Figure 15. ITE
Source: http://www.alimco.in/content/854_1_BehindTheEarHearingAidDigital.aspx on 11th June 2017.

- **In-the-Canal (ITC):** It is a customized hearing aid in which the case is developed for perfect fit depending on the size and shape of the ear canal. It is used for mild to moderately severe hearing loss.

Figure 16. ITC
Source: http://www.alimco.in/content/854_1_BehindTheEarHearingAidDigital.aspx on 11th June 2017.

- **Completely-in-Canal (CIC):** CIC is another custom-fit hearing aid and concealed in the ear canal. It is smaller in size as compared to other hearing aids and is not comfortable for repeated removal and adjustment. It is also prone for damage by earwax and fluids.

Figure 17. BCI
Sources: https://en.wikipedia.org/wiki/Brain%E2%80%93computer_interface (on 1st August 2017).



Basic block diagram of a BCI system incorporating signal detection, processing and deployment

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When hearing impairment is profound, auditory augmentation is of vain. The subject needs to have auditory substitution i.e., an artificial auditory pathway is required. Cochlear implant is a form of auditory substitution. It consists of 4 main parts: microphone; speech processor; transmitter-receiver and implanted electrode array. The microphone is employed for collecting sound from the environment and feeding it to the speech processor. The speech processor has the necessary volume adjust. Its primary role is to convert the incoming sound into matching intensity of electrical signals. This signal is then sent to the parts present inner in the ear via the transmitter-receiver assembly. The transmitter-receiver as the name suggests does the function of transmitting the electrical signal from the external portion of the implant components to the internal portion. This can occur in two ways: transcutaneous or percutaneous. The electrode array is a wire consisting of multiple electrodes placed in the scala tympani. It stimulates the hair cells with the electrical signal received from the receiver.

Tactile Sensors

A tactile sensor is a device that measures information arising from physical interaction with its environment (A. S. Hsieh, 1995). Tactile sensors are generally modeled after the biological sense of cutaneous touch which is capable of detecting stimuli resulting from mechanical stimulation, temperature, and pain. Tactile sensors are used in robotics, computer hardware and security systems. A common application of tactile sensors is in touchscreen devices on mobile phones and computing. Tactile sensors may be of different types including piezo-resistive, piezoelectric, capacitive and elasto-resistive sensors (Cutkosky, M. R.1989).

Applications of Tactile Sensors

Tactile sensors are nowadays employed in everyday life having innumerable applications such as lighting lamps which dim or lighten up by touching the base or the elevator button. They have several applications in the field of rehabilitation and assistive devices for disabled. Sensors are quite small in appearance but they have high sensitivities which suit several medical applications. They are designed keeping in view having minor effect on what parameter is being measured; thereby making the sensor smaller that often improves their sensitivity and introduces other advantages (A. M. Wing 1993). Tactile sensors can be used to test the performance of all types of applications. For example, these sensors have been used in the manufacturing of automobiles (brakes, clutches, door seals, gasket), battery lamination, bolted joints, fuel cells etc. Nowadays tactile sensors are much familiar in field of rehabilitation such as soft silicone tactile sensor for measuring pressure while gait training in stroke or hemiparetic patients, alternative tactile sensors for perceptron neural networks by applying the contact evaluation according to the algorithm, pressure sensor for detecting normal force on human weight nearing joints and biological inspired tactile sensors for finger pressure measurements.

Computer Brain Interfacing (BCI)

Research on brain computer interfacing (BCIs) began in the 1970s at the University of California, Los Angeles (UCLA) under a grant from the National Science Foundation (Adjouadi M. A 2000). The papers published after this research also mark the first appearance of the expression brain–computer interface in scientific literature. Computer interfacing is a process of shared boundary across which two or more

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separate components of computer system exchange information. The exchange can be between software, computer hardware, peripheral devices, humans and combinations of these. Some computer hardware devices, such as a touchscreen, can send and receive data through the interface, while others such as a mouse or microphone may only provide an interface to send data to a given system. A brain computer interface (BCI), sometimes called a mind-machine interface (MMI), direct neural interface (DNI), or brain–machine interface (BMI), is a direct communication pathway between an enhanced or wired brain and an external device (Evarts EV.1966). BCIs are often directed at researching, mapping, assisting, augmenting, or repairing human cognitive or sensory-motor functions.

The history of brain–computer interfaces (BCIs) starts with Hans Berger's discovery of the electrical activity of the human brain and the development of electroencephalography (EEG). In 1924, Berger was the first person to record human brain activity by means of EEG. Berger was able to identify oscillatory activity, such as Berger's wave or the alpha wave (8–13 Hz), by analysing EEG traces. It is a direct communication pathway between an enhanced or wired brain and an external device. BCIs are often directed at researching, mapping, assisting, augmenting, or repairing human cognitive or sensory-motor functions.

Cost Analysis of Affordable Devices for Rehabilitation

Cost-effectiveness and cost-benefit studies are conducted at a level that involves more than just a local program (such as an individual's state strengthening project). Sometimes they also involve following up over a long period of time, to look at the long-term impact of interventions. They are often used by policy analysts and legislators to make broad policy decisions, so they might look at a large federal program, or compare several smaller pilot programs that take different approaches to solving the same societal problems. People often use the terms interchangeably, but there are important differences between them.

Cost Effective Analysis Helps Us in Following Aspects

- Cost analyses can provide estimates of what a program's costs and benefits are likely to be, before it is implemented.
- Cost analyses may improve understanding of program operation, and tell what levels of intervention are most cost-effective.
- Cost analyses may reveal unexpected costs.
- Whether or not the outlined program is having a significant net effect on the desired outcomes.
- Whether the least expensive alternative is always the best alternative.

ADVANTAGES OF USING COST ANALYSES

- Promotes fiscal accountability in programs.
- Helps set priorities when resources are limited
- Can be extremely powerful and persuasive to legislators, policy makers, and other funders.

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DISADVANTAGES OF USING COST ANALYSES

- Requires a great deal of technical skill and knowledge
- Market costs (what people actually pay for something) don't always reflect "real" social costs
- Sometimes there are multiple competing goals, so we need to weight them or prioritize them in some way.
- Sometimes costs and monetary values are considered less important than other, more intangible values or program outcomes
- The best-known cost-benefit studies have looked at long-term outcomes, but most program evaluations don't have the time or resources to conduct long-term follow-up studies.

CONCLUSION

In this chapter, the importance of Rehabilitation Engineering was well explained in section – 1, based on the census data 2011 provided by the Government of India and World Health Organization. Section – 2 explains about the trends in development of prostatic and orthotic devices and how, the technology can be used to improve the current devices in the market. Devices for mobility and its development were explained in section – 3. Devices for visual impairment and hearing impairment and its uses are explained in section 4 and 5 respectively.

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Chapter 31
Technology and Cognitive Empowerment for Healthy Elderly:
The Link between Cognitive Skills Acquisition and Well-Being

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ABSTRACT

The progressive growth of the ageing population represents opportunities as well as challenges. Consistently, the identification of effective cognitive empowerment programs in elderly population is now a worldwide health policy priority, specially for their preventive effect. In this chapter, within the paradigm of Positive Technology, the main focus will be on the use advanced technologies as effective tools for a new class of applications aimed at improving the traditional cognitive empowerment in elderly. Specifically, the attention will be devoted on how advanced technologies may be used to support elderly in reaching engaging and self-actualizing experiences. On the basis of the most recent evidence in literature, it will be discussed the possible advantages in using such advanced technologies for improving well-being in frail elderly: coupled with an increase in cognitive skills acquisition, the advantages may range increased self-efficacy and decreased subjective weakness, with a consequent improvement in both physical and cognitive performance.

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INTRODUCTION

The ageing population (aged 65 and over) is projected to increase to 1.2 billion by 2025. According to the most recent demographic projections, there are 87.31 million elderly people in Europe (Lagiewka, 2012). The progressive growth of the ageing population represents opportunities as well as challenges. On one side, because of the substantial increase in life expectancy, the onset and prevalence of neurodegenerative disease will dramatically increase. To date, for example, Alzheimer's disease (AD) is the most common type of dementia, and it is estimated that the number of people affected will reach 81.1 million by 2040 (Ferri et al., 2006). On the other side, although ageing is usually related to physical and cognitive decline, many elderly individuals want to remain physically and cognitively healthy. Consistently, the identification of effective cognitive empowerment programs for healthy elderly populations is now a worldwide health policy priority.

The potential benefits of cognitive empowerment programs for individuals suffering from cognitive impairment and/or dementia have been increasingly recognized (Belleville et al., 2006; Bier et al., 2015; Buschert, Bokde, & Hampel, 2010; Jean, Bergeron, Thivierge, & Simard, 2010; Thivierge, Jean, & Simard, 2014). Moreover, the potentiality of cognitive empowerment programs is now accepted in healthy elderly populations as well (i.e., older individuals without current diagnosable cognitive impairment), especially for their preventive effect (see for example, Chapman et al., 2015; Kelly et al., 2014; Rebok et al., 2014; Willis et al., 2006).

An interesting recent study carried out by Hudson and colleagues (Hudson, Day, & Oliver, 2015) helps us understand why the definition of effective cognitive empowerment programs for healthy elderly populations may be particularly important. Indeed, Hudson and colleagues (Hudson et al., 2015) enrolled six older sedentary individuals in an exercise programme and interviewed them about their attitudes towards physical activity and their physical self-perceptions and identity. Participants' stories highlighted that while older adults may perceive exercise positively, their existing narratives of age-related decline may be resistant to change. The results of this study highlighted that it may be essential for all elderly people, cognitively impaired or not, to participate in cognitive empowerment programs since these kinds of activities may positively stimulate the elderly to change their attitudes towards age-related decline by increasing their self-efficacy. Indeed, what is crucial for a successful change is the increase in their sense of control. Participants at the beginning of the exercise programme described some existential challenges as well as their resolution of these. From this perspective, the possibility to participate in effective cognitive empowerment programs may become a resource both to delay cognitive impairment associated with ageing and to stimulate crucial cognitive skills fundamental to cope with the decline associated with an ageing body. The idea that cognitive empowerment programs can delay cognitive decline and improve sense of control in healthy older adults has dramatic consequences for its potential application. Cognitive intervention may help older individuals because they retain the cognitive capabilities to learn and apply sets of new strategies to improve their well-being. If designed properly, cognitive interventions may improve the cognitive functioning of elderly individuals and alleviate their anxiety resulting from their cognitive and physical difficulties related to both normal ageing and age-related disease.

The question is how to design and implement effective cognitive empowerment programs. To understand the role of cognitive empowerment programs for the elderly, the different types of traditional approaches will be presented alongside their specific characteristics in the following paragraph.

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COGNITIVE EMPOWERMENT FOR THE ELDERLY

Cognitive empowerment programs for elderly people can be generally included in the broader definition of "non-pharmacological interventions:" they directly or indirectly stimulate the cognitive functioning, as opposed to other interventions for elderly people that focus on emotion regulation (i.e., depressive symptoms) or physical frailty (i.e., fall prevention or weight loss) (Bahar-Fuchs, Clare, & Woods, 2013). These interventions typically involve elders in different types of activities, ranging from specific cognitive training focused on a particular cognitive function to group-based intervention aimed at promoting the cognitive functioning in a variety of different social contexts that are relevant for daily life. The different types of cognitive empowerment programs may be complementary or not, and the choice of a particular training depends on the objectives and the cognitive profile of the individual.

To summarize and provide some useful guidelines, a recent Cochrane review (Bahar-Fuchs et al., 2013) classified the most used cognitive empowerment programs for the elderly into two main categories: "cognitive training" (or "retraining," or "brain training") and "cognitive rehabilitation." In the scientific literature, these definitions have often been used interchangeably, but in the aforementioned Cochrane review (Bahar-Fuchs et al., 2013), and in its previous version (Clare & Woods, 2003), it is possible to have an extensive description of these two related but distinct forms of cognitive empowerment programs.

The term "cognitive training" is used to describe the repeated practice of series of exercises in order to specifically stimulate targeted cognitive functions (e.g., attention, episodic memory, executive functions). Belleville (Belleville, 2008) defined cognitive training as "teaching theoretically motivated strategies and skills in order to optimize cognition functioning" (pg. 57). Cognitive training may be offered individually or in group sessions. During the training, the different exercises are specifically tailored according to individual performance and to the progress made. Another important assumption underlying these programs is that the cognitive abilities learnt during the training may be generalized to real-life situations. An interesting example was offered by Kaci Fairchild and Scogin (Kaci Fairchild & Scogin, 2010), who developed and tested a memory enhancement program for cognitively healthy elderly. In their study, 53 older adults were assigned to either a memory enhancement condition or a minimal social support condition. Results showed that participants who received the memory enhancement program had a significant improvement in their mnestic abilities, such as remembering names with faces, having fewer lapses in memory and not misplacing household objects, and feeling more confident about their memory.

On the other side, the term "cognitive rehabilitation," originally developed to indicate all programs used to help individuals with brain injuries achieve satisfactory social functioning within their daily context, is now used to refer to programs for people with cognitive impairments. Although the primary aim of cognitive rehabilitation is the development of new effective ways to restore/improve the cognitive functioning of individuals with cognitive impairment, this field has recognized the role of empowerment as a critical element of any treatment strategy. This implies a shift from a traditional medical perspective that focuses on illness, dependence and deficiency to a new integrated approach that focuses on supporting wellness, independence and competence. Indeed, the International Classification of Functioning Disability and Health (ICF) of the World Health Organization (WHO, 2003) defines disability as a "condition in which people are temporarily or definitively unable to perform an activity in the correct manner and/or at a level generally considered 'normal' for the human being." As underlined by Morganti and Riva (Morganti & Riva, 2004), this definition focuses not on deficits but on assets: a person is disabled when she/he is not able to fully exploit her/his relationship with everyday contexts. The emphasis in cognitive

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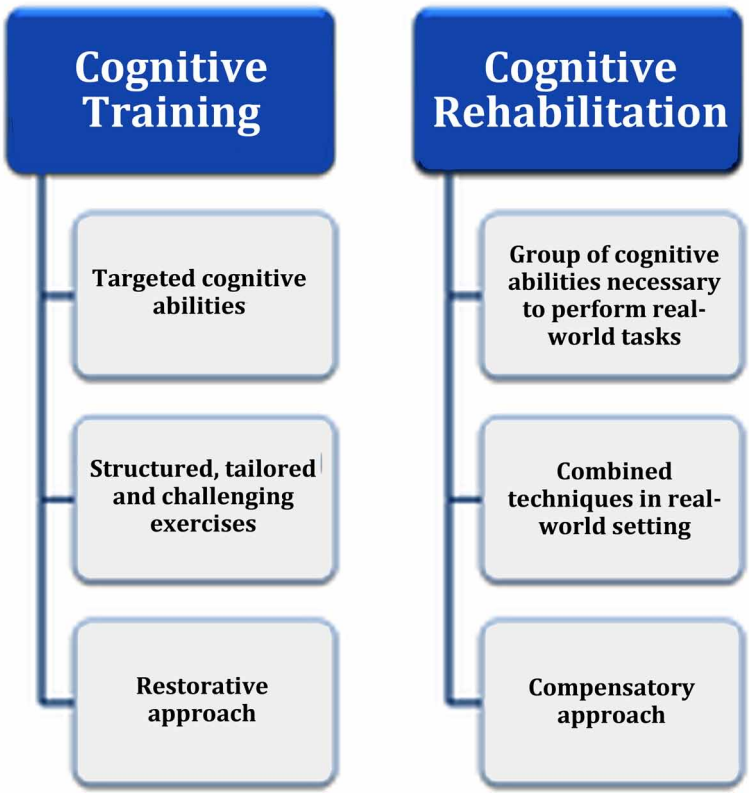
rehabilitation is not on a specific exercise, but rather on improving cognitive and social functioning: it is generally implemented in real-life settings with the crucial support of caregivers. Clare and colleagues (Clare et al., 2010) offered an interesting example of "cognitive rehabilitation" for patients suffering from AD. In their study, 69 individuals in the early stages of AD were enrolled in eight weekly individual sessions of cognitive rehabilitation consisting of personalized interventions to address individually relevant goals supported by components addressing practical aids and strategies, techniques for learning new information, practice in maintaining attention and concentration and techniques for stress management. This combined approach showed significant improvement in ratings of goal performance and satisfaction.

These two approaches to cognitive empowerment programmes are based on two different conceptual frameworks: a restorative approach and a compensatory approach (Ylvisaker, Hanks, & Johnson-Greene, 2002). In cognitive training implemented following a restorative approach ("use it or lose it," the well-known principle of brain plasticity), repeated exercises of increasing difficulty specifically targeting a cognitive function may accelerate synaptic growth and repair (Draganski et al., 2006; Hertzog, Kramer, Wilson, & Lindenberger, 2008). On the other hand, cognitive rehabilitation implemented following a compensatory approach exploits residual cognitive abilities of people with impaired cognitive domains.

It is important to acknowledge that under the "umbrella term" of "cognitive empowerment programme," both approaches can be used. But it is crucial to know that they have a different clinical rationale from which derives different peculiar techniques.

Figure 1. The most peculiar features of the two most common approaches for cognitive empowerment programmes: cognitive training and cognitive rehabilitation



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In Figure 1, the most peculiar features of the two most common approaches for developing an effective cognitive empowerment programme are summarized.

The Role of Advanced Technologies for Cognitive Empowerment: A Recent Trend

The dramatic development in the Information and Communication Technology (ICT) sector has resulted in incredible change in the way we interact and live. One of the newest fields that benefits from the advances in technology is that of cognitive assessment and rehabilitation (Bohil, Alicea, & Biocca, 2011; Gaggioli & Riva, 2014; Rose, Brooks, & Rizzo, 2005). In this context, indeed, an increasing trend is the use of advanced technologies, from computer-based application to more sophisticated virtual-based programmes, as functional tools for a new class of applications aimed to improve the traditional cognitive empowerment in the elderly (Barnes et al., 2009; Coyle, Traynor, & Solowij, 2014; García-Betances, Arredondo Waldmeyer, Fico, & Cabrera-Umpiérrez, 2015; García-Betances, Jiménez-Mixco, Arredondo, & Cabrera-Umpiérrez, 2015; Lampit, Hallock, & Valenzuela, 2014). What are the main advantages in using advanced technologies for supporting traditional cognitive empowerment? In general terms, the introduction of technology may offer a more flexible and personalized approach to traditional training programs.

First of all, computer-based cognitive empowerment programmes offer the chance to quantitatively measure behavior while maintaining strict control over stimulus delivery. Moreover, this kind of program allows cognitive exercises to be easily personalized to guarantee real-time performance feedback and an adjustment according to the user's ability level. Walinsky and colleagues (Wolinsky, Vander Weg, Howren, Jones, & Dotson, 2013) offered an interesting example of this great advantage by developing and testing a training programme for older adults focused on processing speed that could be easily delivered either in a clinical setting or at home using portable computers. In this programme, processing speed was improved by progressively reducing the time of exposure to stimuli for a correct identification. Interestingly, thanks to the use of technology, the training programme advanced automatically and in a controllable manner to a greater challenge when participants achieved a 75% success rate.

In the field of cognitive training and rehabilitation, Virtual Reality (VR) has been introduced to offer a completely new paradigm in which individuals (and, of course, patients) are no longer simply observers of stimuli appearing on a computer screen, but they are actively involved within ecologically valid virtual worlds (Riva, Mantovani, & Gaggioli, 2004). VR appears to be a suitable medium that offers several requirements for an effective cognitive empowerment program: repetitive practice, feedback about performance, multimodal stimulation and controlled and secure environments (Bohil et al., 2011; Riva et al., 2004; Schultheis & Rizzo, 2001). Peculiarly, it is possible to control and manipulate tailored exercises within meaningful, ecologically valid and engaging environments using virtual environments (Riva & Gaggioli, 2009).

It is interesting to report the words of McGee, who suggested that "older adults with impairments in memory and executive functioning could be presented with hierarchical rehabilitative challenges in a VE more efficiently and consistently than with traditional methods" (McGee et al., 2000). Indeed, one of the crucial features of the VR technology is the interactivity: immersive virtual environments incorporate a highly sensitive head and body tracking system. Interestingly, Optale and colleagues demonstrated how it is possible to exploit the interactivity of VR to stimulate the spatial functioning of older adults with cognitive impairment (Optale, Capodieci, Marin, Pastore, & Piron, 2007; Optale et al., 2001). They pro-

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posed and tested a cognitive rehabilitation memory training programme carried out on twelve patients suffering from mild cognitive impairments (Optale et al., 2007). This rehabilitation treatment consisted of three different listening experiences alternated with three different virtual experiences. The patients were invited to make an oral summary of their audio or VR experience to enhance their mnemonic abilities. During the immersive VR experience, patients were free to navigate in the environments. However, if the patients took a "wrong turn" and ended up at a dead-end, they were immediately transported back to that point along the path in the VR environment immediately before they took the "wrong turn."

After this brief overview of the potentiality of advanced technologies for integrating cognitive empowerment programmes for the elderly, the question is how to design and implement effective cognitive empowerment programmes exploiting the potentiality of new advanced technology.

New disciplines have been introduced, such as "gerontechnology", which refers to the "study of technology for ensuring good health, full social participation, and independent living throughout the entire life span" (Harrington & Harrington, 2000). However, continued technological advances, and progress in neuroscience and neurological research, require a new conceptual and practical framework. In this direction, a more comprehensive perspective is that of Positive Technology (Botella et al., 2012; Riva, Banos, Botella, Wiederhold, & Gaggioli, 2012; Riva & Gaggioli, 2015), which will be presented in the next section.

AN INTRODUCTION TO POSITIVE TECHNOLOGY

To specifically design and deliver cognitive empowerment programmes, from the design of a tool to its introduction into the clinical practice after scientific validation, it is crucial to adopt a comprehensive framework that can provide scientifically validated guidelines for technological development that meets the needs of an ageing society.

Within this direction, Positive Technology is an emerging field that could be defined as the scientific and applied approach that exploits the potentiality of advanced technology for improving the quality of our personal experience (Botella et al., 2012; Riva et al., 2012; Riva & Gaggioli, 2015). As recently suggested by Riva and colleagues (Riva et al., 2012), the dramatic advancement in the ICT sector has challenged technology developers, designers and psychologists to reflect on how to develop positive technologies to promote well-being. More recently, it has also been suggested that positive technologies may play an important role in dealing with age-related decline by improving well-being of the elderly (Riva et al., 2014).

Why it is possible to reflect about "positive technologies" for elderly? What is well-being, and why is this concept useful for designing effective cognitive empowerment programmes for the elderly? The emerging discipline of Positive Psychology provides a critical framework to both define well-being and to understand how to use technology to develop cognitive empowerment programmes for the elderly. Positive Psychology can be broadly defined as the scientific study of well-being to understand human strength and virtues and to promote them to allow individuals, communities and societies to flourish (Delle Fave, Massimini, & Bassi, 2011; Ryan & Deci, 2001; Seligman & Csikszentmihalyi, 2000; Snyder, 2010). Within this perspective, it appears to be a really promising framework to develop advanced technologies for health. According to Seligman (Seligman, 2002), who is considered the father of Positive Psychology, the definition of a "good life" consists of three different aspects of life, which correspond to different constituents of well-being:

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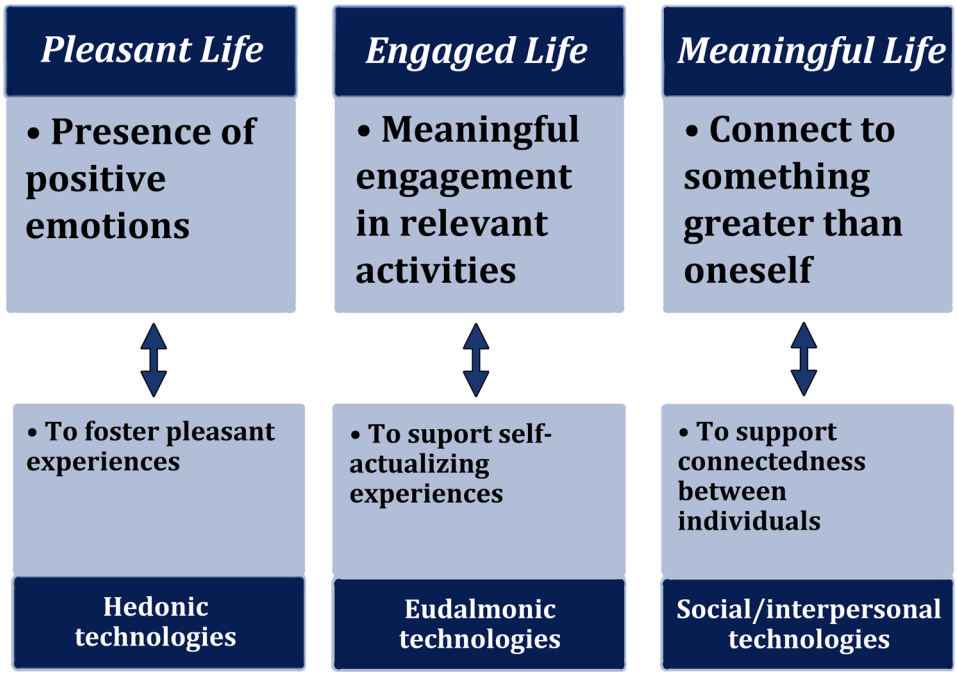
1. **The Pleasant Life:** Achieved through the presence of positive emotions;
2. **The Engaged Life:** Achieved through meaningful engagement in relevant activities that require the exploitation of individual strengths and virtues;
3. **The Meaningful Life:** Achieved through striving to connect to something greater than oneself.

Accordingly, it is possible to classify positive technologies according to their effects on these three aspects of well-being (see also Figure 2):

1. **Hedonic Positive Technologies:** Technologies used to foster positive emotions and pleasant experiences;
2. **Eudaimonic Positive Technologies:** Technologies used to support individuals in reaching engaging and self-actualizing experience;
3. **Social/Interpersonal Positive Technologies:** Technologies used to support and improve integration and connectedness between individuals and groups.

Figure 2. Positive technology: how to use technology to promote well-being



To further understand positive technologies and their role in improving well-being in the elderly, it is useful to introduce some relevant examples. A first crucial example of hedonic positive technology is the computer-based multi-media system recently developed and tested by Alm and colleagues (Alm et al., 2009). They started from the idea that interactive entertainment systems specifically designed for elderly individuals may engage them in activities that make life more enjoyable, thereby reducing depressive symptoms that may be associated with ageing and dementia. Their computer-based multimedia system was composed of three parts:

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1. The entertainment system supplied engaging content in the form of interactive 3D games with simple, attractive and colorful interfaces;
2. The creative tool allowed a person to freely compose musical sounds independently of their musical skills;
3. The communication support system was designed to help the elderly communicate with their caregivers.

Within the Nostalgia Bits (NoBits) project, Gaggioli and colleagues gave us an example of social/interpersonal positive technology specially developed for the elderly. Indeed, the Nostalgia Bits (NoBits) project aimed at fostering social interaction between the elderly and children through collecting memories and increasing cross-sectional interactions and mentoring. They developed a web-based platform where tangible artifacts of an elderly person's life experience (e.g., photos, stories, personal documents) could be uploaded and thus become a meaningful resource to other generations and an "instrument" to connect elderly users with members of their own generation (Morganti, Riva, Bonfiglio, & Gaggioli, 2013). Findings collected from a user needs analysis conducted on 23 elderly and 310 children showed that both samples readily acceptedthe NoBits concept and that supporting collaborative reminiscing with social media is a promising approach to increase cross-generational interactions and mentoring.

Using the framework of Positive Technology (Botella et al., 2012; Riva et al., 2012; Riva & Gaggioli, 2015), in the following paragraph the attention will be specifically devoted to how advanced technologies that may be specifically used to support healthy elderly people in reaching engaging and self-actualizing experiences and how these experiences may be useful for improving traditional cognitive empowerment programmes.

The Potentiality for Eudaimonic Positive Technologies for Elderly

Although ageing is typically associated with a decline in physical and cognitive health, this decline can be delayed with effective interventions. In the previous paragraph, it was suggested how positive technologies can be specifically used to support positive emotions and promote connectedness for the elderly (Riva et al., 2014). The two relevant examples presented help us to understand how technology may play an important role in structuring successful pleasant experiences for improving the quality of life for the elderly and improving the strength of their relationships. An improvement in the quality of personal experience, in terms of subjective well-being, can delay age-related decline (Diener & Chan, 2011).

The theory of flow (Csikszentmihalyi, 1991) provides a useful framework to define an "engaging and self-actualizing experience," as well as how they can be used to enable a positive change (Inghilleri, Riva, & Riva, 2015). Flow, or optimal experience, is a state of full engagement, deep concentration and action awareness, occurring during an activity perceived as highly self-rewarding, characterized by clear goals, unambiguous and immediate feedback and an altered sense of time. Specifically, flow is a positive state characterized by a perceived balance between high environmental opportunities for action (challenges) and adequate personal resources in facing them (skills).

Thanks to some key characteristics, Riva and colleagues suggested that advanced technologies, and specifically VR, could be possible sources of flow (Riva & Gaggioli, 2009). First of all, immersive and interactive technologies offer incredible opportunities for action (goals and rules): users are no longer just observers, but active participants within a wide range of increasingly challenging situations and tasks. Second, immersive and interactive technologies offer the chance for giving timing, appropriate

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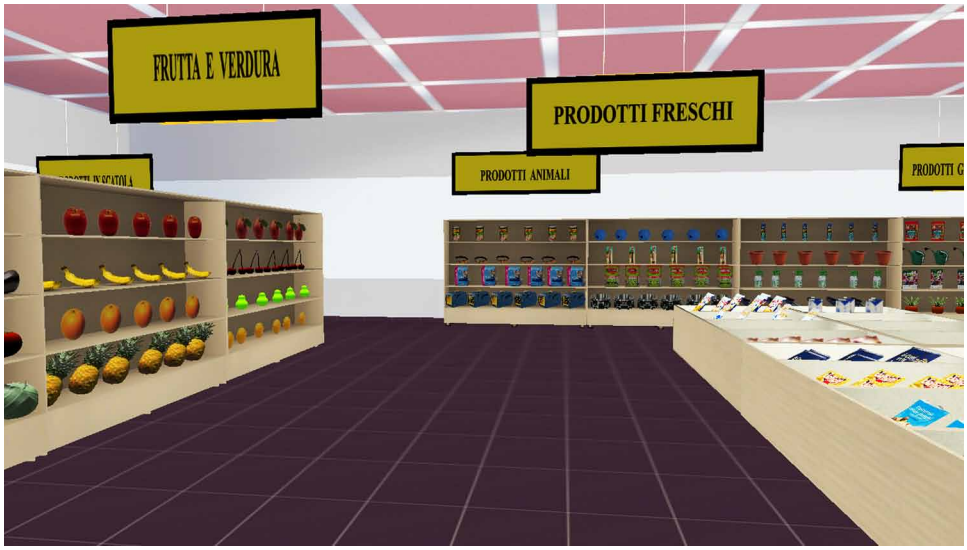
and multimodal feedback to individuals based on their actions and behaviors. Within this perspective, Riva and colleagues introduced the strategy of "transformation of flow" (Riva & Gaggioli, 2009), suggesting the possibility to exploit the potentiality of using advanced technology for a new class of (positive) applications in mental health for the elderly. This strategy is based on the idea that, thanks to the continuous cognitive skills acquisition provided by an effective and interactive cognitive empowerment programme, an optimal experience (i.e., balance between skills and demands) is progressively reached and supported by the use of advanced technologies, and this state may be used to promote new and unexpected psychological resources.

Riva and colleagues (Riva et al., 2014) detailed the following steps for the development of eudaimonic positive technology applications for elderly that may integrate traditional cognitive programmes. The first suggested step is the development of an enriched environment containing functional real-world demands. An example was given by the Virtual Multiple Errands Test (VMET), a virtual version of the original Multiple Errands Test (Shallice & Burgess, 1991) developed for an ecological evaluation of executive functions. The test comprised a virtual supermarket where participants were instructed to select and buy various products presented on shelves and to complete tasks that abided by certain rules (see Figure 3). A recent study showed that VMET was more sensitive in the early detection of executive deficits in a sample of elderly participants suffering from Parkinson's disease (Cipresso et al., 2014). One interesting example of the same approach was tested in a pilot study by Kizony and colleagues (Kizony, Korman, Sinoff, Klinger, & Josman, 2012). They used a modified version of the VMET (i.e., a shopping task) for the rehabilitation of the executive functions in a sample of seven participants with non-amnestic or multi-domain mild cognitive impairment. Although preliminary, results showed the potentiality of this kind of ecological task as a potentially effective tool for training the executive functioning in elderly people suffering from mild cognitive impairment.

Figure 3. Screenshot of the virtual multiple errands test (VMET)
From Cipresso et al. (2014).



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The second step is the use of technology for developing interventions with tasks of increasing difficulty (challenges) that are matched to the cognitive level of the individual (skills). An example of a procedure showing increasing difficulty that is able to discriminate between the cognitive level of patients with mild cognitive impairment and patients with Alzheimer's disease has been recently proposed by Serino and colleagues (Serino, Morganti, Di Stefano, & Riva). Findings showed that patients with mild cognitive impairment performed significantly more poorly in the third trial of the first task, while patients with Alzheimer's disease performed significantly more poorly in the second task. A recent study by Kober and colleagues demonstrated the potentiality of VR in enhancing spatial abilities of neurological patients with focal brain lesions (Kober et al., 2013). They tested the efficacy of a verbally-guided passive navigation training in which participants were required to progressively learn the correct directions at each junction they had seen during the learning phase. Results showed that route-finding ability increased over the five VR sessions.

Finally, the third step is the cultivation of optimal experiences reached during the clinical session by linking the results obtained to the actual experience and skills during real life. The incredible development in mobile communications allows the diffusion of cognitive empowerment programmes via virtual environments implemented on mobile devices. This permits the extension of these immersive and interactive program at home to guarantee the continuity between virtual and real experience.

The expected benefit of this new class of eudaimonic positive technologies for the elderly is a functional reorganization of the brain produced by the broadening of the thought-action repertoire associated with an increase in self-efficacy.

FRAIL ELDERLY: WHY USE POSITIVE TECHNOLOGIES FOR COGNITIVE EMPOWERMENT

In the last 30 years, research has tried to identify the most salient and earliest cognitive symptoms characterizing the cognitive decline associated with neurodegenerative diseases (Aarsland, Brønnick, & Fladby, 2011; Albert, 2011; Bastin & Salmon, 2014; Breitve et al., 2014; Hu et al., 2014; Petersen, 2011). Specifically, several studies from both genetic at-risk cohorts and clinically normal individuals suggest that the pathophysiology cascade of neurodegenerative diseases begins years before the diagnosis of dementia (Aarsland et al., 2011; Hu et al., 2014; Sperling et al., 2011).

In this direction, mild cognitive impairment may represent a useful clinical entity for detecting subtle signs of early cognitive decline (Petersen, 2004, 2011). Indeed, mild cognitive impairment refers to a cognitive decline that does not significantly impair cognitive functioning, i.e., it is used when an older person does not meet the criteria for dementia either because they lack two deficits in two different cognitive domains or because their cognitive deficits do not significantly affect their usual activities (Peterson, 2011). Evaluation for capturing the first sign of cognitive decline is usually done using standard clinical tests, such as the Mini-Mental State Examination (Folstein, Folstein, & McHugh, 1975) or the Montreal Cognitive Assessment Test (Nasreddine et al., 2005). This prompt neuropsychological evaluation is absolutely needed because older individuals with mild cognitive impairment were progressing more frequently to Alzheimer's disease compared to healthy age-matched controls (for a review, see Mitchell & Shiri-Feshki, 2009).

Associated with mild cognitive impairment is frailty, a condition defined as a multifaceted syndrome generally marked by the progressive decreased ability of an elderly individual to respond to stressors (Fried

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et al., 2001). As described by Fried (Fried et al., 2001), from a clinical perspective, frail older persons are characterized by height and muscle loss, physical exhaustion and weakness, slow gait and lower levels of activity and functionality. It is crucial to highlight that cognitive decline in frailty is not as evident as cognitive impairment in other neurodegenerative disorders, but recent crucial evidence has reported that this syndrome increases the risk of future cognitive decline (Robertson, Savva, & Kenny, 2013).

In this direction, a recent consensus panel proposed the identification of the so-called "cognitive frailty" as a heterogeneous clinical manifestation characterized by the simultaneous presence of both physical frailty and cognitive impairment (Kelaiditi et al., 2013). According to the recent clinical guidelines developed by the aforementioned consensus group (Kelaiditi et al., 2013), the key factors defining cognitive frailty are as follows: the presence of physical frailty and cognitive impairment and the concurrent exclusion of concurrent ad dementia. Consequently, identifying and treating frail people may be an effective way to prevent or delay dementia. More specifically, some recent evidence has established a link between frailty and cognitive domains such as executive function, attention and processing speed (Boyle, Buchman, Wilson, Leurgans, & Bennett, 2010; Langlois et al., 2012; Macuco et al., 2012; Yassuda et al., 2012). However, today, a critical challenge has been to find new early innovative cognitive interventions to break the link between cognitive decline and frailty. To date, there are different traditional preventive approaches that may be considered for cognitively frail elderly people. These include promotion of physical activity, general cognitive stimulation, healthy dietary habits and good integrated lifestyles (i.e., smoking cessation, optimal daily sleep, promotion of positive emotions) (Desai, Grossberg, & Chibnall, 2010). Considering the suggested association between frailty and cognition, it is argued that positives technologies may play an important role in supporting the development of future cognitive empowerment programs for the elderly. On the basis of the most recent evidence in literature, in the following paragraph we will describe how eudaimonic positive technologies may integrate traditional cognitive training for frailty. Coupled with an increase in cognitive skills acquisition, the advantages may include improved mood, increased self-efficacy and decreased subjective weakness, with a consequent improvement in both physical and cognitive performance.

The Role of Advanced Technologies for Cognitive Empowerment: A Recent Trend

The application of advanced positive eudaimonic technologies may yield to more ecologically valid protocols focused on the specific needs of different individuals and specifically intended to promote well-being in terms of engaging and self-actualizing experiences within challenging everyday life scenarios (Riva et al., 2014).

This is particularly relevant for frail older individuals, for whom prompt cognitive interventions may delay cognitive decline. Considering their concurrent physical early impairment (Fried et al., 2001), there is a need to develop cognitive empowerment programmes that reflect ecological situations in order to prompt the restoration of functional ability in their daily lives. Moreover, as explained before, recent studies have demonstrated that there is some cognitive weakness in frail individuals in some areas, namely executive functioning and attention processing (Boyle et al., 2010; Langlois et al., 2012; Macuco et al., 2012; Yassuda et al., 2012). On the basis of this evidence, Goal Management Training (Robertson, 1996) appears to be a promising cognitive empowerment programme for the stimulation of executive functioning in frail older individuals. Robertson (Robertson, 1996) developed the Goal Management Training (Robertson, 1996) as a theoretically-based intervention aimed at helping individuals be more

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and more effective at properly encoding intended goals by learning a mental checking system that enables them to maintain an active focus. Goal Management Training (GMT) is a structured cognitive training protocol based on Duncan's theory (Duncan, 1986, 1995; Duncan & Owen, 2000; Duncan et al., 2000) of disorganization of behavior following damage to the frontal lobes or to circuits that include frontal structures. In the "goal-neglect theory," Duncan argued that human behavior is goal-oriented since it is controlled by a list of goals or sub-goals. Individuals are able to formulate, store and check all these goals and sub-goals in order to effectively respond to environmental and/or internal demands. GMT can be generally defined as cognitive training for executive functions with two principal objectives: 1) improve awareness on behavior and its underlying goals; and 2) retain cognitive control when behavior becomes inconsistent with intended goals. The GMT trains individuals in five stages that characterise the most crucial elements for an effective rehabilitation of executive functions. In Stage 1, "STOP" participants are trained to ask themselves what they are doing at the moment and direct awareness towards relevant goals. In Stage 2, "DEFINE" participants are trained to define the main task and state the goals. In Stage 3, "LIST" participants are trained to list the steps necessary to achieve the main task. In Stage 4, "LEARN" participants are trained to encode and store goals and sub-goals. In Stage 5, "CHECK," the outcome of action is compared with the desired goal. Levine and colleagues (Levine et al., 2000) have demonstrated the clinical utility and efficacy of the GMT among patients with lesions in the frontal lobes.

GMT has been extensively developed, with different versions having been published ranging from a single session (Levine et al., 2000) to a 14-hour GMT training course for group rehabilitation in clinical settings (Levine et al., 2011). A very recent systematic review proposed by Krasny-Pacini and colleagues showed (Krasny-Pacini, Chevignard, & Evans, 2013) that comprehensive rehabilitation programs incorporating GMT, but also integrating other approaches, are effective in executive function rehabilitation following brain injury in adults.

However, as previously explained, the real challenge of cognitive training focusing on executive functions for frail older individuals is to improve the ability to participate in meaningful activities through transfer and generalization. For instance, if a cognitive rehabilitative intervention has been carried out at a rehabilitation center to improve executive abilities, it is important that the patient use these abilities in daily life activities such as preparation of a meal (generalization) at home (transfer). To address these needs, and to develop a programme that reflects ecological situations to prompt the restoration of functional ability in daily life, the use of advance virtual reality-based simulations has been proposed.

Following the guidelines of GMT, frail individuals with the use of VR may be composed of five stages: in Stages 1 and 2, frail people will be trained to direct awareness towards relevant goals and define the main task to achieve within virtual realistic environments. In Stage 3, people will be trained to list the steps necessary to achieve the main task, while in Stage 4 they will be trained to encode and store all the goals. In Stage 5, the outcome of action will be compared with the desired goal. To help frail people train their ability in formulating, storing and checking the goals necessary to perform a desired action, the VR-GMT protocol would be implemented in two virtual ecological environment real-life activities within ecological scenario (for example, purchasing an item or meal preparation). As suggested by Riva (Riva & Gaggioli, 2009; Riva et al., 2014), these enriched environments will contain functional real-world demands (for example, purchasing an item or meal preparation, including tasks of increasingly difficulty that will be progressively matched to the cognitive level of the individual). Then, as previously explained, it is crucial to cultivate the optimal experiences reached during the clinical session of GMT with VR by linking the results obtained to the actual experience and skills during real life. Within this perspective, the GMT with VR will be delivered on the following integrated devices: 1) a VR platform

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in the clinical setting that allows the chance to deliver secure and engaging cognitive exercises, and 2) a smartphone that allows the chance to deliver virtual-based cognitive exercises during daily life.

With this integrated technological platform, this kind of cognitive empowerment programme based on the principle of GMT may be a eudaimonic positive technology specifically designed for frail older people. Beyond specific improvements in executive functioning, the adoption of a eudaimonic positive technology exploiting the strategy of "transformation of flow" (Riva & Gaggioli, 2009) may range from increased self-efficacy (thanks to the continuous skills acquisition provided by the challenging virtual experiences) to decreased subjective weakness (thanks to the habituation to real-life scenarios provided by ecologically valid virtual environments), with a consequent improvement in both physical and cognitive performance.

FUTURE RESEARCH DIRECTIONS

In the previous paragraphs, we argued that there is a "window of possibility" to develop a new class of applications that may enhance the traditional approaches used for cognitive empowerment in the elderly. In considering the future definition and testing of protocols using advanced technologies for improving well-being of the elderly, it is important to take into account the warnings of the above-mentioned recent Cochrane review about the efficacy of traditional cognitive programmes for patients suffering from mild AD and vascular dementia (Bahar-Fuchs et al., 2013). Conclusions about the efficacy of non-pharmacological interventions, especially about long-term effects, must still be viewed with caution due to the small number of randomized controlled trials. However, the findings available are promising and justify further studies in this direction.

Controlled studies testing the role of advanced positive technologies with a greater number of patients, appropriate control groups, a better definition of inclusion/exclusion criteria, standardized outcomes measures and follow-up measures are absolutely needed.

CONCLUSION

Recently, the World Health Organization (WHO, 2001) developed a new framework of human functioning and disability to underline the interactive relationship between health conditions and psychological and environmental factors. Disability is defined as a term representing a condition in which individuals are temporarily or definitively unable to perform an "activity" in the correct manner and/or at a level generally considered "normal" for the human being. The emphasis given to the "activity" highlights the dynamic interactions between person and environment. By consequence, it also emphasises the key concept of "participation" as an important outcome of well-being. This definition is focused not on deficits but on assets: a person is disabled when she/he is not able to fully exploit her/his relationship with everyday contexts. Participation reduction refers to the social, familial, educational or other role disadvantages associated with a disability (e.g., failure in school or loss of a job because of a communication impairment). This comprehensive framework permits a deeper understanding of why the introduction of the concept of "empowerment" as a key factor in any cognitive/physical training strategy is needed when considering dynamic interactions between older people (with and without impairment) and his/her environment.

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Within the theoretical paradigm of Positive Technology (Botella et al., 2012; Riva et al., 2012; Riva & Gaggioli, 2015), in this chapter it has been detailed how advanced technologies may enhance the traditional approaches used for cognitive empowerment in the elderly. After a brief presentation on how different positive technologies may be differently classified according to their effect in promoting different constituents of well-being, the focus will be specifically devoted to how advanced technologies (and particularly VR) may be used to support healthy elderly people in reaching engaging and self-actualizing experiences. The theory of flow (Csikszentmihalyi, 1991) provides an useful framework by which to define what constitutes an "engaging and self-actualizing experience," as well as how they can be used to enable a positive change to improve well-being (Inghilleri et al., 2015).

Thanks to the continuous cognitive skills acquisition provided by an effective and interactive cognitive empowerment programme, an optimal experience (i.e., balance between skills and demands) may be progressively reached and supported by the use of advanced technologies, and this state may be used to promote new and unexpected psychological resources (Riva & Gaggioli, 2009). This strategy, known as "transformation of flow," opens new interesting possibilities for developing innovative cognitive training able to exploit the potentiality of positive technologies to stimulate cognitive functioning in elderly people. An example is offered in the last section: a possible use of positive technologies for integrating a standard theoretically-based cognitive empowerment program for executive functioning in frail elderly has been presented.

In sum, as positive technologies may have an important role in the design, development and testing of cognitive empowerment programs for the elderly, future studies and controlled trials will be needed to deeply explore the potentiality of advanced technologies to meets the need of ageing society.

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KEY TERMS AND DEFINITIONS

Cognitive Rehabilitation: Originally developed to indicate all programs used to help individuals with brain injury to achieve a satisfactory social functioning within their daily context, it is now used to refer to programs for people with cognitive impairments.

Cognitive Training: Repeated practice of series of exercises in order to specifically stimulate targeted cognitive functions.

Empowerment: (within a rehabilitation perspective) A key factor in any cognitive/physical training strategy is needed when considering dynamic interactions between older persons (with and without impairment) and his/her environment.

Flow: A state of full engagement, deep concentration and action awareness that occurs during an activity perceived as highly self-rewarding, characterized by clear goals, unambiguous and immediate feedback and an altered sense of time.

Frailty: A condition that can be defined as a multifaceted syndrome generally marked by a progressive decreased ability of an elderly individual to respond to stressors.

Transformation of Flow: A strategy based on an idea that an optimal experience (i.e., balance between skills and demands) is progressively reached and supported by the use of advanced technologies, and that this state may be used to promote new and unexpected psychological resources.

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Chapter 32
Multi-Modal Motion-Capture-Based Biometric Systems for Emergency Response and Patient Rehabilitation

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ABSTRACT

This chapter outlines the current state of the art of Kinect sensor gait and activity authentication. It also focuses on emotional cues that could be observed from human body and posture. It presents a prototype of a system that combines recently developed behavioral gait and posture recognition methods for human emotion identification. A backbone of the system is Kinect sensor gait recognition, which explores the relationship between joint-relative angles and joint-relative distances through machine learning. The chapter then introduces a real-time gesture recognition system developed using Kinect sensor and trained with SVM classifier. Preliminary experimental results demonstrate accuracy and feasibility of using such systems in real-world scenarios. While gait and emotion from body movement has been researched in the context of standalone biometric security systems, they were never previously explored for physiotherapy rehabilitation and real-time patient feedback. The survey of recent progress and open problems in crucial areas of medical patient rehabilitation and rescue operations conclude this chapter.

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INTRODUCTION

Rapid development of biometric technology has opened doors to a new class of fast and reliable identity management solution and has forever changed the research landscape (Jain et.al. 2008; Kisku et.al. 2013). Biometric relies on using observable unobtrusive traits (such as iris, fingerprint, face, voice or gait), to remotely authenticate a user. There has been a significant surge in the number of effective approaches to user authentication, discretionary access control to secure resources, and integration of biometric recognition algorithms with consumer products (such as cell phone with iris and/or fingerprint recognition, biometric door locks, industrial and military robots with voice recognition, self-driving cars with human silhouette identification, game consoles with gait recognition, etc.) (Jain et.al 2008; Kisku et.al 2013; Gavrilova & Monwar 2012). This chapter presents an overview of the most recent uses of Kinect sensor technology for biometric user identification and activity recognition, and presents an emerging methodology for emotion and intention recognition from body position and movement. The applications in real-world scenarios for medical diagnostics and search and rescue operations are discussed, along with numerous open problems in this domain.

Traditional definition of biometrics research scope usually includes recognizing someone's identity from the collected biometric data, which includes physiological, behavioural, soft, and social traits. Physiological features can be often collected visually (facial image, ear, iris etc.) or through some specialized devices, such as infrared sensors, remote temperature measuring devices, and so on. Behavioural characteristics include the way a person walks (gait), talks (voice) and writes (typing patterns, keystroke pressure). Soft biometrics include data which can be easily collected but not highly unique, such as age, gender, height or weight. One significant area where the development of biometric technologies can have a high tangible effect on society is emergency response and medicine. It is generating a lot of interest and getting traction in biometric research, as well as in related fields looking into human interaction, physiological studies, user profiling, pattern recognition, authorship identification and collective intelligence.

This book chapter outlines the current state of the art of Kinect sensor gait and activity authentication, while focusing on emotional cues that could be observed from human body and posture. It then presents a prototype of a new system which combines recently developed behavioral gait and posture recognition for human emotion identification. A backbone of the system is Kinect sensor gait recognition method, which explores the relationship between joint-relative angles and joint-relative distances through machine learning. The chapter then introduces a real-time gesture recognition system, developed using Kinect sensor and trained with SVM classifier, to recognize four emotions of the human body. Preliminary experimental results demonstrate accuracy and feasibility of using such systems in real-world scenarios. While gait and emotion from body movement has been researched in the context of standalone biometric security systems, they were never previously explored for physiotherapy rehabilitation and real-time patient feedback. Thus, the survey of recent progress and open problems in crucial areas of medical patient rehabilitation and rescue operations conclude this chapter.

BACKGROUND STUDY AND LITERATURE REVIEW

Rapid technological advancement has led to a new field of biometric security, in which emotional state of an individual can be predicted by analysing body movement patterns. Recognition of a person's emotional state and appropriate response is the foundation of all social interactions. As computing resources

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become more sophisticated, it is reasonable to treat them as social agents. Organizations such as financial services, healthcare, telecommunication, e-commerce and e-education are developing new approaches to recognize and predict human behaviour to create more secure biometric systems. Automatic recognition of emotion has many potential applications including but not limited to smart home services, patient behaviour monitoring, passenger behaviour profiling and so forth (Adey, 2009; Fragopanagos & Taylor, 2005; Gavrilova & Monwar, 2012). We start with the brief overview of emotion recognition in biometrics, before proceeding onto the sensing devices, datasets and recent methodologies to detect emotion from biometric traits, focusing specifically on emotions from motion recognition.

Emotion Recognition in Biometrics

Traditionally, emotions have been recognized from facial expression (Fasel & Luettin, 2003). However, it is also possible to recognize emotions from speech (Koolagudi & Rao, 2012), gaze (He et al., 2018), or body movements (Molchanov et al., 2015). A combination of multiple biometric modalities have been used to create more robust systems (Bänziger et al., 2009). In this chapter, we focus our attention on recognizing emotions from body posture and body movements.

Motion-based recognition system follows a general pipeline which starts with detection of the human body and subtraction of background information from every frame. In Dalal et al. (2006), researchers utilized the Histogram of Oriented Gradient (HOG) features for human silhouette detection. Another important contribution was made in Felzenszwalb et al. (2008), where geometric information extracted from the body was sued to create a human body model - the Deformable Partial Model (DPM). In the second part of the pipeline, a human posture is detected and tracked to reduce any redundant information. Initially, researchers predominantly used model-based approaches for posture detection, however in Siddiqui et al. (2010) the combination of gradient space similarity with the Monte Carlo approach was used to estimate a human posture. The final step is to build an appropriate representation of the extracted data and to apply a learning technique to map a body movement to a specific emotion.

Observing specific sections of the body, such as hands, can provide important cues to recognize a person's emotional state. It provides critical body language information, which can help determine whether a person is honest or insincere by observing the position of the hands (Molchanov et al., 2015). The pace of nodding the head is another indicator of a person's patience level (Pease & Pease 2004). Other attempts to understand emotion from body gestures were conducted using Dynamic Time Warping (DTW) and Hidden Naïve Bayes (HNB) to classify dynamic body gestures into anger, joy, pleasure or sadness (Castellano et al., 2007). A recent work by Seneca et al. (2016) used Artificial Neural Networks (ANN) to visualize human emotion continuously during a theatre performance. Most recently, Ahmed et al. (2018) applied score and rank-level fusion techniques to recognize human emotions from a body posture.

Deep Learning for Emotion Recognition

Deep learning techniques have drawn a significant attention in object recognition and information security domains due to their inherent capability to perform well in a case where domain-specific knowledge is required for feature representation. To reduce the limitations of classical methodologies, deep learning techniques such as convolution neural network (CNN) (Li & Chan, 2014) and multi-stage CNN (Newell et al., 2016) have been proposed. An early application of deep learning was introduced by Kosti et al.

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(2017), who used two low-rank CNN to fuse background and movement information to recognize 26 emotions. Another approach was used in Fan et al. (2016) to recognize emotion from video sequences. A combination of Recurrent Neural Network (RNN) and Convolution Neural Network (CNN) was employed in this work to encode both structural and motion information for emotion recognition. Recently, researchers are focused on applying deep learning techniques for feature extraction of motion capture-based biometric systems. In Toshev and Szegedy (2014), a seven-layered Convolution Deep Neural Network to represent body joints from motion images were used. Similarly, Deep Neural Networks (DNN) were used to model large-scale movement of body parts such as the torso, hand, and leg (Neverova et al., 2013) with subsequent application of Recurrent Neural Network (RNN) and Long-short Term Memory (LSTM) for gesture recognition.

Overview of Motion Capture Devices

Existing motion capture technologies are centred around three main approaches: electromechanical, electromagnetic and optical tracking systems. Electromechanical systems require placing measuring devices at various points of the human body. This approach is restrictive in their weight and freedom of movement and thereby inhibiting the full range of movement. Electromagnetic sensors improve the range of motion to be captured, and are lighter and more comfortable than electromechanical devices. However, the wires attached to each sensor restrict the overall freedom of movement of the human subject. The least restrictive motion capture system is optical-based. Examples of optical-based motion capture systems are pre-calibrated multi-camera set-ups and depth camera-based image capturing devices. These devices allow full freedom of movement and the use of non-intrusive means for data acquisition. Microsoft Kinect is a low-cost depth-sensing camera technology that provides marker-less full-body tracking capability. It has been used for physical rehabilitation which requires accurate and appropriate tracking and feedback of performance. Such devices can be utilized to create an interactive game-based rehabilitation tool for balance training of adults with neurological injury (Lange & Chang 2011). They are also suitable for emotion recognition from a body posture or gait (Ahmed et al., 2018).

Datasets

With the advent of new motion-capturing devices, and the evolution of machine learning methods, there is a pressing need for high-quality datasets to test newly developed approaches to motion recognition. In 2018, a dataset named University of Idaho-Physical Rehabilitation Movement Data (UI-PRMD) (Vakanski et al., 2018), was created for the patients in physical rehabilitation programs. This publicly available dataset comprised of 10 healthy subjects who performed 10 repetitions of different physical therapy movements which were related to common exercises. The researchers then used Vicon Optical Tracker and Microsoft Kinect to capture a variety of motions. Majority of freely accessible datasets for emotion recognition contain acted expressions, but the most conventional way of collecting emotion data is to allow actors to immerse in a scene portraying an emotion. Although professionals are very good at mimicking various emotional states, they lack the spontaneity of a real-life emotion. Most of the authors predominantly focus only on a few basic emotions, such as sorrow, anger, or happiness. Fear, surprise, and disgust are other emotions that sometimes are more difficult to recognize. Some emotional states are named interchangeably, for example joy is often used instead of happiness.

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One of the first publicly available body language databases was created to recognize 10 emotions by using RGB camera sensors to produce 206 video samples of different emotions (Gunes & Piccardi, 2005). A subset of LIRIS-ACCEDE video database contained RGB video data from 64 subjects for six different emotions (Baveye et al., 2015). Another work involved creation of a dataset extracted from the Microsoft Kinect v2 sensor (Saha et al., 2014). It comprised stimulating 10 subjects to emotions namely anger, fear, happiness, sorrow and relaxed state, from which 3D skeleton gesture data was gathered. A more recent emoFBVP database was created to recognize multi-modal emotion recognition and contained video recordings of the subject's face, body gesture, voice and physiological signals (Ranganathan et al., 2016). IN that research, 23 different emotions using audiovisual information were studied from 10 professionals, with each recording repeated up to six times. Lastly, another dataset called UTD-MHAD which contains four temporarily synchronized data modalities of RGB videos, depth videos, Kinect Camera and a wearable inertial sensor for 27 human actions is available (Chen et al., 2015). Table 1 presents a summary of some datasets for gesture-based expression recognition.

Table 1. Summary of some of the publicly available datasets for gesture-based expression recognition

Reference	Name	Device	Body Parts	Modality	#Emotions	#Gestures	#Samples
[Gunes&Piccardi 2005]	FABO	Digital Camera	Face and Body	Visual	10	NA	206
[Gavrilescu 2015]	LIRIS-ACCEDE	Camera	Face and Upper Body	Visual	6	8	NA
[Saha et.al 2014]	NA	Kinect	Upper Body	Visual	5	NA	50
[Ranganathan et.al 2016]	emoFBVP	RGBD Camera	Face and Body	Visual, Audio	23	NA	1380
[Baltrušaitis et.al 2011]	GEMEP-FERA	Kinect	Upper Body	Visual	5	7	NA
[Fothergill et.al 2012]	MSRC-12	Kinect	Whole Body	Depth	NA	12	30

Research Challenges

As demonstrated by the recent research in this domain, gesture is an important and a versatile tool to communicate thoughts and emotions, but identification and detection of emotion-specific motion is a very challenging task. Specific motion cues are universally understood, for example nodding can be interpreted as a sign of confirmation. Turning away can be interpreted as a refusal and the expansion of nostrils can be a sign of an anger (Noroozi et al., 2018). But sometimes, interpretation of intent can also be subjective, and it may depend on the person making an observation. The emotion of a person may also depend on a person gender and/or culture (Pease & Pease, 2004). Research on automatic emotion recognition has mainly focused on face and voice as the primary source for emotion analysis. In fact, 95% of all the literature used the face as the only modality (De Gelder, 2009). Emotion analysis from posture and movement is still an unexplored domain with very high potential and numerous real-world applications.

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METHODOLOGY FOR EMOTION RECOGNITION FROM BODY MOVEMENT

Research Domain Overview

Emotional expression can be transmitted through verbal or non-verbal (gait, signature or facial expression) cues. Studies indicate that a human observer can easily recognize emotions expressed through body movement. Body movement can be retrieved very efficiently using surveillance cameras and wearable sensors. Development of inexpensive sensor technologies such as the Microsoft Kinect, which is a marker-free infrared motion capture system, enables continuous monitoring of three-dimensional body movement patterns. Fig. 1 shows some examples of depth images extracted using Kinect V2 sensor. The images show 2D color, 2D grey-scale, skeleton and a color depth-map (from left to right). In addition to different data streams that can be obtained from Kinect (RGB, depth, audio, etc.), it can also construct a 3D virtual skeleton from the human body and track it in real-time. Although skeletal data tracked by Kinect sensor is noisier than the traditional MOCAP data, the computationally inexpensive tracking of real-time skeleton contributed to recent spike in the action recognition methods that rely on the Kinect (Xia et al., 2012; Yang & Tian, 2014). More recently, new features based on Joint Relative Angle (JRA) and Joint Relative Distance (JRD) were introduced and trained using three classifiers –SVM, Decision trees, and KNN (Ahmed et al., 2016a; Ahmed et al., 2016b). For this reason, Kinect is an excellent choice to record human movement features and automatic recognition of emotion in a non-intrusive way. However, none of these works considered emotion recognition from the human body. The main research objective is thus to develop an automatic emotion recognition system from the analysis of body motion features acquired using Kinect sensor.

Figure 1. Depth images of human gait captured using Kinect V2 sensor (Ahmed et al., 2015)

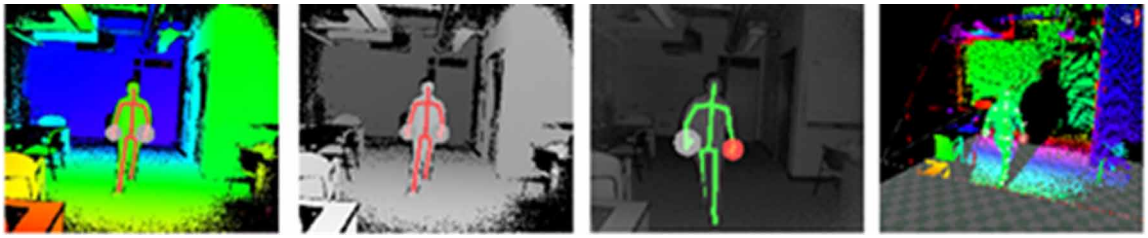

Figure 2 depicts the sequence of body skeleton joints, taken over the period of time, and corresponding to four distinct emotions: Happiness, Sadness, Anger and Fear. As it can be observed, while the body skeleton belongs to the same person in all the sequences, the body position at the corresponding time for different emotions is quite different (see, for example, body skeleton positions recorded at 10, 20 and 22 - the final image in the sequence). The question is how to determine which features characterize emotion expressed through body movements. In order to do it, we shall take a look at the various ways to discover knowledge about human perceptual and cognitive processes, responsible for emotional states (Kisku et al., 2013; Amir et al., 2016; Gavrilova et al., 2017). This acquired knowledge can be utilized to build a system for an automatic emotion recognition. This research attempts to answer the following essential questions:

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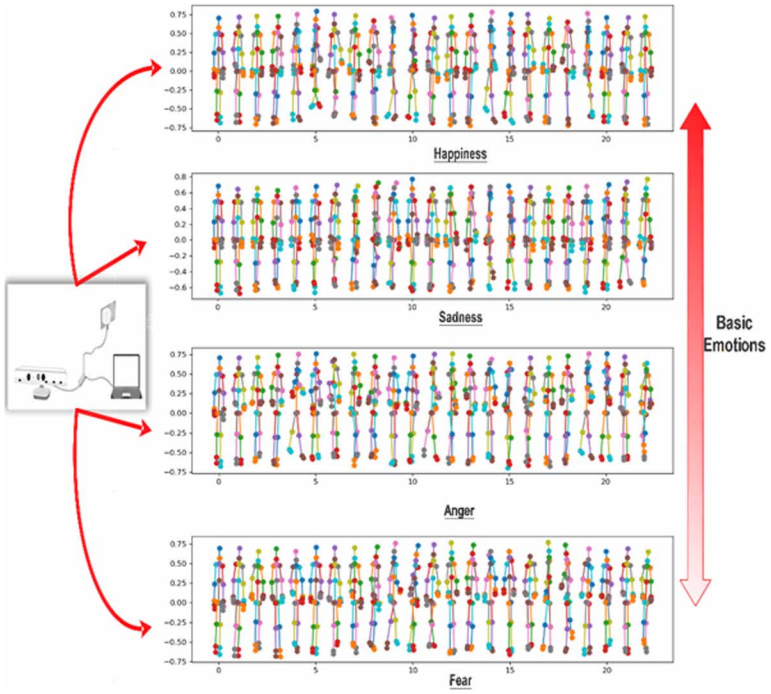
- What are the visual cues embedded in our daily movement that reflect specific emotional response?
- What is the extent of change in an individual's movement pattern with respect to a specific emotional response?
- How does one identify emotion specific spatially localized features and their individual impact for different emotional states?

Figure 2. 3D Skeleton data for different walking emotion extracted using Kinect V2 sensor



One way to respond to such questions is to extract emotion specific features from human gait data based on already established frameworks and further analyze the effectiveness of such features by comparing performances exhibited by various other machine learning methods. One should keep in mind that visual cues present in body movement are very subtle and require significant processing for identification. Information available about the exact nature of encoding of biological and psychological traits from the visual motion patterns is quite insufficient. The emotional states of individuals are expressed using a distinct group of general movement features which are difficult to detect and generalize. For example, moving backwards might be indicative of fear, shame, and surprise. However, a slow drop of head and folded arm position reduces the chance of fear and surprise. Such information is often very contextual, making it difficult to build a robust system.

Emotion From Motion Recognition Systems

An emotion recognition system based on body movement can be modelled in a manner similar to an activity recognition system. However, the selected features must be consistent with physiological traits

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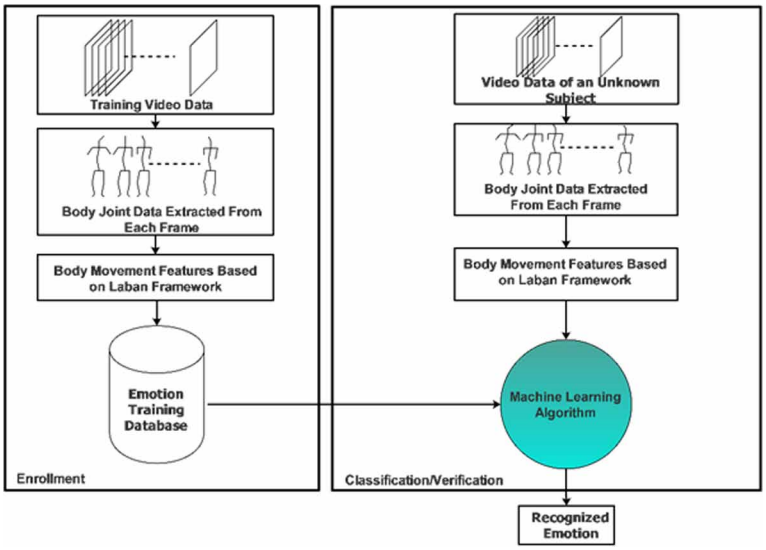
exhibited during a specific emotion. A reasonable approach here is to extract features based on an already established framework. For example, Rudolph Laban theorized a framework known as LMA (Laban Movement Analysis) to extract motion qualities (Laban & Ulmann, 2011). This framework has been used successfully to classify emotions during theatre performance (Aristidou et al., 2015). It incorporated ideas from anatomy, kinesiology and psychology to describe the human movement. The LMA framework has four components, each describing a quality of motion. These components are body, shape, effort and space. The body component generally comprises of structural information like the head inclination and flex angle. The shape component accounts for the change in shape for different emotional stimuli. The average distance of the joints from the base joint data can be used for the shape component. The effort component describes the intention and the dynamic attributes of the movement like kinetic energy and velocity of different joints of the body. Lastly, the space component captures information about how an individual utilizes the space around the body. Contraction index of the upper and lower body is used to measure space utilization during motion analysis of the human body. Figure 3 shows a conceptual flowchart of an emotion recognition system.

Figure 3. Conceptual flowchart of an emotion recognition system



Once emotion specific geometric and kinematic features are extracted, these features are quantized to create a feature vector, which is subsequently used for training and testing purposes in classification task powered by the machine learning algorithms. Supervised machine learning algorithms such as Support Vector Machine (SVM), K-Nearest Neighbor (KNN), and Decision Trees (DTree) have already been used in similar applications for Kinect based action recognition (Ahmed et al., 2016), gait recognition (Ahmed et al., 2015), and in gender recognition from aesthetic preferences using an ensemble of classifiers trained by genetic algorithms (Azam & Gavrilova 2017a, 2017b). It is thus reasonable to assume that these classifiers would produce similar performance for emotion recognition. Multiple expert systems can be trained in conjunction to create a more robust emotion recognition system. Information fusion techniques can be used to combine the scores by varying the individual contribution of the expert systems.

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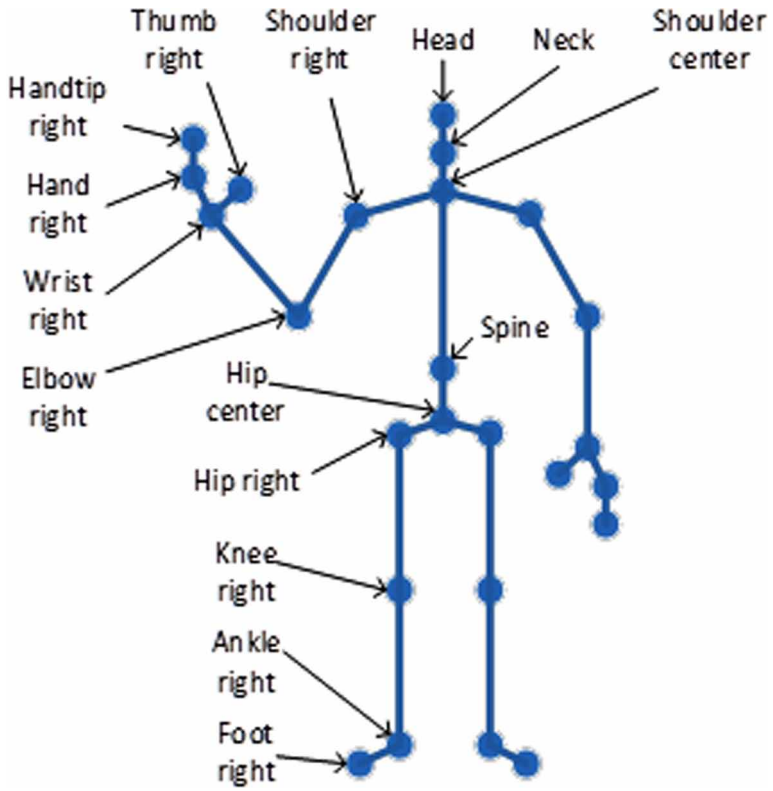
The first work of its kind has been recently reported in Maret et al (2018a), where research on how emotions could be identified and recognized from Kinect recordings of body joints (see Figure 4) was conducted. Their article describes a system capable of recognizing emotions such as friendly, distress, annoyed and neutral, based on body movement. Features extracted from 3D skeleton using Kinect sensor are classified by five machine learning techniques: KNN, SVM, Decision tree, Neural Network and Naive Bayes. A genetic algorithm is then invoked to find the best system parameters to achieve the higher recognition rate. The system achieved 98.96% average accuracy on the small scale experimental dataset recorded under controlled environment. The system integration with embedded hardware for emotion recognition in real time in an emergency response scenario is currently underway (Maret et al., 2018b).

Figure 4. Kinect skeletal joints tracked for emotion recognition



Real-Time Gesture Recognition Methodology

As it was shown in the above discussion, many activity recognition approaches rely on machine learning for feature classification tasks. However, almost no research looked into usage of Kinect in real-time for tasks beyond gait and activity recognition. While there has been a surge in the number of action recognition systems developed based on Kinect sensor technology, recognizing emotion or performing crowd observation from the body movements or gestures has been rarely considered. Very recently, the first embedded hardware device that monitors the number of people inside the confined space using Kinect

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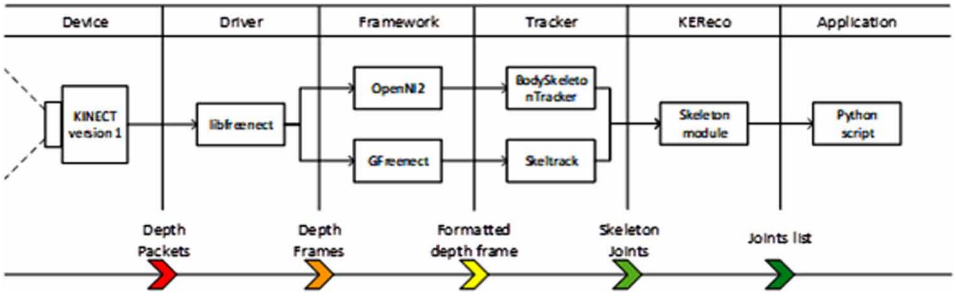
sensor was developed (Munier et al., 2017). This section outlines one of the first studies on the potential use of Kinect in situation awareness systems to provide additional cues in response to an emergency situation. It presents a new framework for using Kinect gait sensor to identify a person in distress, through observation of a person's upper body movement. The classification relies on a commonly used supervised machine learning method: SVM and a framework to integrate Kinect based gesture recognition method with a real-time embedded system.

Figure 5. Real-time gesture tracking system flowchart



The overview of the methodology for the first prototype of a real-time Kinect emotion recognition system is presented below. Figure 5 depicts the flowchart of the proposed method for gesture recognition based on Kinect sensor capturing upper body motion. The tracking library, Body Skeleton Tracker (BST) is proposed to be used with OpenNI2 framework, which provides structured frames. Then, the BST returns the body joints corresponding to hand, elbow, shoulder (left and right), head and shoulder center, as shown in Figure 6. This process is performed using C library and the KEReco library developed specifically as an add-on to a Python script.

Kinect uses infrared sensor and depth image to detect and track a 3D object. The SDK also provides twenty-five 3-dimensional coordinates of the joint locations of the human body. Figure 7 shows the names of the joint locations extracted using Kinect. The coordinate system is transformed to hip center to eliminate the variability of the distance between the Kinect sensor and the subject. The skeleton joint data was recorded for each frame during the entire gait cycle. From the skeleton joint location data of each subject, geometric and kinematic features were collected using a proposed method.

In order to match the data from the BST, the tracking reference point has to be changed. Mathematical transformation have to be made to adjust the view, they are a translation from the top right to the middle of the camera field of view and two symmetry transformations on XZ and YZ axis. Equation 1 shows all the transformations applied.

$$\left(f_2 \, o \, f_1\right)\left(x, y, z\right) = \left(\begin{pmatrix} x \\ y \\ z \end{pmatrix} + \vec{v}_1\right)\begin{pmatrix} -1 \\ -1 \\ 1 \end{pmatrix} \tag{1}$$

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Figure 6. Extracted skeletal joints

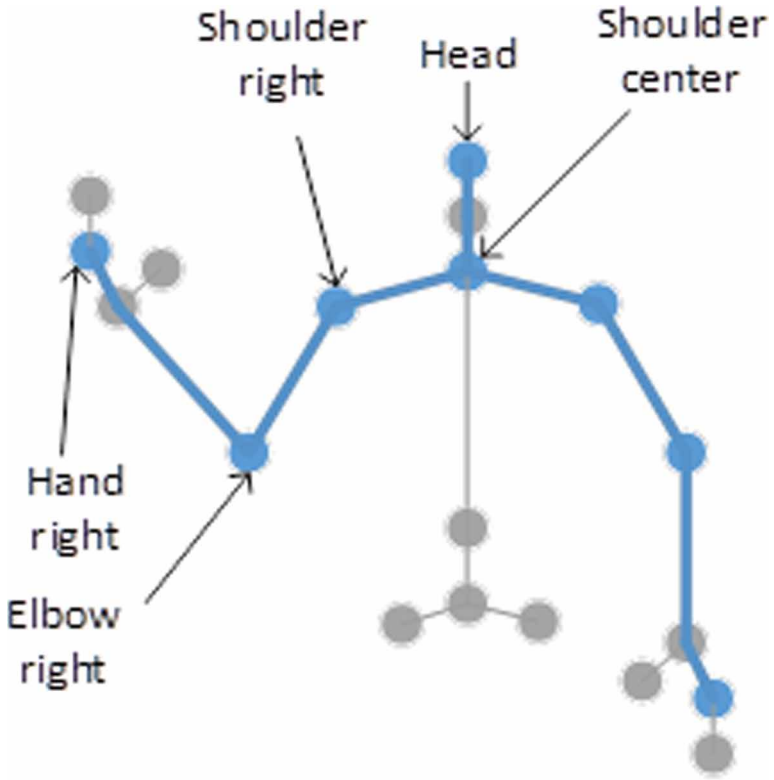

Figure 7. Extracted skeletal joints

A conversion from pixels to meters also has to be performed in order to match the data origin. The grabber process obtains every depth frame from Kinect and stores them in a temporary buffer. When a new frame is saved in the first buffer, any decoding thread can pick a depth frame. Then this thread will decode the depth frame and will return tracked joints. These tracker joints are stored in the second buffer which will be resynchronized if a recent frame is decoded faster than an older (see Figure 8). This process is explained below. The main issue of running a gesture recognition method on the embedded hardware is the skeleton decode time. Running on a single core takes up to three seconds to process all the 30 frames per second (FPS). At most 10FPS can be processed on a single core. The skeleton algo-

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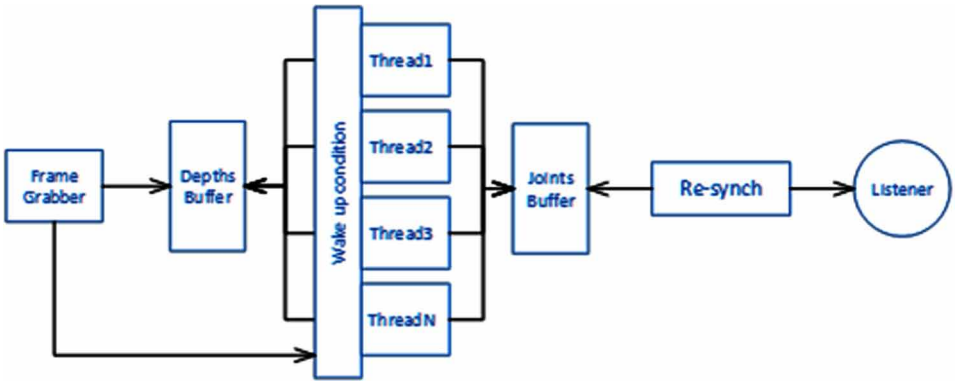
rithm library was optimized to be run in real time. The optimization was done by using more threads to decode the skeleton over multiple cores. The optimization was made by increasing the number of threads that tracks the skeleton from the depth frame. The Kinect grabber thread stores frames inside a buffer where every other decoder threads can pick one of them randomly with the corresponding frame position (FID). A wake up condition activates all threads when depth frames are available. Once the decoder process is finished, all threads store skeleton's joints in a buffer where the frame will be resynchronized. If a thread has the next following frame ID, this thread can notify the callback. If all frame IDs are not consecutive, the thread will continue decoding the next frame. If the next thread can reorder correctly all the frames, then it will flush the buffer to the callback. Note that buffers are thread safe, which means that only a single thread can access the buffer at a time. If a thread is still decoding a first frame and the buffer becomes overflowed, a re-synchronization will be made. Finally, after resynchronization, all joints are sent to the application with a callback. The feature computation is performed similarly to (Ahmed et al., 2016), which used JRD –Joint Relative Distance and JRA –Joint Relative Angle features. In order to recognize emotions based on arm gestures, Support Vector Machine (SVM) classifier was used. The best configuration to use within the SVM classifier was determined experimentally and used 75 features from 15 frames.

The frame buffer was used to hold at most 75 features before a new prediction was made by the classifier. After the classifier prediction, the buffer removed the oldest frame. The extracted features from the next frame would then be added to the buffer and a new prediction made.

Figure 8. Extraction joints optimization



Experimental Results

Some preliminary results obtained on a small scale sample dataset demonstrate that gestures are correctly recognized in real-time. The dataset consisting of eight subjects with four gestures was collected using Kinect version 2. The training set contained four gestures recorded at two distances: one collected two meters away from the Kinect and a second collected four meters away.

The experiments were run using two-fold cross-validation. This dataset was used to train the SVM classifier in order to predict confidence rate in a given gesture over other gestures. The main experiment is based on recognizing emotions from gestures in real time. Emotions to be recognized were: friendly,

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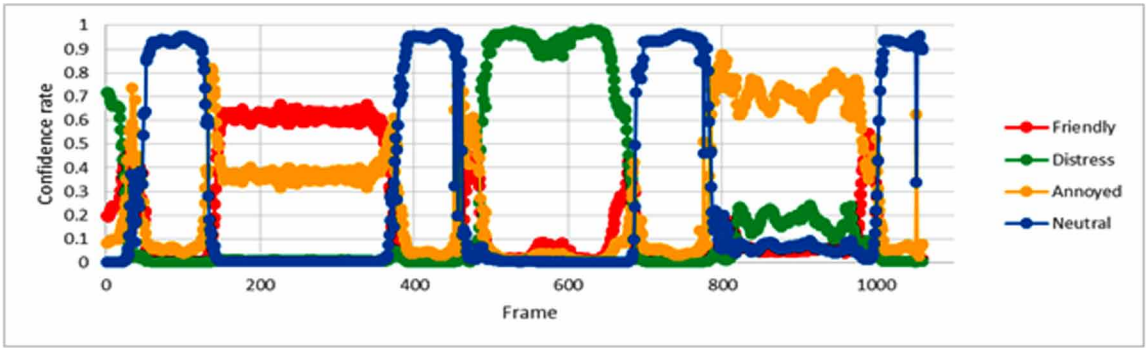
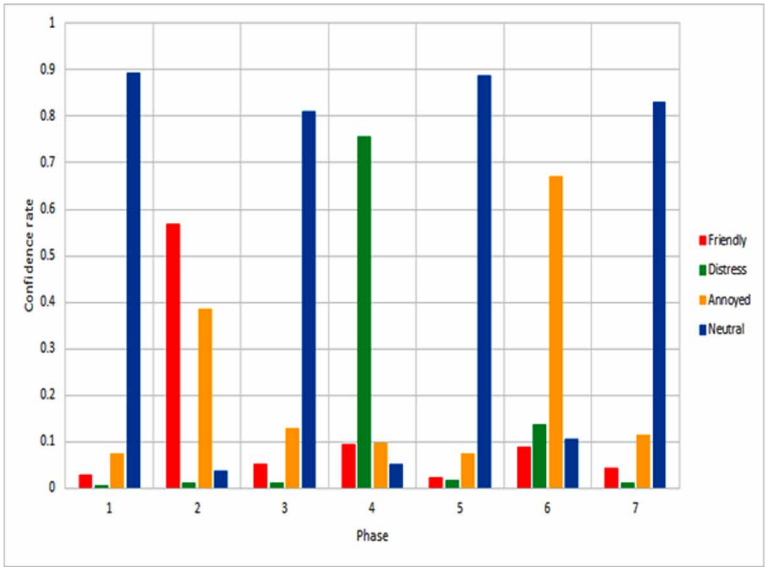
Figure 9. SVM continuoud gesture recognition on embedded system



neutral, distress, neutral, annoyed and neutral. The neutral state was held for 5 second while others emotions for 10 seconds. The experiment was made using the SVM classifier and the Kinect V2 sensor. The Microsoft Kinect SDK 2 tracked all skeleton joints. From these joints features were extracted and then predicted by a classifier with the obtained confidence rate presented in Figure 9. These preliminary results demonstrate that the methodology is suitable for real-time body gesture recognition and the subsequent rescue operations. In order to avoid the transition effect when gestures changed, a threshold for gesture to be stable for 30 frames was set, which mitigated the issue. Another observation is that friendliness and annoyance were the two closest gestures, while all the other gestures were easily distinguishable. SVM confidence was above 85% for each gesture, computed according to the distance from the hyperplane.

Figure 10 shows a sequence of emotions from gestures, accurately recognized in 100% of cases in real-time for each frame. Note that since the developed hardware prototype is the first system of its kind, no comparators exist that could identify the four gestures based on sensor based recorded arm movement

Figure 10. SVM real-time gesture recognition results



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at the time. Thus, in order to validate our results, we extracted the AuC data for seven difference scenarios where the subject was asked to perform a sequence of arm gestures (Table 2 and Table 3) and the Confusion Matrix (Table 4 and Table 5). We performed experiments to compare method performance for PC (Personal Computer) and ES (Embedded System). The results demonstrated that both could predict the correct emotion with up to 97.7%. Note that the accuracy of the predicted class vs actual class was highest for PC for emotion of distress. This is the expected result, and very useful as the main intent of the system is to recognize a person who requires the assistance in emergency situations. The lowest recognition was for Friendly emotion (70.2% on PC, 61.7% on ES). The rest of the results were very high, with Distressed and Neutral emotions being recognized correctly in over 90% cases for both PC and ES, and Annoyance recognized with over 70% accuracy for ES and over 90% accuracy on PC. We conclude that for neutral emotion, the recognition rate is the same for PC and ES. For dynamic emotion recognition, the BodySkeletonTracker (BTS) performs slightly worse than the Microsoft SDK. We assume that this is due to the real-time tracking process implemented on the hardware. Further research is required to investigate this issue more comprehensively.

Table 2. Four emotions AUCurve for ES

		Area Under Curve			
		AUCFriendly	**AUCDistress**	**AUCAnnoyed**	**AUCNeutral**
Scenarios	1	0.479	0.216	5.564	89.74
	2	177.609	1.919	89.103	11.367
	3	1.128	0.728	6.258	116.884
	4	10.778	228.999	18.003	8.218
	5	0.975	0.89	6.275	110.858
	6	2.318	16.857	253.25	17.573
	7	1.432	1.251	6.751	119.564

Table 3. Four emotions AUCurve for ES

		Area Under Curve			
		AUCFriendly	**AUCDistress**	**AUCAnnoyed**	**AUCNeutral**
Scenarios	1	0.641	0.284	4.731	70.341
	2	140.861	3.025	100.381	15.731
	3	0.55	0.277	4.899	67.273
	4	23.468	176.992	22.352	6.186
	5	0.794	0.479	6.706	86.019
	6	21.768	30.831	150.526	18.873
	7	0.401	0.291	3.658	43.648

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Another observation is that the Microsoft skeleton is more stable when the same arm movement is of a certain duration, while the BST skeleton is less stable during transition. The BST system has to recalculate positions of joints during an arm movement and an emotion change. Despite that, the BST system provides a reliable real-time solution on an embedded board, which can be used in multiple real-world scenarios. The overall deviation of the embedded system prediction from the PC version is about 9%, which can be tolerated because the identified human emotion and the arm movement recognition still remains correct in all cases.

Table 4. Confusion matrix for Predicted Class for PC

		Predicted Class			
		Friendly	**Distress**	**Annoyed**	**Neutral**
Actual Class	Friendly	0.702	0.007	0.282	0.007
	Distress	0.004	0.977	0.008	0.009
	Annoyed	0.008	0.063	0.903	0.024
	Neutral	0.008	0.005	0.052	0.932

There are many application domains for the developed system. Emotion recognition systems can be used to enhance the decision-making capability of human operators. For security at an airport and surveillance systems, behavioural and other physiological traits can be monitored to capture true intention of a person [Adey 2009]. Assisted technologies can be developed to improve human-computer interactions. Intelligent avatars and other interactive dialog systems can improve user's experience while accessing smart communication devices (Faundez-Zanuy et al., 2013). Finally, emotion recognition system can also be used in rescue operations or in a patient observation scenario. Typically, an expert will observe emotions expressed through gestures or body movement to identify signature behaviour in the patients. An intelligent system capable of distinguishing emotional states of an individual can be useful for monitoring a patient and for making quick responses. The extension of this research will assist not only in establishment of new methodology in the domain of biometric security, but also in assisting new method integration in the health care domain, providing personalized healthcare targeting to specific patient needs.

Table 5. Confusion matrix for Predicted Class for ES

		Predicted Class			
		Friendly	**Distress**	**Annoyed**	**Neutral**
Actual Class	Friendly	0.617	0.01	0.366	0.006
	Distress	0.029	0.945	0.02	0.005
	Annoyed	0.058	0.159	0.713	0.068
	Neutral	0.005	0.003	0.056	0.932

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DEVELOPED METHODOLOGY IN DISASTER RESPONSE AND MEDICAL APPLICATIONS

While the previous section discussed in detail how biometric sensors can capture and process biometric information from body movement, and recognize gestures in real-time, this section gives emphasis on the extension of this emerging research to the fields of medical patient treatment and disaster response. The prototype system presented in the previous section can be used in one of many emergency scenarios, as well as in multiple medical applications.

Although the scale and the methods may vary, technology has always played a crucial role in ensuring public safety. Within the domains of rescue operations and natural disaster recovery, biometric technology offers a promising future for first responders and victims alike. In life threatening rescue operations, technology needs to be accurate, portable, reliable and inexpensive. Microsoft's Kinect lends itself thoroughly to this effort by offering compact sensors at a comparatively low cost (Zhang et al., 2013). Rescue operations often take place in harsh environments which can be described as uncertain, dynamic, hazardous and lacking in resources (Wong et al., 2017). This is especially true in a case of natural disasters, where communication may be limited and unstable. Due to the possible number of victims following every crisis, manual labor alone can prove impractical when the affected area is substantial. With these constraints in mind, research into autonomous systems combined with Kinect sensors have recently gained traction (Al-Kaff et al., 2017; Osman et al., 2017; Wang et al., 2017). While the application of the Kinect in real life scenarios can be limited due to occlusions, unfavorable lighting, noise and distance to a sensor, methodologies that seek to overcome those limitations are currently being actively developed. Some examples of such applications can be found below.

Natural Disasters

In the aftermath of a natural disaster, the natural environment can have noxious fumes, fires, exposed powerlines or unstable debris. Rescuer and victims' safety is a primary concern when navigating a disaster zone. Recent research has proposed the use of automatic approaches for providing aid and accessing the environment. By employing biometric identification algorithms, Kinect can be used to recognize and locate victims in distress. It was recently demonstrated that the Kinect RGB-D sensor can be used to construct a 3D model of an indoor environment, which may be too dangerous for humans to reach (Wang et al., 2017). Research has also been done to develop identification of persons and objects for Unmanned Aerial Vehicles (UAVs) during airborne rescue operations (Al-Kaff et al., 2017; Osman et al., 2017). These works are focused on decreasing human involvement in potentially dangerous situations, while remaining effective and robust in a limited environment. Usage of Kinect depth maps have been considered for disaster detection as well. Improved methodologies that handle occlusion of turbid waters for earthquake or tsunami detection have been tested in a lab setting, with experimental results outperforming current methods (Liu et al., 2017).

Refugee Camps

Large displacements of people are difficult to keep track of, particularly when the matter can evolve into a national security concern. It is very taxing for governments to deal with the maintenance of refugee camps or disaster centers, which often results in missing or unreported people. Biometric technology

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can reduce confusion because it does not require paperwork and has multi-modal systems to ensure accuracy. Microsoft's Kinect can employ gait recognition in refugee scenarios due to its speed, low cost and unobtrusive nature. Previous research supports the use of multiple Kinect sensors within the same system to increase coverage without a loss in accuracy (Banerjee et al., 2013). This would result in decreased queue times, more organized registration and accurate records. The non-pervasive gait identification additionally makes data collection more acceptable compared to other biometrics, such as traditional fingerprints for example.

Hostage Situations

There are many constraints to operations when hostages are involved. Technology must be compact, covert and silent to ensure victims safety. The Kinect sensors excel in this field because of its small size and ability to produce both RGB images and depth maps. Gesture recognition could see much usage in hostage situations, as the rescue team could communicate with the technology while being at a distance and without a sound. Morse code, for example, can be deciphered by the Kinect with relevant algorithms (Li et al., 2017). Extensive research into hand and finger tracking using the Kinect exists, though optimal performance occurs only in certain circumstances (Smari et al., 2016). Additional research involves the incorporation of the Kinect into radar biometric detection by simulation of Micro-Doppler signatures. These signatures can deliver biometric details including heartbeats, blood vessels and breathing, with certain methods that can detect vital signals through walls (Amir et al., 2017).

Neurological Disease Treatment

As it was noted above, Kinect sensor is a light, a portable and a convenient device, which makes it useful not only for disaster and recovery, but also for medical providers and their patients (Roy et al., 2013; Stone & Skubic, 2013). In 2012, research team (Fernandez-Baena et al., 2012) compared the accuracy of optical motion capture professional system with reflective markers and Kinect motion capture in capturing joint angle data. They concluded that the precision of the Kinect is lower than that of an optical capture system, but its accuracy is sufficient for medical rehabilitation.

Some neurological diseases (such as stroke, Alzheimer's disease) and limb dysfunction caused by external trauma can seriously affect the patient's motor ability and quality of life. Intensive and repetitive training can help patients with physical rehabilitation and neural reorganization. Traditionally, physiotherapy and rehabilitation training is performed at a rehabilitation center of a hospital, and the patient needs to wear a tracking device. Several studies have evaluated the accuracy and feasibility of using Kinect for motion capture in rehabilitation systems. For example, in Chang et al (2011), researchers assessed the possibility of using Kinect-based system for rehabilitation of young adults with motor impairments. They used an A-B-A-B reversal replication design and reached a conclusion that Kinect-based systems enhance the therapeutic effect due to their interactive interface with audio and video feedback. However, the results were based on only two cases and more participants should to be used to validate the study. In Lange et al. (2011), researchers developed and evaluated an interactive game-based rehabilitation tool for balance training of adults with neurological injury. They demonstrated that the system was very well accepted by the patients.

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Elderly Care and Rehabilitation

Elderly care and rehabilitation recently emerged as the two main directions in this field. In 2012, Stone and Skubic presented initial results of monitoring the gait of seven older adults continuously, using a Kinect sensor, along with a methodology for computing average gait parameters which may be predictive of future falls and adverse events in older adults (Stone & Skubic, 2012). In 2012, Zhang et al (2012) designed a method of extracting data from 2D images when a human subject was out of range of the Kinect's depth sensing, to enhance fall detection system capability. Soon after, researchers designed a Kinect-based system for in-home rehabilitation exercises monitoring and guidance (Zhao et al., 2014). The system implemented a set of correctness rules for each exercise and assessed the patient's movement in real-time to help the patient perform the exercise correctly. In addition, it provided an interactive feedback to patients for rehabilitation exercise monitoring applications.

Virtual and Augmented Reality for Medical Systems

Over the past decade, many researchers have focused on finding appropriate sensors and computing technology for motion capture to help develop ancillary medical systems (Chang et al., 2011; Fernandez-Baena et al., 2012). Virtual and augmented reality systems are being developed and tested to motivate patients. Use of such systems makes repetitive exercises more useful and interesting, and many of such systems are currently based on Kinect sensor. Kinect was intended as a game equipment, thus many studies combined its initial function with medical rehabilitation to design game-based rehabilitation system. In 2012, Gotsis and his team (Gotsis et al., 2012) designed an integrated hardware (consisting of a custom metal rig, six game tracks, a Microsoft Kinect, a laptop and a large screen) and software platform for rapid prototyping of virtual reality-based games for upper body exercise and rehabilitation. At the same time, Huang et al (2012) designed a smart glove for motion and finger angle extraction and integrating with Kinect for an upper extremities gaming application. However, such systems have to be more entertaining so that the patient could be better motivated. In 2013, a system known as "Kinect-o-Therapy" was developed, which incorporated serious games that process 3D input using the Microsoft Kinect motion sensor to build an effective rehabilitation system that gives feedback to the patient and the doctors (Roy et al., 2013). It used real-time motion capture data to animate characters in game, making rehabilitation more fun, engaging and rewarding. Since then, many researchers have focused on using Kinect in combination with motivating and fun recovery games, feedback systems with motion tracking, and medical systems for in-home use.

OPEN PROBLEMS AND FUTURE RESEARCH DIRECTIONS

As Kinect sensors emerged only recently as an active area of research with multiple applications, there are many problems and directions for the future work. Emotion recognition is an emerging area of research and has put forth several open-ended questions to the scientific community. One crucial question that needs to be answered is *whether body movement can be used as a standalone communication channel for emotional expression.* Research conducted up until now shows that it is beneficial to use body movement features in a multi-modal system alongside facial and voice features, as typically this results in a better performance for most practical applications (Gavrilova & Monwar, 2012). Biometric fusion can

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also in the future automatically recognize in real time if a patient is experiencing distress, and to inform health care provider on patient-specific recommendation of exercises or treatment.

Many spatially localized features can be extracted from the analysis of body movement. Finding out *the right subset of features and their individual contribution to classify emotion* is still an open problem (Maret et al., 2018a). Algorithms such as particle swarm optimization (PSO) and genetic algorithm (GA) can be used to generate the right subset of features along with the correct weight distribution to measure the individual impact of such features in emotion recognition. Finally, testing those methods on large-scale datasets in real-time will assist in providing definite answers to the open problems posted above.

One of the key issues is optimizing methods for *actual application outside of testing environments*. The constraints of size, speed, cost and accuracy have always been a limiting factor (Lange et al., 2011). Much of the proposed future work includes expanding the conditions in which Kinect can acceptably function. Since real disaster scenarios will not have favorable conditions, research must be done to address the innate weaknesses of the sensors or methodologies. This can include work into occlusion correction, lighting tolerance and noise filtering. Once usage of the Kinect is more universally applicable, mass adoption into rescue processes seems most logical.

In order to integrate the Kinect sensor in core medical applications, *a critical validation step is needed*. This will provide proper evaluation of the accuracy and latency of the action capture data obtained from Kinect for special diagnostic scenarios. In 2015, gait analysis of patients with Parkinson's disease (Bigy et al., 2015) was studied using healthy actors in a laboratory environment. Next year, the accuracy, precision, resolution, various measurement distances and angles of both Kinect 1 and Kinect 2 were investigated (Pohlmann et al., 2016). However, more studies to evaluate patient benefit in a controlled and randomized fashion should be performed in the future.

Another challenge in medical applications based on the Kinect is that repurposing a technology initially intended for young and healthy people into a system for elderly patients *requires new design strategies for the physiological and the psychological considerations* (Adey, 2009). First of all, medical rehabilitation games based on Kinect should be designed with high standards of captivating and long-term enjoyment potential while maintaining seamless methodologies of adaptation and monitoring of players' needs. But overexertion injuries in both individual movements and length of play are not encouraged. Also, user-friendly interfaces should be applied and wearable system should not be bulky. Thus, making existing medical systems more ergonomic is another open problem.

As the Kinect is an inexpensive device, some factors may affect its performance which may make it inadequate for some medical applications that require a high-level of accuracy. *In a multi-modal and multi-sensor scenario*, this issue should be carefully investigated. Over recent years, a new approach that advocates the use of multiple Kinect sensors was introduced to improve the data capturing accuracy. For example, (Beyl et al., 2013) discovered that the use of multiple Kinect sensors and careful calibration in the challenging uncontrollable environment during surgery could provide a median accuracy of 19.8 mm; however, the maximum error was around 100 mm, which was still too high to be practical. In addition, other sensors and equipment can be fused with Kinect to enhance quality and accuracy in the future through multi-modal and multi-sensor systems. Finally, *issues of data privacy* in the context of medical, virtual reality or search and rescue operations should not be overlooked.

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CHAPTER SUMMARY

This book chapter outlined the current state of the art of Kinect gait and activity authentication, while focusing on emotional cues that could be observed from human body and posture. It presented a prototype of a new system which combined recently developed behavioral gait and posture recognition for human emotion identification. It then presented an overview of the first real-time gesture recognition system which could be used in emergency response or situation awareness systems, together with preliminary experimental results. The survey of recent progress and open problems in the areas of medical patient rehabilitation and rescue operations as linked to sensor based body movement concluded this chapter.

The chapter outlined some of the future directions of sensor based motion tracking research for a variety of application. The key open problems that should be addressed in the future research were also identified. They include introduction of new multi-Kinect and multi-sensor approaches for medical scenarios; development of the occlusion correction, lighting tolerance and a noise filtering methods; integration and testing of developed methodologies in real-time; careful assessment of the use of sensors for patient rehabilitation on a larger population sample and on different types of skeletomuscular conditions. In addition, it was pointed out that the multi-disciplinary team of experts should be involved in deploying new technology-enabled methodologies, and a special care and consideration should be given to privacy aspects of collecting and processing sensitive data.

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Chapter 33
Stroke Rehabilitation and Parkinson's Disease Tremor Reduction Using BCIs Combined With FES

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ABSTRACT

This article describes how Stroke and Parkinson's disease are two illnesses that particularly affect motor functions. With the advancements in technology, there is a lot of research focusing on finding solutions: to contribute to neuroplasticity in the first case, and to reduce symptoms in the second case. This manuscript describes the design of a brain-computer interface system (BCI) system paired with an electrical muscle stimulation suit for stroke rehabilitation and the reduction of tremors caused by Parkinson's disease. The idea is to strengthen the sensory-motor feedback loop, which will allow a more stabilized control of the affected extremities by taking into account the patient's motivation. To do so, his brain signals are measured to detect his intention to attempt to execute a movement, in contrast to the classical approach where the movement executions are imposed. A first feasibility study was completed. The author's next step is planning to test the system first with healthy subjects and finally with patients.

INTRODUCTION

This manuscript describes the design of a non-invasive EEG-based Brain-Computer Interface (BCI) system for motor recovery of stroke patients and for tremor reduction in patients with Parkinson's disease. Patients suffering from these diseases present motor impairments that prevent them to fully live

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their daily lives. In the case of stroke, some motor functions can be recovered some time after the stroke given a suitable rehabilitation therapy. Parkinson's disease symptoms on the other hand tend to worsen as time passes.

Several rehabilitation methods, such as Robot-assisted arms, Functional Electrical Stimulation (FES) and BCI combined with exoskeleton are examples of technology-based rehabilitation therapies (Ramos-Murguialday et al., 2012) being used, some with more success than others are. Nevertheless, in the end, the most important factor in the success of a rehabilitation therapy is the patient himself. Indeed, most of these therapies require the patient to perform the same movement multiple times. In the long term, the patient will lose interest since he gets bored by repeating the same exercise several times. This increasing boredom will consequently affect his motivation. Bhagat et al. (2014) demonstrated that a lack of the latter would limit the effectiveness of the rehabilitation process.

Lew et al. (2012) successfully extracted brain signals signatures indicating volitional upper limb movement intention from healthy persons, and detected the intention as early as 1500 ms before the movement onset. Bhagat et al. (2014), Ramos-Murguialday et al. (2015) and Yilmaz, (2015) performed similar experiments with stroke patients. Those studies suggest that it is possible to develop closed-loop brain-machines interfaces driven by the user's voluntary movement intention (Spüler et al., 2014). Plus, FES-based therapy has proven to be very promising for motor recovery during stroke rehabilitation (Noma et al., 2014).

Here, a system that combines BCI with a VisionBody suit that provides Electrical Muscle Stimulation (EMS) is proposed. The VisionBody suit is chosen to facilitate real-world applications. This suit, originally used in fitness and sports, provides Electrical Muscle Stimulation through electrode pads - located in the arms, legs, breast, etc. - directly to the skin in direct proximity to the muscles to be stimulated. The impulses delivered by these electrodes mimic the action potential coming from the Central Nervous System, causing the muscles to contract.

Our aim is to overcome patients' boredom and lack of engagement to the rehabilitation tasks by allowing them to execute voluntarily the required movements and detecting those intentions using their brain signals. As soon as an intent to move is being detected, the VisionBody suit will be used to deliver the electrical stimulation to the patient's muscles to assist him in the movement production in the case of stroke, and to suppress tremors that may occur while executing a movement in the case of Parkinson's disease. Otherwise, if no intention to move is detected, no support for the movement via Functional Electrical Stimulation (FES) will be provided. By doing so, it is intended to strengthen the sensorimotor feedback loop in order to stabilize the control of the affected extremities. A more positive engagement is then expected from the patients. This has the potential to increase the functionality of the affected limbs, and reduce fatigue by minimizing the energy consumption, the ultimate goal being the improvement of the daily lives of the patients.

The manuscript is organized as follows: first, an overview of stroke and Parkinson's disease is presented, followed by some rehabilitation techniques and treatments used for the two illnesses; then, the tools and methods used for the experiment were presented along with some results.

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BACKGROUND

Stroke

One of our target groups is stroke survivors. Stroke is among the leading causes of adult disability in the so-called developed countries.

Causes

It is caused by blocked or burst blood vessels in an area of the brain, which cause the blood flow in this area to be cut-off. The lack of oxygen will cause the brain cells to die and the abilities controlled by these areas, such as motor function or memory, will be lost (Bornstein, 2009).

Treatments and Rehabilitation Techniques

9 out of 10 stroke survivors have some degree of paralysis immediately after the stroke. They will then need to relearn those lost skills by the means of rehabilitation therapies, which may involve regular physical therapies or therapies that involve the use of technology, in order for them regain some independence and improve their daily lives (Kwakkel et al., 1999). Continuous rehabilitation and therapy can help stroke survivors regain voluntary movement even years following their stroke. For the moment, several methods are used to help movement recovery in stroke patients.

Functional Electrical Stimulation

Functional Electrical Stimulation uses electricity to stimulate weakened muscles and to cause them to contract. It has been successfully used to improve motor control in chronic stroke patients (Noma et al., 2014). Qu et al. (2016) built a network-based multichannel neuromuscular electrical stimulation system for people with paretic stroke to assist them with multi-joint movements. The system was tested both with nondisabled subjects and with subjects with stroke. Moreover, results showed that the patients improved their performance in executing these multi-joint movements.

The methods mentioned above require the patient to perform the same cue-based movement multiple times during a session. Over time, he may lose interest and this will affect his motivation. Which in turn, will reduce the effectiveness of the rehabilitation therapy. Engaging the patient in the therapy, by encouraging him to attempt to move on his own and at his pace, may overcome that. For stroke patients with some residual muscle activity, for example, EMG can be used to trigger FES. This allows the detection of voluntary movement even from the smallest electrical EMG signal. Which, in turn will be used to initiate the stimulation of these muscles and help produce an actual movement (Gabr, 2005).

EEG-Based Brain-Computer Interfaces

The first tool used in this study is the brain-computer interface (BCI). A BCI allows interfacing the brain and a computer by translating the electrical signal of the brain into control signals for external devices such as a robotic arm, a virtual keyboard or a virtual mouse. To do so, special electronic sensors are attached to the head and hooked to a computer where the electroencephalogram (EEG) is recorded. These

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sensors can be invasive or non-invasive. A typical BCI system consists of a signal acquisition module, a signal processing module, a module for features extraction and classification that translates the results of the features classification into a feedback or a device command.

Brain signals recorded from invasive electrodes have very good signal to noise ratio, as opposed to non-invasive electrodes. But invasiveness requires the electrodes to be implanted surgically. Anyhow, invasive-BCI has been widely used to restore mobility on paralyzed patients, especially those with spinal cord injury (Bouton, 2016; Leuthardt, 2004). The brain delivers information about a movement. It controls the corresponding muscles and triggers the movement. In case of spinal cord injury, the pathway from the brain to the extremities is compromised, resulting in the incapacity to perform voluntary movements. BCI can then be used as an alternative pathway to control the limbs. In other words, it is used as an artificial connection between the brain and the limbs, to bypass to some extent the lost connection. Brain-Computer Interfaces come into play by detecting the intention to move from the acquired brain signals, and by translating them into command to an external device, such as a robotic arm or to trigger an electrical stimulation to the muscles to produce the desired movement (Ethier, 2012).

A similar experiment has been conducted with non-invasive BCI, for the first time in 2003 in a patient suffering from tetraplegia (Pfurtschellera, 2003). The author wanted to prove the feasibility of controlling a FES using three pairs of surface electrodes by a patient with spinal cord injury with complete motor and sensory lesion. After 10 months of training, the patient was able to grasp a cylinder with the paralyzed hand.

As opposed to spinal cord injury where there is no brain damage, the messaging between the brain and muscles may not work properly when parts of the brain are damaged after a stroke. It usually concerns the side of the body opposite the side of the damaged brain, the arms or the legs most of the time. And this raises the question whether it is possible to use EEG signals from the damaged contralateral hemisphere to detect the patient's intention to move. Recent research on BCI for stroke rehabilitation shows that it can work as assistive BCI to support the patient in his daily life, but also as rehabilitation BCI to facilitate neuroplasticity (Soekadar et al., 2015). Earlier researches show that following a stroke, the hemisphere responsible for organizing a movement of the impaired limb depends on the patient's progress. For those who did not make a good functional recovery, the ipsilateral hemisphere plays the role. For those who made a nearly complete recovery, it is the contralateral hemisphere (Serrien, 2004). Antelis et al. (2015) were able to decode movement intentions from six severely affected stroke patients attempting to move their paretic arm by means of brain activity of the healthy contralesional motor cortex. Yilmaz et al. (2015) discovered that Movement-related slow cortical potentials (SCPs) amplitudes can be observed and are larger over the midline areas for paretic hand movement in severely paralyzed stroke patients. They are larger than in the contralateral and midline area compared to the ipsilateral area for healthy hand movement.

Thus, it is possible to detect movement intention from the brain activity of stroke patients. However, most research only focuses on the control of robotic devices and rehabilitation therapies consisting of repetitive cue-based movements. Furthermore, the devices used for rehabilitation, whether they are EEG-based or not, not only help the patient performing the movement but also completed it. The patient does not need then to make the effort to finish the movement; he just needs to start it. This lack of engagement from the patient will then result in an unsatisfying outcome of the training (Bhagat, et al. 2014). On the other hand, Soekadar et al. (2015) noticed remarkable improvements of motor and cognitive capacities in patients training with a goal-oriented behavioural therapy. This suggests that the patient's motivation and engagement play an important role in the rehabilitation process.

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Parkinson's Disease

The other target group of this research is Parkinson's disease patients. It affects the motor system and typically appears between the ages of 50 and 69, with symptoms worsening with time. At the beginning of the disease, the most obvious symptoms are shaking, rigidity, slowness of movement, and difficulty with walking. These symptoms are the result of the death of cells in the *subtantia nigra* that produce dopamine (Janvkovic & Tolosa, 2007).

Causes

It is known that secondary Parkinson's disease is caused by toxins, but there is no known cause for primary Parkinson's disease. There is no cure for the condition at the moment. However, the symptoms can be reduced or inhibited with medication and surgical procedures.

Treatments for Tremors

There are several types of tremor. Rest tremor is a well-known symptom of the condition. It appears mostly during rest and affects the patient in his everyday tasks. It affects mostly the hands and the head, and is an approximately rhythmic and roughly sinusoidal involuntary shaking at a frequency of 3 to 6 Hz (Grimaldi et al., 2010; Janvkovic et al., 2007; Manto et al., 2003). In contrast, action tremor appears when the patient is performing every day's task such as holding a magazine or drinking from a cup.

Tremors have been treated with medication, but with not much success and a lot of side effects. However, they have been well controlled by Deep Brain Stimulation (DBS) (Benabid, 2003; Limousin et al., 2008).

Deep Brain Stimulation

Deep Brain Stimulation (DBS) is a surgical procedure that place electrodes into parts of the brain such as the subthalamic nucleus, the globus pallidus interna or the thalamus. These electrodes produce electrical impulses to stimulate the target area. This will affect movement by altering the activity in that area of the brain. In case of tremor caused by Parkinson's disease, the electrodes are usually placed on the thalamus (Munhoz, 2016). Benabid et al. (1987) were able to relieve tremors from patients who were resistant to drug therapy by combining thalamotomy and stimulation to their brain. Like every other surgery, DBS surgery is a very risky procedure. Moreover, the patient selection process is also very competitive; not every subject who wants to undergo the procedure will be granted his wishes (Munhoz et al., 2016).

Other Methods

In their research, Manto et al. (2003) were able to successfully reduce tremors from patients. To do so, they extracted characteristics such as force, position, velocity and acceleration of the pathological tremor, and used them to define the loads or forces' parameters required to be able to counteract its action.

Zhang (2016) from Microsoft Research Cambridge built a tremor-reducing wearable device to counter the effects of tremors in a 33 years old woman diagnosed with Parkinson's disease, allowing her to write and draw more precisely than before.

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MOTIVATIONS

Previous researches have shown that despite the brain injury after stroke, it is possible to detect patients' movement intention. In addition, the importance of patients' motivation and engagement during rehabilitation has been demonstrated. Rehabilitation methods using robot-assisted arms or neuromuscular electrical stimulation require the patient to repeatedly perform a given movement. Over time, the monotony of these methods affects the patient's interest and decreases his motivation. This lack of motivation limits the effectiveness of the rehabilitation process. The proposed system aims at taking into account the patient's motivation and increasing his engagement in order to improve the outcomes of the therapies and the treatments. The hypothesis used in this approach is that due to the connection of the patient's intent with the supporting stimulation, the sensory-motor feedback loop will be to strengthen resp. re-established and this will allow future movements to be performed without engaging the system.

On the other hand, tremor has been quite unsuccessfully treated with medication, but has been well controlled by Deep Brain Stimulation (DBS). DBS is very invasive and the process to choose patients for the surgery is very selective. Electrical stimulation has the potential to counter the effect of tremors, with the advantage of being non-invasive. In this case, BCI will be used to detect the patient's intention to move and in addition, Electromyography will be recorded. The latter will then be used to define the electrical stimulation parameters necessary to counter the effect of the tremors. This has the potential to improve the daily lives of Parkinson's Disease patients by reducing fatigue for instance.

In both case, a VisionBody suit will be used to facilitate the application of the system in real life environment.

PROPOSED TOOLS AND METHODS

System Design

The overall system design is shown in Figure 1. The system consists of:

- **A computer screen:** This screen is mainly used to display the cues to the subjects during the experiment. The stimulus presentation was programmed using BCI2000;
- **A 16-channel g.USBamp acquisition device from g.tec (Austria) connected to a laptop on which BCI2000 is installed:** Brain signals are acquired using the g.tec amplifier. BCI2000 and self-written signal processing (see Figure 1) are used to process and classify the obtained raw signal. The laptop is also used to store the raw data;
- **A VisionBody exosuit:** Once the system detects patterns that indicate an intention to move, the computer sends a control signal to the VisionBody suit. That will then activate the electrical stimulation to the muscles. The communication between the computer and the suit is established via Bluetooth.

An experiment comprises two sessions, a calibration session and a training session. The calibration session is used to train the classifier for each and every subject. Figure 2 shows the course of a calibration session. Each session is composed of a number of trials and each trial starts with a preparation period of 1s. The EEG signals obtained during this period are used to establish a baseline. A second cue

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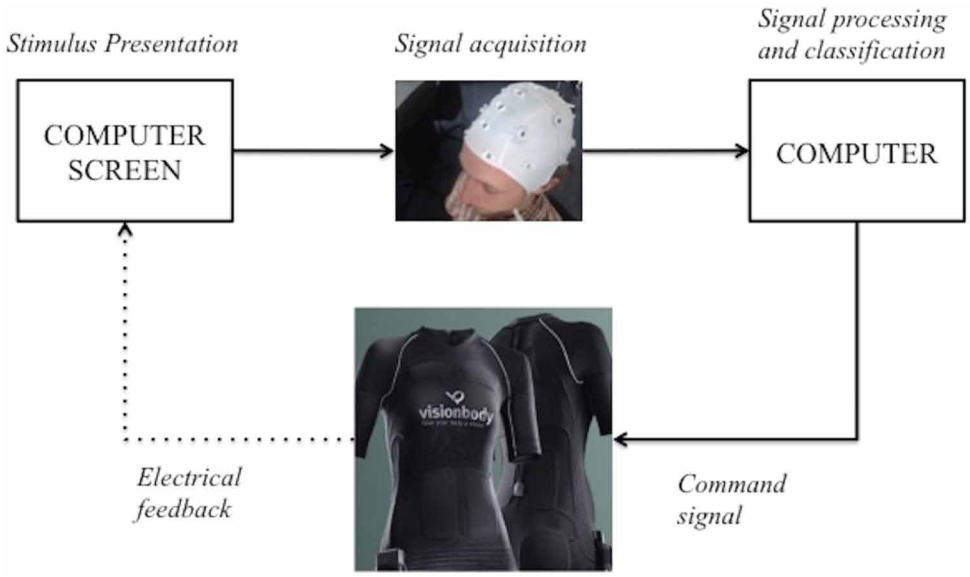
Figure 1. System design: The BCI system is composed of a computer for stimulus presentation and data analysis, a signal acquisition tool using a 16-channel g.USBamp from g.tec. The feedback loop is executed using a VisionBody suit that is triggered when the system detects the subject's voluntary movement intention.

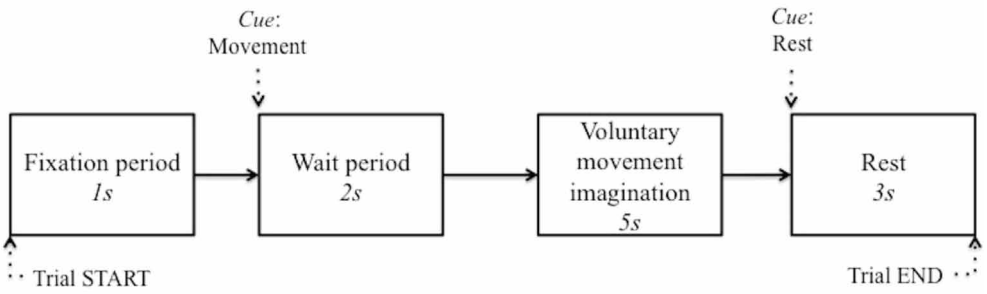


informs the participant of the type of movement to be performed. Prior to the start of the experiment, the participant is instructed to let at least 2s pass before executing or imagining the requested movement. The time frame available to execute the task is 5s. The patient's brain signals are continuously recorded, and movement related features are extracted. These features will be used as input to train the classifier.

This trained classifier is then used to detect voluntary movement intention during the 5s time window throughout the training session. The training session follows the same course as the calibration session, they differ only due to the fact that electrical stimulation is also activated in the meantime.

The detection of a movement intention triggers electrical stimulation to the muscles, and the stimulation is delivered until the target is reached. A trial will be considered successful when the movement is successfully executed during the allocated time. Each trial ends with a 3s rest period.

Figure 2. Experimental setup for the calibration session



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Participants in Prior Study

Two healthy, right-handed subjects participated in this preliminary study. All participants were informed of the purpose of the study.

Experimental Setup

Data Acquisition

Brain signal activity was measured with the g.USBamp amplifier at a sampling rate of 256 Hz. The electrodes were located at the International 10-20 system locations Fp1, Fp2, F3, F4, C3, C4, P3, P4, Fz, Cz, and Pz. The electrode FCz and AFz were used as reference and ground, respectively (Yilmaz, et al. 2015). These locations were chosen so that they are adequate for all subjects. The amplifier was set to filter the signal between 0.1 and 60 Hz, and an additional 50 Hz notch filter was used to remove noise introduced by the electric power. The EEG signals were then transferred to BCI2000 software (Schalk et al., 2004) for analysis and offline storage.

Electromyographic (EMG) data were also recorded at a 250 Hz sampling rate from one subject using medical grade stainless EMG sensors from a Myo armband (Myo TM) placed on the forearm for the tremor reduction task. This EMG will be used to predict the parameters needed during the tremor reduction process.

Task

The participants are seated in a chair, with hands resting on a desk in front of them. They were asked to imagine or execute hand opening or closing of the left or the right hand, depending on the cues presented on the screen using BCI2000. They were also instructed to avoid head or shoulder movements to reduce muscle artefacts.

Each experiment consisted of 40 runs; each run consisted of 8 trials. Trials started with a preparation phase of 1s, followed by a 7s movement imagination phase and a 3s rest phase (Figure 2). Preparation and imagination phases were initiated by visual clues presented on the screen.

Participants were also instructed to wait at least 2s after the cue before executing or imagining a movement. This is done to avoid the presence of an Event-Related Potential (ERP) called Contingent Negative Variation (CNV) that peaks 260 to 470 ms after a warning stimulus that requires a physical or mental response (Lew et al. 2012). It can be measured over the vertex with maximal amplitude of 20 μV (Nagai et al., 2004; Walter et al., 1964).

In addition, one subject was asked to simulate Parkinson's disease tremor. The simulated tremor will later be added to the recorded EMG to simulate tremor-contaminated EMG signal corresponding to a movement.

Data Analysis

The EEG signals were re-referenced using a common average reference (Ibanez et al., 2013; Schalk & Mellinger, 2010; Song, 2013). EEG signals are very susceptible to external artefacts such as eyes and muscles movements or other external sources. So, before this experiment, the authors performed another

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preliminary experiment in order to study how the electrical stimulation produced by the VisionBody suit was affecting the recorded EEG signals. One participant took part in this preliminary study, wearing the VisionBody suit while his brain signals were continuously recorded. The electrical stimulation is adjustable from 0 to 100% of the maximal intensity defined by the VisionBody suit. In this study, stimulation ranging from 0 to 35%, with an increment of 5% in each trial, was used since higher values of intensity were painful for the participant. Visual inspection of the recorded brain signals showed that, starting at 20% of electrical stimulation, rectangular signal bursts are visible, and their amplitudes increase with an increase of the level of stimulation (Adama et al., 2016). These artefacts were rejected after filtering and applying Independent Component Analysis (ICA) from the EEGLAB toolbox (Delorme et al., 2004). After filtering and artefacts removal, movement related features would be extracted from the collected brain signals.

Features Extraction and Classification

Movement related potentials and Event-Related Synchronization of beta and Event-Desynchronization of alpha waves to assess pre-movement cortical activity were used. Here a feature extraction procedure similar to the ones described by Antelis (2017) and Bhagat (2014) was followed.

First, the signals were segmented into trial epochs of duration -2 to +2s, according to the movement execution. To extract the movement related potentials, EEG data were band-pass filtered with a zero-phase shift second order Butterworth filter at 0.1 - 1Hz and down sampled to 20 Hz. The amplitudes of the signal in that frequency band constitute the MRCP features. In addition, the power values are estimated using Welch method, with a Hamming window of 1s and a 50% overlapping. The features extracted are the logarithmic power of the signals in the alpha (8-13 Hz) and beta bands (13-30 Hz).

For both processes, the features were extracted with a one second sliding window in steps of 125 ms. Features obtained previous to -1.5s were labeled 'rest' and those following -1.5s were labeled 'pre-movement'. These features are used to train a classifier. The movement intentions are detected using a trained classifier.

Movement Intention Detection

Movement production is an elaborate process. In order to produce a movement, the brain sends messages to the limbs. For self-paced hand and foot movements for instance, a slowly increasing surface-negative cortical potential called Readiness Potential (RP) can be measured 1.5 to 1s before the movement onset. This component, also known as Bereitschaftspotential (BP), presents a steeper decay 400 ms before the movement starts and can be measured over the primary motor cortex M1 (Jahanshah & Hallett, 2003). Its amplitude is maximal over the frontal rather than the occipital area, ranging from 10 to 15 μV. BP amplitude increases with intentional engagement and reduced by mental indifference of the subject. Yilmaz et al. (2015) were able to extract these slow cortical potentials from severe chronic stroke patients with no residual paretic hand movement. Their results showed that the SCPs appeared and peaked earlier during paretic hand movement compared to healthy hand movement. Paretic hand movement also elicited larger amplitude over the midline brain while for healthy hand movement, contralateral and midline amplitudes are much larger than ipsilateral activity. Which make them an interesting feature to use for our system.

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Event-Related Synchronization/Event-Related Desynchronization is another useful feature. Largely used in motor imagery, it has also been used to detect the intention to move a limb, which is characterized by a decrease of power in the alpha bands (8 - 15 Hz) and an increase of power in the beta bands (16 - 31 Hz) (Bhagat et al., 2014; Kornhuber & Deecke, 1965; Shakeel et al., 2015; Shibasaki & Hallett, 2006).

One important part of a BCI system is the EEG classifier. Several have been used in Brain-Computer Interfaces, and in particular to predict movement onset. Several classification methods have been used to classify and detect movement intention, such as Support Vector Machines, Linear Discriminant Analysis, k-nearest Neighbours or naïve Bayes (Planelles, 2013).

In this study, Radial Basis Function (RBF) kernel Support Vector Machine (SVM) was used for classification. The features used were the movement-related cortical potentials and the power spectra of the EEG signals. The classification accuracy is computed as the ratio of the number of the correctly predicted trials to the total number of trials.

Parkinson's Disease Tremor Onset Detection and Suppression Algorithm

Tremors affected the way patients execute simple tasks in their every day's life. In the case of Parkinson's disease, they can be predicted from EMG signal as demonstrated by Wu et al. (2010), using Radial Basis Function Neural Networks who found that the tremor onset signal is between 1 and 10 Hz and that the pre-tremor signal contains a large amount of activity between 10 and 30 Hz. Apart from muscle activity, tremors can also be predicted using parameters like Event-Related Synchronization / Event-Related Desynchronization (ERS/ERD) and Movement Related Cortical Potentials (Grimaldi et al., 2010).

Pathological tremors generally appear at frequencies between 3 to 12 Hz while voluntary movements are combination of lower frequencies from 1 to 4 Hz. In particular, tremors caused by Parkinson's disease lay between 3.5 to 6 Hz (Manto et al., 2003; Rocon et al., 2010). The most popular method to counter the effect of pathological tremors on patients has been to estimate parameters such as amplitude and frequency of the tremor, and used these to calibrate a loading force to suppress it. Even though there are several sensors that can be used to measure the electromyographic signals, most of these researchers used gyroscope (Grimaldi et al., 2010; Manto et al., 2003; Rocon et al., 2010). The frequency and amplitude of the tremor are then estimated using methods based on Fast Fourier transform (Adhikri et al., 2015; Wang et al., 2016).

In this study, these parameters are estimated using the recorded EMG data and used afterwards to determine the characteristics of the electrical stimulation needed to counteract the tremor from Vision-Body suit. Before applying the tremor estimation algorithm, the EMG data is filtered using a 5th order Butterworth pass band filter between the frequencies 5 to 20 Hz to remove unwanted low frequency drifts.

Note that this procedure was not applied on patients yet but performed to test the capability of the proposed signal processing for future use with patients. To the recorded EMG signal was added simulated tremor signal. This signal was created as a combination of 5 and 7 Hz sinusoidal waves with amplitudes of 1 and 0.5 respectively. The predicted tremor signal was estimated from the added signals using a Weighted Fourier Linear Combiner (WFLC) algorithm, as described by Adhikari and al. (2015). The WFLC algorithm is based on the Least Mean Square (LMS) algorithm and is widely used to reduce tremors and stabilize surgeons' hand during surgery.

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Electrical Stimulation Delivery

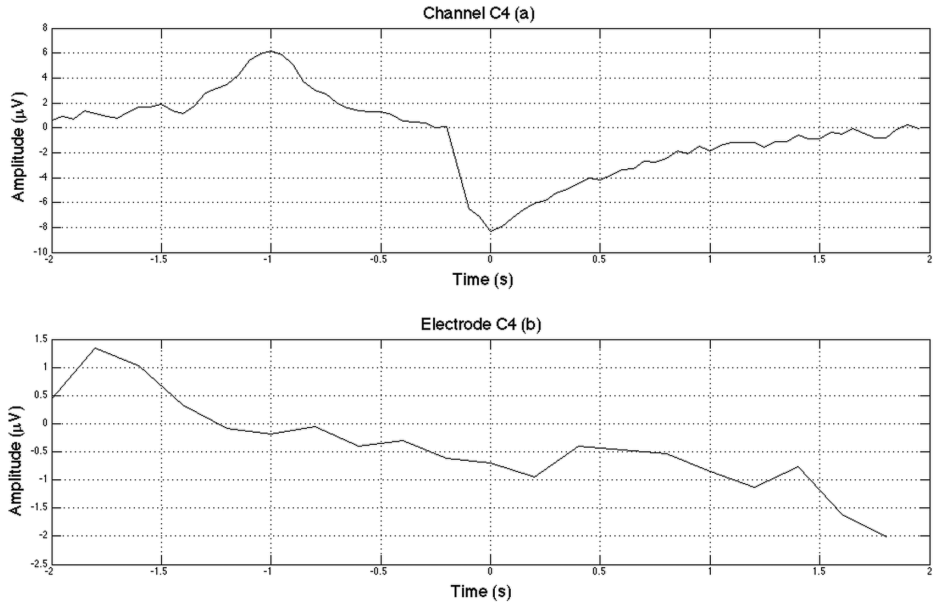
The feedback loop is executed using a VisionBody exosuit that is triggered when the system detects the subject's voluntary movement intention. The suit then delivers an electrical stimulation through the pad electrodes with an amplitude chosen between 0 and 50 mA, and a frequency of 20 to 50 Hz. Stimulation is sent by pulses of 0 to 0.5 ms and inter-pulses delays between 10 and 100 μs (Lee et al., 2015; Ono et al., 2013; Qu et al., 2016). For stroke patients, the exact values of the amplitude and the frequency of the electrical stimulation signals depend on the level of impairment of each patient individually. In the case of Parkinson's disease, these parameters are obtained after applying the WFLC algorithm to the contaminated EMG signal. Once the patient reaches the end of the movement, the electrical stimulation is turned off.

RESULTS

This study aims at designing an EEG-based brain-computer interface system combined with a VisionBody suit that provides electrical stimulation, for stroke rehabilitation and Parkinson's disease tremor reduction. Movement-related cortical potentials and power spectra of the alpha and beta waves were extracted from brain signals recorded from 11 electrodes as described above. In addition, EMG data were also recorded and used to determine the electrical stimulation parameters for the tremor reduction task.

Figure 3 shows an example of EEG signal recorded at electrode C4 when the participant is imagining opening his left hand (a), and during rest (b). The movement onset occurred at t=0s. Movement intentions were detected 1.25 to 0.9s prior to the movement onset. Literature shows that the typical values are between 1.5 and 1s prior to the movement onset (Jahanshani & Hallett, 2003).

Figure 3. Example of training data recorded at electrode C4: (a) When imagining a movement; and (b) During rest. The onset of the movement is at t = 0s.



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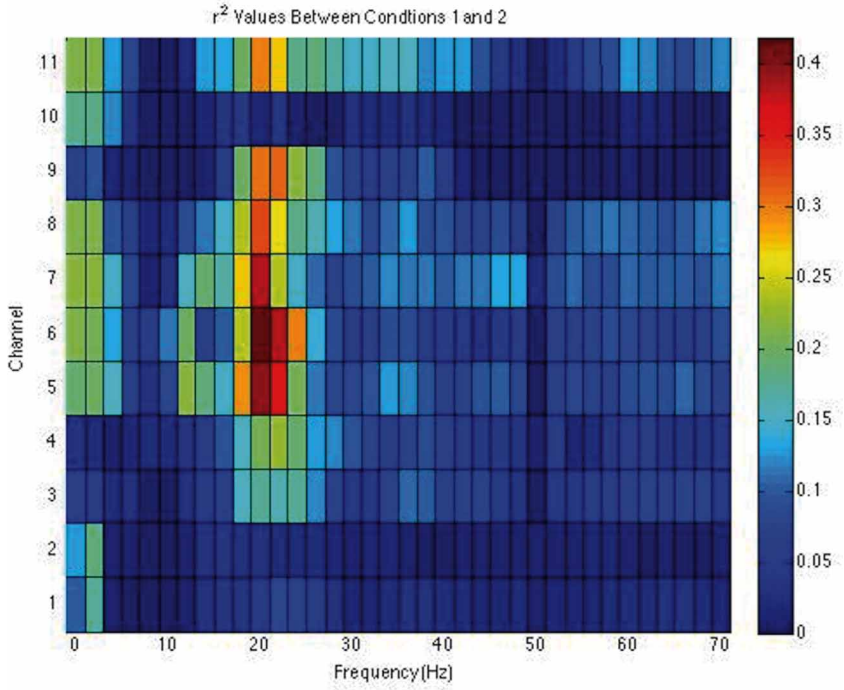
For each participant, only channels with the higher r-squared values between 'rest' phase and 'movement' phase will be selected to implement the online system (training session) in order to reduce computation time. The channels with the higher r-squared values were located in the central and parietal areas (C3, C4 and P3) for Subject 1, and in the central and frontal areas (C3, C4, and Fz) for Subject 2 during both motor execution and motor imagination. Figure 4 is a feature map that represents the average channel/frequency matrices for a left hand movement execution of the first participant. The horizontal axis corresponds to the frequencies and the vertical axis corresponds to the channels. Condition 1 represents Rest while Condition 2 represents a left movement execution. The measured r-squared between the two conditions are represented in colour codes, and in this particular case, its values are the largest for channel 5 (C3), 6 (C4) and 7 (P3) with 0.3964, 0.3799 and 0.3416 respectively at 19 Hz.

The mean classification of the classifier is represented in Figure 5 for both subjects. It is calculated as the ratio of the number of true detections to the total number of attempts. The results show that the classification accuracy is higher during movement execution compared to movement imagination. Furthermore, it is higher while performing the task with the dominant hand. Left hand movement imagination classifications were the less reliable with less than 75% accuracy for both subjects. Overall, these results align to other similar research on movement imagination and execution researches with accuracies ranging from 64.5 to 87% for movement imagination, and from 69 to 99% for movement execution (Shakeel et al., 2015).

Figure 4. Selected features for the first participant where Condition 1: Rest and Condition 2: Left movement execution. The figure is a feature map in which the horizontal axis corresponds to frequencies and the vertical axis corresponds to the channels. The measured r-squared between 'rest' and 'left hand movement execution' are represented in colour codes. In this particular case, r-squared values are the largest for channels 5 (C3), 6 (C4), and 7 (P3) with 0.3964, 0.3799, and 0.3416 respectively, at 19 Hz.



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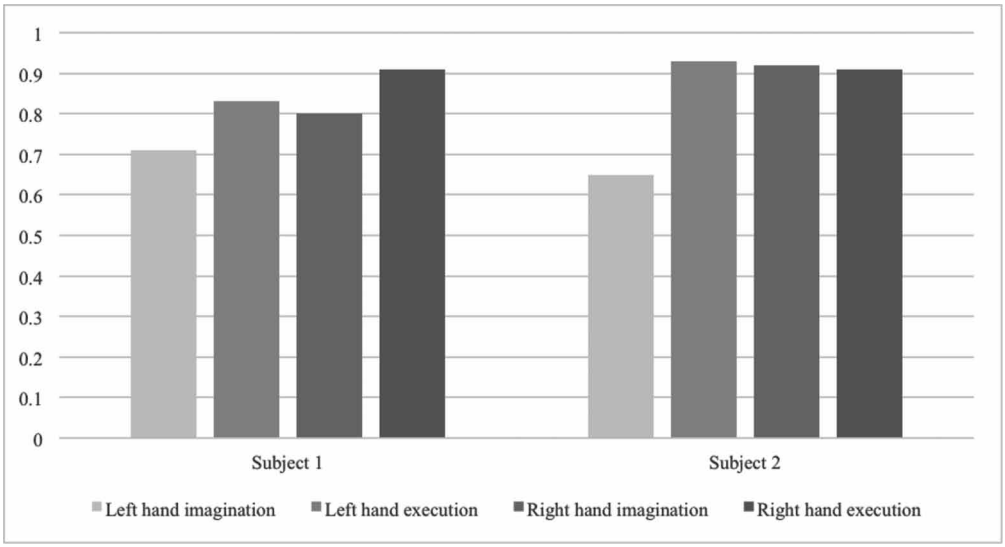
The tremor reduction task was tested with real EMG data to which simulated tremor data was added. A natural upper limb movement is composed of movements, which frequencies lay between 1 and 4 Hz. The signal was acquired at a 250 Hz sampling rate. Figure 6 shows a portion of the EMG signal used for this experiment and its periodogram. The latter shows that the dominant frequencies are effectively between 0.5 and 4 Hz, which correspond to the frequencies of a voluntary movement. Amplitudes are expressed in mV. A tremor signal was then generated as a combination of 5 and 7 Hz sinusoidal waves, with amplitudes of 1 and 0.5 respectively, to simulate Parkinson's disease tremor (cf. Figure 7). The predicted tremor signal and the residual tremor are presented in Figure 8. After applying the tremor reduction algorithm, the amplitude of the tremor is significantly reduced from 1.5 to less than 0.1 mV. The same conclusion can be deduced in Figure 9, which represents the periodogram of both signals. It shows a significant decrease in the signal power. A spectral coherence between the simulated tremor signal and the predicted tremor confirms that both signals have two correlated components around 5 and 7 Hz.

Figure 5. Average detection accuracy of the classifier, corresponding with the four tasks. The vertical axis represents the percentage of true positives, 1 equals 100%.



DISCUSSION AND CONCLUSION

This manuscript describes and proposes the design of an EEG-based Brain-Computer Interface combined with electrical stimulation intended for the rehabilitation of stroke and for tremor reduction in patients diagnosed with Parkinson's disease. The idea is to improve the outcomes of the rehabilitation therapy for stroke patients, in one hand, by engaging and motivating them in order to speed motor recovery. On the other hand, the system is expected to minimize the energy consumption of the arm with the patients experiencing tremors, thus reducing fatigue and possibly increasing its functionality. The VisionBody suit was chosen to deliver the electrical stimulation so that it can facilitate real-life application of the system.

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Figure 6. Recorded EMG signal. The image at the top shows the recorded EMG signal from one participant. The sampling rate is 250 Hz. The amplitude of the signal is expressed in mV. The image at the bottom shows the periodogram of the same EMG signal. Signal frequencies lie between 0.5 to 4 Hz, which correspond to the frequency of voluntary movements.

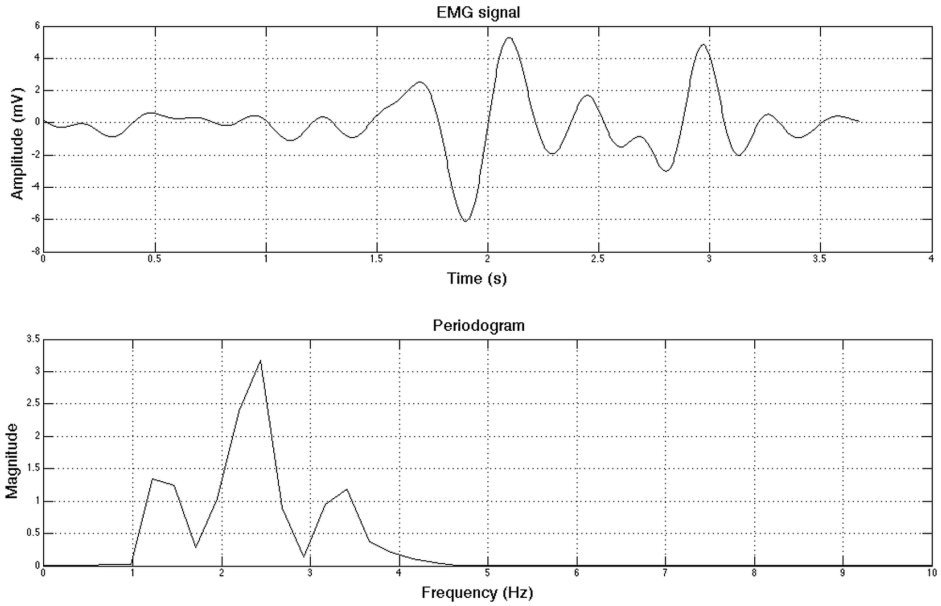

Figure 7. Simulated tremor signal. The tremor signal was created as a combination of 5 and 7Hz sinusoidal waves with amplitudes of 1 and 0.5 respectively, to simulate the Parkinson's disease tremor.

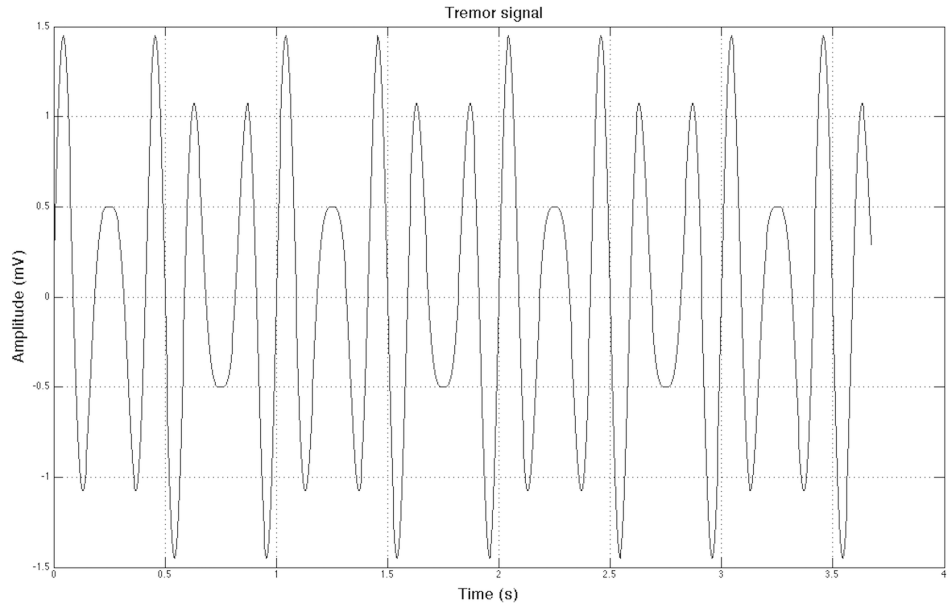

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Figure 8. Predicted tremor signal and residual tremor after tremor suppression. The predicted tremor signal is obtained from the tremor suppression algorithm and will be used to calibrate the electrical stimulation. The remaining tremor is shown in the figure on the bottom. The amplitude of the original tremor signal was 1.5 mV and the remaining amplitude after the suppression algorithm is less than 0.1 mV.

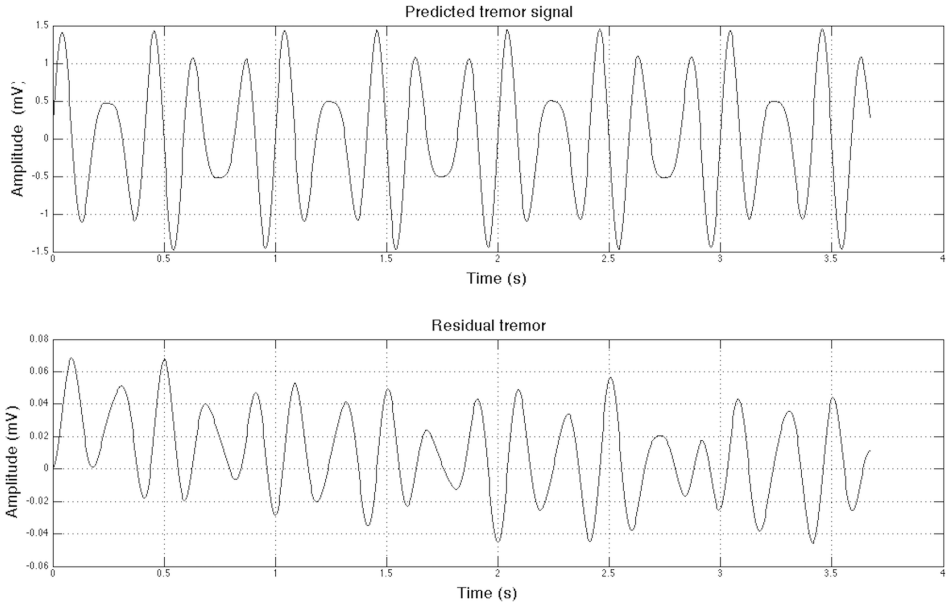
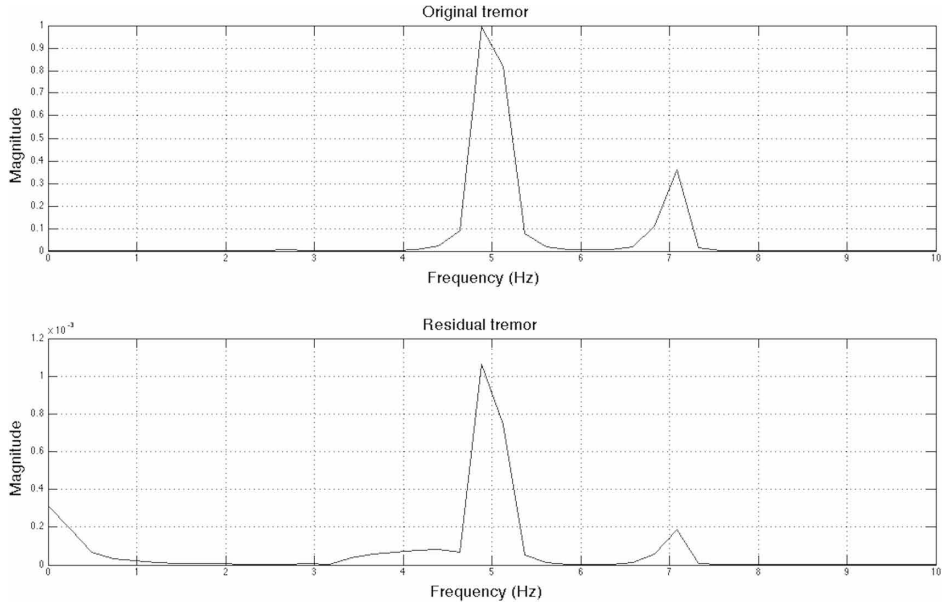


Figure 9. Periodogram of the original tremor (top) and the residual tremor (bottom). The power of the residual tremor is 1,2.10^6 times smaller than that of the original tremor, showing that the tremor is effectively reduced after applying the tremor suppression algorithm.



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Bereitschaftspotential and the power values of alpha and beta waves were extracted from the EEG signal to detect movement intention. These features were then used as input to a Radial Basis Function kernel Support Vector Machine classifier in order to implement the online rehabilitation session. Overall, the detection accuracy is satisfactory and aligns with the results of previous researches. However, it appears that this accuracy was lower for movement imagination and execution of the non-dominant hand. Moreover, the algorithm used to counter the effect of the tremor was able to reduce the original tremor signal by 150% in our simulation, which is very promising. However, the study needs to be extended to more healthy participants to obtain deeper and more reliable results.

Thus, the authors have shown that the approach is promising and feasible from a technical point of view and might be followed up with patients. With the rise of mobile non-invasive BCI, the feasibility of this project would mean a facilitated real-life application, for instance in home care to improve patients' life. Future steps would be to incorporate the closed loop BCI/FES/EMG approach and to perform experiments in real-time still with healthy subjects. Once those have been done successfully, the approach will finally be extended to patients, preferably with some residual limb movement. Some of the challenges will be to obtain good classification results with less training data, to avoid patient fatigue and to correctly calibrate the parameters of the electrical stimulation depending on the level of impairment of each patient.

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Chapter 34
Modes of Delivering Psychotherapy: Investigating Technology

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ABSTRACT

The ubiquity of telecommunications technologies and the internet facilitates offering different mental health services to the public, and the ongoing advancement in technologies introduces new venues to a range of psychotherapeutic services. It is critical to all clinicians and professionals in information and communications technology to have a clear understanding of the opportunities and challenges of these technologies. This article outlines the technologies that are currently used as part of psychotherapy. In particular, the paper discusses some of the current state of clinical research, advantageous and disadvantageous that relate to the use of these technologies.

INTRODUCTION: HISTORICAL BACKGROUND AND TELEPHONY-BASED APPLICATIONS

Counselling services traditionally offer 'treatment' in a private, face-to-face setting (e.g., an office or clinic). Technology-based counselling services, however, have surfaced as an alternative means of therapy where patients do not have access to in-person services. These services have been available for several decades. For example, the Australian Royal Flying Doctor Service (RFDS) used the Morse Code,

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a coding system to transmit messages via the electromagnetic telegraph, was used in 1928-1929 by the Royal Flying Doctor Service (RFDS) in Australia to provide telehealth to remote areas (Margolis & Ypinazar, 2008; Persson, 2010). It was in the 1930s that the service called 'Voice Radio Therapy' was introduced and serviced remote areas of Australia by telephone. The use of telephone technology in psychotherapy continued in later years. For example, in an attempt to prevent suicides, the Samaritans[1] began the first telephone counselling service (called Lifeline) in London in 1953 (Hornblow, 1986) and four years later in 1957, three telephone counselling providers were established in the United States of America (Hornblow, 1986). In Australia, the first Lifeline service was officially introduced in 1963 (Coman, Burrows, & Evans, 2001), but it was during the 1970s that telephone technology services have provided psychotherapy services (see Lester, 1974 and Regan, 1997).

Since the 1980s, telephone psychotherapy has been recognised as a valued alternative to traditional face-to-face therapy and has been used to deliver various mental health services (Reese, Conoley, & Brossart, 2006; Robinson, 2009b), for instance, to provide care for obsessive-compulsive disorder (OCD) and depression (Lam, Lutz, Preece, Cayley, & Walker, 2011; Lerman et al., 1992; Marcus et al., 1993; Turner et al., 2014). Telephone counselling has also been effective in helping clients with the psychological issues associated with cancer (Badger, Segrin, Pasvogel, & Lopez, 2013; Bastian et al., 2013), with disability as an adult (Evans, Halar, & Smith, 1985), with smoking cessation (Bastian et al., 2013; Stead, Hartmann-Boyce, Perera, & Lancaster, 2013; Zhu et al., 1996), and with HIV infection (Velthoven, Brusamento, Majeed, & Car, 2013).

Given the success of telephone counselling, it is not surprising that the usefulness and appropriateness of other technologies for therapeutic purposes has been assessed. Several studies have identified the benefits or disadvantageous of those services, ethical and organizational issues, and the therapeutic outcomes achieved using differing technologies (see Haberstroh, Parr, Bradley, Morgan-Fleming, & Gee, 2008; Lovejoy, Demireva, Grayson, & McNamara, 2009; Richards & Viganó, 2013a; Schultze, 2006). For example, instant messaging, chatting, and video conferencing facilitate a person's ability to access services in spite of one's geographical distance from the service. These telecommunication systems open up new possibilities for communication between therapists and clients. This was the reason the current article outlines the story of use of technology in psychotherapy. The review will classify the technologies that have been used in psychotherapy and will also discuss some of the advantageous and disadvantageous that relate to the use of these technologies.

As a basis for this literature review, technologies have been categorised into four categories. Firstly, Internet-based technologies are covered with attention to the advantageous and disadvantageous of these technologies as a common medium of therapeutic delivery. Secondly, stand-alone platforms including mobile applications and technologies designed for automated self-help services are reviewed elucidating some of the challenges in using such automated systems in psychotherapy. The third category covers the use of 3D, and Virtual Reality (VR) therapeutic technology tools and the final category focuses in assistant therapists.

The material for this study was mainly drawn from the peer-reviewed literature in which the terms "computer-mediated therapy," "tele-counselling," "e-health," "internet-online counselling," "videoconferencing," "asynchronous therapy," "synchronous therapy," "Virtual Reality" were used. These terms were also used in a search of the databases EMBASE, PubMed, PsychINFO, and Google Scholar to gather articles on technology-based therapies, but no specific method was used to filter the clinical or experimental content of the papers reviewed.

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INTERNET-BASED TECHNOLOGIES

In addition to telephone technology, the advancement in telecommunication technologies including internet facilities has introduced new modes of providing a range of psychotherapeutic services to the public. Three forms of internet-based technology in particular have been identified as potential tools for remote forms of psychotherapy: Blogs and forums, social media and interactive technologies.

Blogging and Forums

Blogging and forums are the first routes that are not, necessarily, aimed at generating therapeutic outcomes for the user. These technologies are generally used to deliver a tutorial on potential psychological treatments (Bennett-Levy, Thwaites, Chaddock, & Davis, 2009; Farrand, Perry, & Linsley, 2010). Although not be considered psychotherapy and counselling per se, the information shared on blogs or forums shares many features with group therapy and can, potentially, be integrated into more traditional forms of psychotherapy. Specifically, blogging can provide self-help support to groups (Nagel & Anthony, 2009) and provides an opportunity for peer support (Jorm, Morgan, & Malhi, 2013). Also, blogging provides users with an opportunity to share their personal knowledge about health (Swain, 2007), while simultaneously connecting geographically disparate groups. There, however, could comment on the threats of using community-based platforms such as blogs and forums for psychotherapeutic applications. It is expected that without proper clinical supervision by professional psychotherapists, rude or imprudent posts by other users could cause severe damage to a person who already seeks help for his/her unstable psychological state.

Social Media

There is also a growing interest in using social media, such as Facebook and Twitter, as an alternative to face-to-face therapy (Moorhead et al., 2013; Syred, Naidoo, Woodhall, & Baraitser, 2014). Similar to forums and blogs, social media can provide psychotherapeutic information, but in contrast to blogs and forums, social media allows dynamic and interactive communication between people (e.g., client and clinician) (Laranjo et al., 2014; Parikh & Huniewicz, 2015). For instance, users can communicate their concerns and seek help or advice from their 'friends' who interact with each other and who can share their responses or ideas via integrated digital media such as combinations of electronic text, graphics, moving images, and sound. Multimedia is a distinguished capability of social media which is seen rarely in forums or blogs.

Numerous free Facebook pages aim to raise awareness of, and prevention of, psychological disorders such as Depression and diseases such as Human Immunodeficiency Virus (HIV). These services are free, apart from the cost of an internet connection, and users are provided with access to the most up-to-date research and educational materials. These sites also provide psychotherapists with the opportunity to recommend their services. In short, interactivity, social and peer support, advertised services and access to inexpensive or free sources of information relating to specific mental health issues make social media appealing to potential clients (Moorhead et al., 2013). However, similar to forums the users' comments should be supervised by therapists to avoid negative impacts of improper statements or expressions on the others' psychological states.

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Interactive Technologies

The new telecommunication systems have varying degrees of interactivity that enable talking backing to the user. For example, technologies which enable synchronous communication, such as Short Message Services (SMS) such as ReachOut[2] or SANE[3], video conferencing, podcasts, audio chatting, and instant text messaging (e.g., Yahoo Messenger) can also be used for instantaneous communication between a client and a clinician. Richards and Vigano (2013) suggest that clinicians and patients use these technologies because they are accessible from both desktop computers and portable devices, and thus help can be accessed easily if needed. Further, and from the client's perspective, can be accessed from almost anywhere (e.g., remote settings), and the costs are competitive relative to traditional, face-to-face sessions particularly when time and transportation expenses are considered (Chung, 2013; Griffiths, 2001; Maples & Han, 2008).

Text-based communication between the client and therapist can be conducted through e-mails, instant messages and chats. Email is amongst the most commonly used asynchronous technologies for internet-based therapy (Bellafiore, Colón, & Rosenberg, 2004). With asynchronous text-based psychotherapy (e.g., email), patients and the psychotherapists have time to consider their responses and the next steps in addressing the problem (Suler, 1997, 2000). When the synchronous text-based communication (e.g., chat mode) is employed, counselling pairs can be both sure that they are online and communicate simultaneously. (Mallen, Jenkins, Vogel, & Day, 2010; Satalkar, Shrivastava, & De Sousa, 2015). Although there is a need for appointments fixed in advance, the real-time text-based communication can provide opportunities to minimize or correct misunderstandings and have instant and supportive responses. Client anonymity is also listed as an advantage of text-based and, parenthetically, audio-based psychotherapy. This has a positive effect on therapeutic outcomes by allowing the client to be less inhibited (Suler, 2004; Tanis & Postmes, 2007).

Audio chat via standard telephone lines or sophisticated Internet-based technologies such as smartphones is found in the literature most adequate, achievable and effective method of distance mental health support (Day & Schneider, 2002; Kraus, Stricker, & Speyer, 2010; Mundt, Snyder, Cannizzaro, Chappie, & Geralts, 2007). While voice chat overcomes geographical barriers, different groups of people with various mental health issues can use this technology in a single or group psychotherapy. For example, Wiener, Spencer, Davidson, and Fair (1993) reported the effectivity of the audio-based psychosocial support for HIV-infected children and their families. Likewise, Gettings, Franco, and Santosh (2015) demonstrated that audio-conferencing was an effective method to support siblings of children with neurodevelopmental disorders. Furthermore, users of audio-based counselling services (e.g., telephone services such as Lifeline) rate the therapeutic attachment as stronger than other Internet-based counselling technologies such as text messaging (King, Bambling, Reid, & Thomas, 2006), and these services have had positive outcomes for several disorders (Choi et al., 2012; Chong & Moreno, 2012; Jang et al., 2013; Moreno, Chong, Dumbauld, Humke, & Byreddy, 2012).

When it comes to videoconferencing technologies, it is similar in many ways to face-to-face interactions. Videoconferencing sessions are a hybrid of networking, video, audio, and more that allow real-time visual and audio communication while overcoming potential issues such as travel costs, mobility challenges, socioeconomic status, and patient engagement (Casey, Joy, & Clough, 2013; Phillips, Vesmarovich, Hauber, Wiggers, & Egner, 2001). Specifically, this mode of delivery is thought to be the most credible substitute for face-to-face therapy in areas where face-to-face therapy is unlikely to be feasible, e.g., remote locations (Dongier, Tempier, Lalinec-Michaud, & Meunier, 1986; Ertelt et al., 2011).

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Given the apparent benefits of using technology, it is not surprising that the usefulness and appropriateness of videoconferencing technologies for therapeutic purposes has been assessed (see Bee et al., 2008; Haberstroh, Parr, Bradley, Morgan-Fleming, & Gee, 2008; Lovejoy, Demireva, Grayson, & McNamara, 2009; Richards & Vigano, 2013; Schultze, 2006; Yuen, Goetter, Herbert, & Forman, 2012). Videoconferencing has been found to be an effective mode particularly in treating Obsessive Compulsive Disorders (Fitt & Rees, 2012), Anxiety Disorders (Rees & Maclaine, 2015), and Posttraumatic Stress Disorders (PSTD; Pelton, Wangelin, & Tuerk, 2015); the studies reported that participants experienced clinically significant reductions in their symptoms and an improved quality of life. The evidence to date is also highly suggestive that videoconferencing is comparable to face-to-face mental health care (Chakrabarti, 2015). For example, King et al. (2014) compared videoconferencing psychotherapy sessions with face-to-face counselling sessions and found that opioid-dependent individuals had responded well to treatments over the 12-week study and the two modes were equivalently effective. Further, the individuals in the videoconferencing group had high ratings of treatment satisfaction and therapeutic alliance.

In spite of positive outcomes, many practitioners and a significant research has suggested caution about the credibility and reliability of the online provision of psychotherapy (Alleman, 2002; Callahan & Inckle, 2012; Glasheen & Campbell, 2009; Lester, 2006; Robinson, 2009a; Skinner & Latchford, 2006; Wells, Mitchell, Finkelhor, & Becker-Blease, 2007). Some scholars believe it too early to be making claims regarding the long-term efficacy of online counselling for complex disorders such as depression (Dorstyn, Saniotis, & Sobhanian, 2013). These arguments are based on the belief that therapy via technology is not fully equivalent to face-to-face sessions (Barnett, 2005; DeLucia, Harold, & Tang, 2013). The main concerns address the interactivity of the session and "absence" of the counselling parties during computer-mediated psychotherapy (CMP). Taking the perspective of the clinician, therapeutic presence is the essential factor of therapeutic effectiveness (Schneider, 2015). This presence is referred as being in the moment with the client on not only physical interaction but also emotional and cognitive levels of communication (Geller & Greenberg, 2012), which the degree of such presence offered by communications media might be different than face-to-face sessions (Brahnam, 2014).

Another major area of concern is the usability of technology (McCarthy & Wright, 2004). The term usability denotes the ease with which the user can work with the technology or computerized system. Usability is the efficiency, effectiveness, and satisfaction by which users can achieve their goals with the technology (Bevan, 2001). Thus, if the user's experience includes a lack of functionality, whether a design or human factor this will impact on the communication particularly in online counselling environments (Manhal-Baugus, 2001). For example, looking at screens, or tablet or smartphone displays for extended periods of time can cause eye fatigue and may impede engagement between users during CMP sessions (Abbott, Klein, & Ciechomski, 2008). As such, Ertelt et al. (2011) have suggested studying the impact of the size of videoconferencing devices on the therapy, therapeutic relationships, and the engagement of the client. Other limits of usability in videoconferencing, may be insufficient image quality, low framing rate, flickering, and delays that make psychotherapy process unpleasant for clients and psychotherapists (Castelnuovo, Gaggioli, Mantovani, & Riva, 2003). Moreover, the angle of a webcam and the participant's distance from the video camera might also affect the relationship between psychotherapist and client. These factors can disturb eye-contact between the individuals (Manstead, Lea, & Goh, 2011).

There are also several technical issues apparent in Internet-based technologies that can impact this provision of psychotherapy negatively. Technical considerations for online providers, clinics or "lifelines" require IT support personnel and a secure web portal[4] to deliver efficient services. Difficulties with navigation and interaction due to poor quality software can also decrease the success of therapeutic

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communication (DeLucia et al., 2013). For example, technical glitches such as software bugs may lead to a failure or fault in the used computer program and thus can affect the efficacy of online psychotherapy (Griffiths, 2001; Mishna, Bogo, & Sawyer, 2013).

Problems with hardware are other issues which negatively impact on the effectiveness of online counselling interventions (Manhal-Baugus, 2001). The patients may be ill-equipped for interaction via Web devices, or connectivity may be poor causing delays in information transfer. Such technical barriers can be detrimental to developing a strong therapeutic alliance (Sucala, Schnur, Brackman, Constantino, & Montgomery, 2013). Fortney, Burgess, Bosworth, Booth, and Kaboli (2011) note further that data quality may impede effective counselling. For example, a low bandwidth network will provide low fidelity video and audio information and slow upload and download (Bennett & Glasgow, 2009; Meropol et al., 2011; Smith, Bensink, Armfield, Stillman, & Cattery, 2005). Similarly, low-resolution images can impede eye contact between the client and psychotherapist (Abbott et al., 2008). Abbott and colleagues (2008) also note that colour distortions can have a negative impact on videoconferencing sessions (Abbott et al., 2008). Parenthetically, the restrictive storage/memory and processing speeds of many smartphones could distort video images which can also interfere with the therapeutic alliance (Boulos, Wheeler, Tavares, & Jones, 2011).

A further issue is the lack of familiarity with technologies. Clients with little or no knowledge of computers may reject online psychotherapy out of a fear of the unknown, or they might be confused by the process (Mallen, Day, & Green, 2003). Therefore, cybertherapists must be able to help clients in solving software and technology questions. However, psychotherapists may also have low levels of computer literacy and therefore be less confident and, possibly, less effective in an online environment (Popoola & Adebowale, 2012). In text-based therapy, for instance, both parties need to be competent in conveying mental health problems and emotional states, and potentially applying emoticons (e.g., ☺) appropriately to enhance emotional engagement (Abbott et al., 2008).

Ethical and legal issues should also be included in the list of potential challenges facing online therapy (Brenes, Ingram, & Danhauer, 2011; Gamble, Boyle, & Morris, 2015; Luxton, Pruitt, & Osenbach, 2014). These include privacy and security issues. A major ethical issue is that of confirming the identity of the client, particularly when it comes to text-based communication. Clinics or 'lifelines' require IT support personnel and a secure web portal to deliver efficient services by encrypting high-risk personal data of clients and preventing them from being hacked (i.e., avoiding the ability of third parties to access the client's information). Other, related, issues include providing consent in the CMP context (Jorm et al., 2013; Manhal-Baugus, 2001; Zack, Kraus, Stricker, & Speyer, 2010). Some argue that the identity of the therapist and client, their locations, and contact details for emergency purposes should be described in that consent form (Gamble et al., 2015). Further, some scholars maintain that it will be difficult to police practitioners' competence in computer-mediated environments (Reamer, 2013) and that accrediting bodies will have difficulty ensuring that psychotherapists are competent in delivering psychotherapy online (Chester & Glass, 2006). Therefore, the details of services provided and qualification of therapists have to be mentioned in the consent form and signed electronically or in conjunction with a hard copy. Similarly, fee arrangements to charge clients' for providing online healthcare and the health care coverage by health insurance companies should be discussed by authorities. In addition, a cybertherapist should be aware of cyber law to protect the clients' privacy and confidentiality. Given the number of potential ethical concerns, clear guidelines should be developed (Gholami-Kordkheili, Wild, & Strech, 2013; Grajales III, Sheps, Ho, Novak-Lauscher, & Eysenbach, 2014; Kramer, Mishkind, Luxton, & Shore,

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2013). Table 1 outlines the general advantages and disadvantages in psychotherapy via technology. The primary content of this table is adapted from Robinson (2009a), Shiller (2009) and Centore (2006).

STAND-ALONE PLATFORMS

Stand-alone platforms are alternatives that can provide simultaneous, automated counselling. These tools aim to provide clients with the ability to identify their problematic thoughts, emotions, and behaviours without the help of a psychotherapist. In other words, they are online, open-access programs that have been designed to provide an individual with the ability to self-diagnose.

Table 1. A comprehensive outlook of advantages and disadvantages of cybertherapy

Advantages of Virtual Counselling	Disadvantages of Virtual Counselling
Privacy	Feeling of being rushed
Anonymity from family, friends and coworkers	Time gap in response between client and psychotherapist during e-mail therapy
Emotionally safe environment	Feeling of not being valued
Empowerment; equal relationship with clinician	Difficulty in expressing emotions through text-based communication
Protection from negative counsellor emotions, such as boredom or criticism	Lack of emotional connection, rapport, and empathy
Convenience/Access	Experiencing a reduction of intimacy, trust, and commitment
Cost effectiveness / Affordability	Lack of privacy
Controllability of relationship and therapy	Lack of security and confidentiality
Greater ease with self-disclosing; less awkward and intimidating than face-to-face counselling	Stigma; Concerns about being caught by spouse or employer
Disinhibition/freedom to express themselves without embarrassment or fear of judgment from clinicians	Problems with the technology (malfunctions, glitches, and hardware failures)
Ability to be completely honest and open	Sense of loss from not having nonverbal cues or the personal warmth received from face-to-face contact
Responsiveness to clients needs during all clinical interaction	Absence of verbal and nonverbal cues (facial expressions, vocal signals or body language)
Various ways to communicate (e.g., telephone or email)	Lack of effectiveness/ clinical efficacy
Avoiding social stigma	Inaccessibility of ICT resources and knowledge; technical abilities of the participants
Accessibility	Clinicians' Credibility
Flexibility	Clinicians' lack of training
Time delay for review, evaluation and decision making of therapeutic communication	Legal and Ethical issues
Fewer unnecessary transfers and relocation of one or both counselling parties	
Re-readability of materials	
Services to remote area	

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In Australia, MoodGYM[5] and E-Couch[6] are the most well-known of these technologies (Klein & Cook, 2010; Klein et al., 2014). They have been developed by the Centre for Mental Health Research at the Australian National University. Addressing the question of design, the current technologies are self-tailored treatment programs based on computational models of psychotherapy. MoodGYM, for example, was coded to provide a computer-based version of Cognitive Behaviour Therapy (CBT) with five modules including an interactive game, anxiety and depression assessments, downloadable audio-based relaxation files, a workbook, and feedback based on the assessments, each of which is thought to assist the client in the self-treatment of their issue. Similarly, E-Couch is an internet-delivered, psychotherapy platform. It provides therapy for depression, generalised anxiety, social anxiety, relationship breakdowns, and loss and grief based on a CBT method. Outside Australia, PAXonline[7] was introduced in 2010 as a web-based platform to prevent and treat anxiety disorders in the Romanian population (Miclea, Miclea, Ciuca, & Budau, 2010). Other notable platforms available globally are Beating the Blue, Down Your Drink or Fear Fighter, Living Life To the Full, Beating Bipolar, Blues Begone, Mood Control, Coping-Tutor, Good Days Ahead, and ODIN[8].

Along with the increase in number of stand-alone therapies, the issue relating to their applicability is an ongoing debate in psychotherapy research. On the positive side, there are suggestions that the consistent positive outcomes of these therapies might, one day, lead to the replacement of human therapists (Foroushani, Schneider, & Assareh, 2011; Green & Iverson, 2009; Kaltenthaler, Parry, Beverley, & Ferriter, 2008). Other are more modest and claim that current stand-alone platforms are 'acceptable' in treating clients' mental disorders (Cavanagh & Shapiro, 2004; Marks, Cavanagh, & Gega, 2007) and have the benefit of cost effectiveness and accessibility to clients. Others have argued that the algorithm-based responses to psychological problems of stand-alone platforms are questionable (Christensen, Griffiths, & Farrer, 2009; Tantam, 2006). This has been supported by the dropout rates for computerized self-counselling services (Marks et al., 2007). For example, a recent study showed that a large proportion of clients (74%) assigned to MoodGYM psychotherapy dropped out (Donker et al., 2013). The same study reported that only 31.8% of participants finished half or more of the MoodGYM program. This rate is similar to that reported in earlier studies (Cavanagh & Shapiro, 2004; Clarke et al., 2005; Clarke et al., 2002; O'Kearney, Kang, Christensen, & Griffiths, 2009; Proudfoot et al., 2004), and hint at the possibility that people become frustrated or disenfranchised by stand-alone platforms.

Other, seemingly, important issues include the fact the stand-alone platforms cannot offer an effective therapeutic alliance between the clinician and client (Peck, 2010). Algorithmic programs are limited to one-way communication, although multimedia may add some human-like interactions. Further, these programs have a mechanistic design that impedes engagement between the user and the program. Besides the 'click and read' style of interaction, the programs incorporate only procedural and solid therapeutic interventions. They provide programmed therapeutic tasks for the clients to run in a predetermined order, which might not be followed or might become monotonous causing the client to quit the therapy. Therefore, although the effectiveness of these platforms seems strong and promising, therapist-client relationships should be considered in evaluation because that relationship is an important factor in transmitting therapeutic activities (Peck, 2010). This online transmission might be improved by investigating how psychotherapists act and develop reliable and valid therapeutic factors (Bachelor & Horvath, 1999).

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Mobile Applications

Mobile software applications (called apps) are another group of emerging technologies. They are programs designed to run operations for various purposes on a mobile device such as smartphones or tablets. Although they are in the early stages of production, an increasing number of these apps come from to health sector (Handel, 2011; Ventola, 2014). Specifically, psychotherapy-centred apps available for what are considered to be the primary emotions (e.g., sadness; Hogan & Kerin, 2012; Marks, 2013). The main goal of these apps is to allow users to explore their moods/emotions. 'Emotion Sense', for example, records the moods of the users by means of their voice patterns or collects emotional data from text messages (Fox & Duggan, 2012; Sciences, 2013). This enables people to get an insight into their moods over a certain period of time.

However, these apps are not limited to recording and collecting data about people's emotional states. They contain a variety of strategies to assist individuals with therapy. These tools not only improve the accessibility of mental health care services beyond the clinic, but also enhance the efficiency of traditional care by providing coaching or self-help services (e.g., behaviour change management). FOCUS, for example, is a smartphone app that was developed to assist people with schizophrenia by helping them to self-manage their condition; interestingly, FOCUS has a high rate of acceptability and efficacy (Ben-Zeev et al., 2014). Other apps are based on psychological treatment methods such as Cognitive Behavioural Therapy (CBT) (e.g., eCBT, Calm[9]) or Dialectical Behaviour Therapy (DBT) (e.g., DBT Diary Card, Skills Coach[10]). These apps are designed to help people with anxiety, stress, depression and bipolar disorders.

Some mental health mobile apps attempt to conduct part of the therapeutic process. They collect statistics for the psychometric and diagnostic analyses of individuals, and have been designed for educational purposes (East & Havard, 2015). They aim to assess the wellbeing of clients and suggest possible therapeutic interventions. These technologies also enable clients to share relevant data with counsellors so that the health care professional can monitor the client's progress. NeuroAssess[11], launched in July 2013, is an example of this type of app. NeuroAssess captures information about a client's psychopathology and, using an automatic algorithm, measures the suicidal ideation of the client.

Psychology-centred applications are very useful portable programs, but they have limitations. They are similar to stand-alone platforms in that they are basically designed for one-way interaction, although there are some exceptions (see Luxton, McCann, Bush, Mishkind, and Reger (2011, p. 506). More importantly, their adequacy as therapeutic tools for serious psychological disorders is questionable. These apps generally assess, monitor, and track the intensity levels of factors (e.g., heart rate) associated with a small number of disorders (e.g., stress, anxiety, and sleep disorders) – 'Depressioncheck', for example, is an iPhone-based app of this range.

It is evident, therefore, that these tools do not provide clients with care as complex and complete as that received in face-to-face sessions. This has been noted by de Alva, Wadley, and Lederman (2015) who report dissatisfaction with applications when compared with face-to-face interventions. The participants in this study revealed that app-oriented health-tasks such as working and studying provided less support for them to deal with their life situations and reduce anxiety. It was also reported that the apps did not assist users in understanding, dealing with, or managing the real life activities of a person with mental problems.

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Another limitation is associated with the recording of online and offline information relating to clients'/users' behaviours. Although the recorded/stored data enables mental health practitioners to track a user's mood and mental state, the recorded information may not be reliable due to the calibration of the sensors or devices. Similarly, problems might arise if the apps interpret this data in place of a clinician. They might generate a generic interpretation without considering the subtleties that a clinician might deem important.

Additionally, and much like stand-alone platforms, there is the problem of protecting personal data (Luxton et al., 2011). The apps might not have been created by ethical and creditable organisations and it is possible that many non-accredited or open source apps may not have the client's best interests at heart. Not all apps are developed by authorized centres, such as 'PTSD Coach' developed by the USA's Department of Veterans' Affairs which is dependable in terms of privacy, safety, and accuracy of functioning.

Automated Self-Help Services

Other programs at the intersection of technology and mental health care are the fully automated self-help systems. Historically, debates concerning the automatized therapy date back to the 1960s with the development of 'ELIZA' (see Weizenbaum (1966)), and 'PlatoDoc' and 'MORTAN' which went live as automated therapy programs in the 1980s, or 'Dear Uncle Ezra' created in 1986 as the first web-based help service advising students at Cornell University. Based on the principles of cognitive therapy, these systems were designed to help people make decisions regarding their mental health; they were specifically designed to help clients' moderate the symptoms of depression (Granello, 2000; Selmi, Klein, Greist, Johnson, & Harris, 1982; Wagman & Kerber, 1984). It was expected at this time that artificial intelligence (AI) would replace human-to-human therapeutic interaction with a human-independent computerized environment. However, the developed programs were not successful.

With respect to technical and treatment history, debate regarding the possibility of automated psychotherapy can be generally placed at one (or the other) end of a spectrum. On one end is the full automatization of therapy. This is justified with the progress in technology and high level artificial intelligence becoming more like face-to-face therapy (Block, 2009; Newell & Simon, 1963; Turing, 1950). With this scenario, the computer becomes the psychotherapist with full treatment strategies. That said, automated therapists will require extensive databases of therapeutic and clinical knowledge, natural language processing, affective computing ability to calculate mental states via machine learning algorithms (Luxton, 2015). With current data-driven methods that are capable of mimicking, understanding and assisting animated and artificial information processing, proponents of this strong position cite successes in areas such as automated agents and avatars in virtual environments where it is claimed that disorders such as PTSD have been successfully treated (Reger, Rizzo, & Gahm, 2015).

At the other end of the spectrum is the idea that the best we can hope for are technologies that enhance communication between individuals. This weak view argues against fully automated therapy because of moral and ethical issues and technical and physical limitations such as memory capacity, low-level sensorimotor skills, and limited ability in affective and language processing (Dreyfus & Dreyfus, 2000; Dreyfus, 1992; Searle, 1992). Proponents of this view believe that automated therapists have failed in the past and will continue to fail because they cannot match a human therapist's capabilities, and have not passed the Turing test [12] (Luxton, 2015; Saygin, Cicekli, & Akman, 2003). It was also the view of the designer of ELIZA that important decisions cannot and should not be expected by computerized systems because these technologies equipped with AI techniques lack the human's cognitive qualities

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such as empathy and perception (Weizenbaum, 1966). In other words, because theory of mind is an essential component of humans' interactions with one another, automated psychotherapy is unlikely to succeed until artificial agents become self-aware (Vardi, 2014). If this proves to be the case, should intelligent telecommunication applications and the intelligent technologies be put aside or can they be consolidated into new premises?

VIRTUAL REALITY

The 2D space of video-based technologies is fundamentally different from the usual, three-dimensional experience of in-person therapy (Manstead et al., 2011). Some of the drawbacks of 2D spaces are that the movements of therapy pairs (consultant and consultee) are limited relative to one another. Thus, Second Life technologies and other online virtual realities (VR)[13] have been introduced as ways of overcoming the negative influences of limited movement in 2D space.

There are different motivations that drive the widespread adoption of VR in psychotherapy. One has been the need for the collection of better information at the point of mental health servicing. To enable this, counsellors can provide stimuli to clients in virtual environments (VEs) that are similar to those in the real world (Clough & Casey, 2011). Threatening situations can be introduced safely on role-plays in VR using simulated avatars, easing the therapeutic process (Carey, 2010). That is, dangerous situations can be avoided as during the treatment of some phobias, allowing the fear to be attenuated (Riva, 2005). Virtual environments also simulate the triggers of social anxiety and provide opportunities to practise social interactions safely (Gaggioli, Gorini, & Riva, 2007) and, be observed unobtrusively by the clinician (Nagel & Anthony, 2011). The client and clinician can both use avatars to express mental problems verbally and mimic behavioural cues, while allowing the client to remain anonymous and reducing the stigma associated with psychological concerns (Quackenbush & Krasner, 2012). Virtual Reality also offers a rich medium for training and helping counsellors (Székely & Satava, 1999). Cybertherapists can practise and improve their skills by way of virtualized scenarios, clients, and clinical settings (Bennett-Levy & Perry, 2009; Kenny, Parsons, Gratch, Leuski, & Rizzo, 2007; Parsons, Buckwalter, Lange, & Kenny, 2014; Rizzo, D.Parsons, Kenny, & Buckwalter, 2012).

In light of these advantages, it is no surprise that VR is becoming increasing prevalent in therapy and is being employed by some psychotherapists (Gaggioli & Riva, 2007; Good, Gnanayutham, Sambhanthan, & Panjganj, 2013; Gregg & Tarrier, 2007; Riva, 2003; Riva, Wiederhold, & Molinari, 1998; Russ, 2012; Välimäki et al., 2012). For example, video games are being trialled as therapeutic tools in the treatment of autistic children (Fernández-Aranda et al., 2012). 'PlayMancer' is an example of a collaborative VE developed for the treatment of specific mental health issues (e.g., eating disorders) and pain rehabilitation[14] (Jiménez-Murcia et al., 2009). The authors of the game have found that patients with Impulse Control Disorder (ICD) felt comfortable using such a video game; participants' physiological and emotional reactions were attenuated by means of the reduction in their stress level. PlayMancer had also helped people with eating disorders and pain rehabilitation (Jiménez-Murcia et al., 2009). The game Pico's Adventures is another Kinect-based game which was employed to promote social initiation in children with Autism Spectrum Disorder (ASD; Malinverni et al., 2016). The early findings from field observations and video analysis have shown that children with ASD accepted the game positively and developed their social behaviours.

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'Pesky Nates!!!' is a similar program that uses gaming technology. It is based on CBT and is aimed at helping children with anxiety and depression[15]. Other developments including 'SimCoach', 'Virtual Justina', 'Bravemind', and 'STRIVE' are virtual reality platforms that create life-like characters and realistic environments to provide therapeutic help. 'SimCoach', for instance, has been developed to assist military personnel and their families to alleviate mental health issues, trauma, and addiction issues (Rizzo, Forbell, et al., 2012). This prototype also assists with other issues such as the welfare of, and the economic stress on, military families. 'Virtual Justina' is another prototype designed for patients with Post Traumatic Stress Disorder (PTSD) (Kenny, Parsons, Gratch, & Rizzo, 2008). Here, real dialogue (between a patient and a clinician) is conducted between avatars (Rizzo, D.Parsons, et al., 2012). 'Virtual Justina' is also being used as a virtual medium to train psychotherapists. The trainee can either communicate with real clients via virtual mediums or apply therapeutic principles to virtual patients (Kenny, Parsons, Pataki, et al., 2008; Kenny et al., 2007).

Although virtual environments hold substantial promise, there are some challenges facing psychotherapy using VR. Complex input and output devices and the graphics and animations of VEs need to be more sophisticated to more closely simulate real clinical spaces. Also, virtual worlds need to be realistic for treating disorders such phobias (Kenny et al., 2007). These design challenges continue in spite of considerable advances in simulation. For example, avatars used in VR clinics or hospitals need to simulate more than the human body. Avatars need to be equipped with human-like facial expressions and behavioural mannerisms which are taken for granted in face-to-face therapy sessions. Parenthetically, there is also the issue of the 'uncanny valley' whereby virtual people too closely mimic 'real' people causing disquiet or revulsion among users (see, for example, Mori, MacDorman, & Kageki, 2012; Morie, 2008; Nowak, 2015). Currently, some pilot studies have employed virtual reality equipment in treating mental disorders such as Complex Regional Pain Syndrome (CRPS) (Won et al., 2015) and social phobia (Gebara, Barros-Neto, Gertsenchtein, & Lotufo-Neto, 2016). From a clinical viewpoint, although the technologies have had positive impacts on the participants' psychological states, the virtual experience of objects, movements such as body language of others and the perception of clients' presence is not still satisfiable. It is expected that the development of virtual reality headsets and glasses such as Oculus Rift[16] may help to solve these issues (see Chang, Liu, Kang, Kao, & Chang, 2016). It is also expected that holographic telepresence be employed in psychotherapy as it can provide a live full-motion of remote users by three-dimensional (3D) videoconferencing (Hu, Baldwin, Niederberger, & Fattal, 2015). The technology will enable counselling pairs to communicate as natural as face-to-face by reconstructing, compressing and transmitting their models anywhere in the world in real time.

ASSISTANT PSYCHOTHERAPISTS

Although "immersive virtual environment(s) offer new possibilities for therapy, for example by providing realistic but not actual exposure" (Tantam, 2006, p. 419), fully automated psychotherapy is not currently possible. A significant part of this difficulty is replication of the relationship that clients form with their therapists (Duggan, 2016). Consequently, several researchers have suggested that automated psychotherapeutic systems might be better suited to acting as 'illusory therapist[s]' (Helgadóttir, Menzies, Onslow, Packman, & O'Brian, 2009a, p. 251), 'Virtual Consumer Consultant[s]' (Griffiths, 2013) or assistant therapists who enhance interactions between counselling pairs. That is, the assistant therapist acts as a coach (rather a therapist) and is equipped with self-management programs to help organise, process and

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progress treatment. It is proposed that assistant therapists might increase a cybertherapist's understanding of a client's mental health issues, reduce recovery time, and improve the quality of treatment (Bauer & Moessner, 2012; Howell & Muller, 2000). Assistant therapist programs can also be equipped with the technology to gather bio-sensory, behavioural, speech and/or neural data from clients to assist with correct diagnosis and therapeutic intervention (Griffiths, 2013).

There have been several assistant therapists developed that have achieved some level of success in regulating moods and attenuating depression (Both & Hoogendoorn, 2011; Both, Hoogendoorn, Klein, & Treur, 2010; Helgadóttir, Menzies, Onslow, Packman, & O'Brian, 2009b). However, and consistent with other cybertherapy tools, there are some concerns associated with assistant therapist technologies. Firstly, these technologies must be user-friendly and secure with any data kept confidential (Green & Iverson, 2009). Secondly, evidence of the validity and efficacy of the data collected is currently lacking. Further, assistant therapist technologies cannot provide corrective feedback to clients' responses (Helgadóttir et al., 2009a) and, as such, this may contribute to program dropout. To overcome this limitation, Helgadóttir et al. (2009a) suggest that client engagement should be increased in some way. They suggest providing a reminder service (e.g., reminder emails) to users, or designing task-relevant deadlines. Interestingly, the latter approach received positive feedback from clients in a study by Klein and Richards (2001). They specified time-limited access for clients in their online treatment program, and only one person in their trial dropped out.

While there is positive evidence for automated therapy (see, for example, Helgadóttir, Menzies, Onslow, Packman, & O'Brian, 2014), none of the current online 'assistant therapist' platforms adequately address all of the criteria necessary for successful online psychotherapy. Similar to stand-alone and automated therapists, it seems that the therapeutic alliance generated via online assistant therapists still lacks the productive personal connection between the clinician and client. Specifically, the emotional engagement present in face-to-face therapy is impaired via computerized systems (Reynolds, Stiles, Bailer, & Hughes, 2013; Reynolds JR, Stiles, & Grohol, 2006). Furthermore, diagnosing disorders becomes difficult because of the lack of non-verbal and/or behavioural cues (Li, Jaladin, & Abdullah, 2013). Moreover, Bambling (2008) claims that the lack of non-verbal cues reduces the emotional proximity and cognitive interaction between the clinician and client in online platforms and, consequently, client issues were often assessed inaccurately. Currently, with this technology, it is uncertain whether it is the client who has difficulty expressing their concerns or the psychotherapist who has difficulty identifying these concerns. It also remains unclear what impact technologies have on the clinician's ability to empathise and on the eventual diagnosis. These questions point to the necessity for detailed investigations in this area.

CONCLUSION

Psychotherapy has used telecommunications technologies to deliver remote therapy for many years. In this review article, several forms of telecommunications technologies have been outlined. Initially, a short history of the telephone used in psychotherapy was provided. Then, it was demonstrated that later advancements including the Internet, text-messaging services, and videoconferencing systems created new possibilities for remote therapy. While a large number of services via these technologies have demonstrated positive outcomes, the therapeutic experience itself remains of concern. The therapeutic relationship during technology-based sessions might be influenced due to compromised clinical, technical and ethical factors.

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The article also described the expanding area of computerized systems employed in psychotherapy. It was revealed that some of the mental health issues (e.g., phobias, bulimia) had been treated effectively by using virtual therapy programs. However, although several stand-alone platforms and computerized therapists appear promising, it has been argued that the most promising use of online and virtual therapy programs is data gathering to compliment treatments of a 'real' psychotherapist. The suggestion is not that computerized systems are less effective, but that they should not be dismissed by providers and designers of online healthcare programs. The validating and evaluating of human-like relationships, and particularly those between counsellors and clients, is needed to ensure best-practice in simulated environments.

The future of the profession, particularly with reference to technological advancements which have shown substantial growth concerned with the video streaming quality, will be affected by the use of videoconferencing systems. It was discussed that these systems are most promising as they can allow the therapist and client to feel as if they were present in the clinic. Virtual reality can also be used as an alternative to a great extent by enhanced graphics and design of environments and devices. There is also an exciting voyage to the cutting edge of upcoming technologies such as mobile holographical telepresence that can offer clinicians, psychotherapists, and their clients a bit of different language. These people can experience psychotherapy session, as natural as face-to-face communication. However, other than the applicability and ethical frameworks, the main question that remains to be addressed is how this possibility will be provided to the community on a large scale and affordable.

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ENDNOTES

1 http://www.samaritans.org/about-us/history-samaritans
2 http://forums.au.reachout.com/
3 http://saneforums.org/
4 see: http://fftimes.com/node/262761
5 https://moodgym.anu.edu.au
6 https://ecouch.anu.edu.au
7 https://www.paxonline.ro
8 The links for these and similar programs can be found at: https://www.beacon.anu.edu.au/service/website/browse/1/Depression

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[9] http://www.mymindapps.com/
[10] http://www.diarycard.net/dbt-self-help/
[11] http://neurobalance.com.au/
[12] Alan Turing (23 June, 1912 – 7 June, 1954) was a mathematician and philosopher who proposed a thought experiment whereby a machine would be considered intelligent if a person communicating with the machine was not able to discern that it was a machine. This imitation game is discussed as a basic theoretical and practical challenge for Artificial Intelligence (see Copeland, 2003; Turing, 1950)
[13] VR is defined as "a collection of technologies that allow people to interact efficiently with 3D computerized databases in real time using their natural senses and skills" (McCloy & Stone, 2001, p. 912).
[14] See for more information: http://www.playmancer.eu/
[15] See for more information: http://www.PeskyGnats.com/
[16] See for more information: https://www.oculus.com/en-us/rift/

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Chapter 35
Hybrid Exoskeletons for Upper Limb Stroke Rehabilitation

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ABSTRACT

Hybrid exoskeletons are a recent development, combining electrically controlled actuation with functional electrical stimulation, which potentially offers great benefits for muscular rehabilitation. This chapter presents a review on the state of the art of upper-limb hybrid exoskeletons with a particular focus on stroke rehabilitation. The current needs of the stroke rehabilitation field are discussed and the ability of hybrid exoskeletons to provide a solution to some of the gaps in this field is explored. Due to the early stage of development which most hybrid exoskeletons are in, little research has yet been done in control methods used for them. In particular, more investigation is needed with regards to the potential benefit of hybrid exoskeletons as a patient-monitoring and rehabilitation assist-as-need tool.

INTRODUCTION

Stroke is the second largest cause of disability worldwide after dementia (World Heart Federation, 2015). Each year the costs of stroke on society are considerable, both financially and with regards to the wellbeing of the affected individual, their families, and their friends. Approximately 1 in 6 people will suffer a stroke during their lives and these numbers are only likely to increase as the number of elderly

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increase (World Stroke Campaign, 2015). Effective rehabilitation after a stroke is important if the costs of stroke on society are to be minimised.

A stroke can cause many impairments which interfere with a person's ability to perform tasks with their affected limbs. These will be described in the next few paragraphs. Temporary hemiparesis is common among stroke survivors. Regaining strength and movement in the affected side takes time and can be improved with the use of rehabilitation therapy involving repetitive and function-specific tasks (Senelick, 2010). Patients who undergo stroke rehabilitation generally have a few sessions a week with a physiotherapist where they undertake various exercises. Many patients, particularly the external patients, will also be assigned exercises to complete outside of their regular sessions with the physiotherapist.

The abilities of stroke patients can vary quite considerably. While it is more common for a patient to regain strength in their shoulder before the elbow and fingers respectively there are also many exceptions. The rate at which patients improve and the joints with which they struggle with can vary significantly from patient to patient. Muscle atrophy is one of the most common issues that occurs after a stroke. Muscle atrophy is the wasting away of the muscles which leads to a loss in the size and strength of the muscle. For each day a patient is in hospital lying in bed with minimal activity approximately 13% of muscular strength is lost (Ellis, Jackson, Liu, Molloy, & Paterson, 2013). Regaining muscle strength and motor control are very important if a patient is to regain independence in their day to day life. Muscle atrophy can only be prevented by physically working the muscles either through the patient's own volition or the use of Functional Electrical Stimulation (FES).

Problems that patients have after a stroke are not just limited to lack of strength in the affected limbs. Some patients can be very capable of movement but lack sensation. This makes it difficult for a patient to know how much force to apply when manipulating objects such as holding a glass of water. It can also make it difficult for a patient to perform movements with their limb without observing where the limb is. This increases the mental energy required to undertake everyday tasks and can even pose a danger to the patient's limb as they are not always aware of where it is. Other problems include muscle spasticity. Pharmacological and non-pharmacological treatments can combat spasticity.

A lack of control or strength in one joint may affect the ability of a patient to perform movements with another joint. For example, lack of control or strength at the wrist may make performing exercises with the hand difficult as the forearm may not be in the ideal positioned to allow a strong grip. Some patients may adopt compensatory patterns of movement due to their impairments. Over a longer period, these compensatory patterns can lead to long term issues such as pain. Some patients experience involuntary movements where the limb will move unpredictably without the patient intending it to. This can cause damage to the limb and may be embarrassing for some people. In addition, patients can often also suffer from reduced mental cognition and increased mental fatigue.

There are many different types of training strategies and devices which can be employed as tools to help combat the problems which stroke patients face. Despite all the interventions available however, there remain several gaps in the field of stroke rehabilitation. The current tools and rehabilitation methods used, as well as the gaps in the stroke rehabilitation field, will be described in the background section of this chapter. Following on from this the potential of hybrid exoskeletons to help fill some of these gaps will be discussed, an evaluation of the state of research with regards to upper limb hybrid exoskeletons will be undertaken, and future directions suggested.

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BACKGROUND

Modern Stroke Technologies and Rehabilitation Methods

Devices used to aid stroke patients may be divided into passive devices and active devices. Passive devices, sometimes involving lockable and unlockable brakes or springs, can be used to limit a patient's movement either by locking a joint in place or by preventing a joint from moving too far in a direction. This can prevent a patient from hyper-extending or hyper-flexing or alternatively may be used to allow a patient to focus on a specific movement in isolation. Sometimes simple strapping tape may be used to remind a patient not to hyper-extend or hyper-flex. Passive devices can also be used to manage tremor or provide an elastic force for resistive training (Rocon et al., 2007).Active devices are devices which can move a patient's limbs on their own without help from the patient. Active devices are used to assist patients with movements that they may not be able to perform themselves or to provide resistive forces. Active devices may involve the use of functional electrical stimulation (FES), or an actuator, such as an electric motor, or pneumatic artificial muscle. Active devices are often heavier than passive devices due to the weight of the actuators however, they tend to be more useful for patients in the early stages of rehabilitation who have limited movement.

The training which a stroke patient will undergo can be either resistive or assistive. Resistive training involves the use of passive or active devices to provide a force against the movement of the patient. Coloured elastic bands are a common way of performing resistive training where one end will be tied to a static point and the patient will perform movements that stretch the rubber band requiring the patient to work harder to perform the movement. Alternatively resistive devices such as robots or exoskeletons may provide either a passive elastic force or an active (motorised/pneumatic/hydraulic) force in the opposite direction to which the patient wants to move (Carpi, Mannini, & De-Rossi, 2008). Resistive training is a good way for a patient with some movement already to build more muscular strength.

Assistive training involves the use of primarily active devices to provide an aiding force in the same direction as the movement of the patient. Assistive training can also include passive gravity balancing devices which reduce opposing forces for movement of limbs away from Earth (Gijbels et al., 2011). Assistive devices may be purely for rehabilitative training, for help with activities of daily living (ADL) and specific tasks, or a combination of the two. Assistive training may involve a physiotherapist providing the assistive forces, the use of functional electrical stimulation (FES), or an actuated robotic device.

Robotic devices have the potential to offer significant benefit to stroke rehabilitation when used in conjunction with physicians (Loureiro, Harwin, Nagai, & Johnson, 2011). They are capable of providing a higher frequency of training and allow for a safer way for a patient to practice movement without having to be directly supervised by a health professional (Loureiro et al., 2011; Maciejasz, Eschweiler, Gerlach-Hahn, Jansen-Troy, & Leonhardt, 2014). Robotic devices may include end-effector devices or exoskeletons. End-effector devices are located distally to the patient's limb. They are often simpler in design however as the movement of end effector devices increases in variety and range, the control becomes much more complex if injuries and redundant configurations are to be avoided. The general design of end-effector devices lends itself to be much less susceptible to portability than that of exoskeleton devices. Therefore, end-effectors are predominately used for rehabilitation purposes as opposed to assistance with ADL (Vaca Benitez et al., 2013). Exoskeletons are fitted more closely to the patient's body and closely mimic natural human movement. They are more complicated in structure but allow for independent control of different joints and much more precise control over a patient's limb (Maciejasz

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et al., 2014). However, many exoskeleton devices are also often limited in portability due to energy requirements and actuator weight.

The use of electromyography (EMG) to control and/or initiate movement can be used in conjunction with either active robotic devices or Functional electrical stimulation (FES). For a healthy person, and for many stroke patients, an attempt to move their limb will result in the production of muscle action potentials (MUAPs) at the site of the related muscle. These action potentials, measured in volts, and often in the range of 0-10mV peak, can be read using electrodes and signal processing and offer an indication of the subject's intended movement (De Luca, 2002). Despite the presence of the signals, the patient often lacks the strength to perform the movement. The EMG signals appear shortly before movement actually takes place thus it is possible to use EMG to initiate and control a device which can help the individual perform their intended movement in real-time (Chandrapal, 2012). This can allow for a larger variety of different movements to be produced by assistive devices rather than pre-programming in only specific movements and leaves the user free to use both their hands as they do not need to press a button or move a joystick to operate the device. Stroke rehabilitation training with EMG initiated and controlled devices also offer advantages in terms of patient improvement as when the patient observes the intended movement occurring it mentally reinforces and establishes the correct neural pathways required for self-production of the movement (Hara, 2013; Vaca Benitez et al., 2013). For patients who lack the production of action potentials at the muscle site electroencephalography (EEG) can be used instead, although this typically means a longer set up time.

Functional electrical stimulation (FES) is the application of high frequency electrical pulses to the nerves in order to elicit contractions in the muscle. There are many commercially available FES devices which are used for stroke rehabilitation. FES may be used to provide assistive training where the FES is initiated in response to a patient pushing a button or by some other intention estimation method (e.g EMG) with the goal being to practice performing a specific movement. Alternatively, it may be used at a lower dose with the main aim being not to produce significant movement of the limb but rather to strengthen the muscle through small cyclically induced muscle contractions. For stroke patients cyclically induced FES is often used to prevent subluxation of the shoulder muscle (Chae, Sheffler, & Knutson, 2008). FES devices also often have preprogramed sessions available which can be initiated with the single press of a button and which allow the patient to take the device home to use without worrying that they might alter the settings accidently. FES can help reduce muscle atrophy and increase muscle strength but it is less useful for aid with ADL on its own, as FES is difficult to control precisely, and quickly results in muscle fatigue (Doucet, Lam, & Griffin, 2012; Maciejasz et al., 2014). More recently FES has been combined with passive orthoses and robotic devices (Bioness Inc, 2015; Loureiro et al., 2011).

Requirements and Current State of Stroke Rehabilitation Robotics

Despite the expected increase in demand for at-home rehabilitation systems and ADL supporting devices many currently available rehabilitation robotic devices are lacking in portability, complex to use, and extremely expensive. Therefore, they are only suitable to use in clinics under the direct supervision of physicians (Lu et al., 2011; Maciejasz et al., 2014). If a patient's access to at home rehabilitation devices increases then this should also lead to an increase in the frequency of their training (Lu et al., 2011). It has been shown repeatedly that an increased dosage of training is highly positively correlated with patient improvement. Thus a higher uptake of at-home rehabilitation devices should result in increases in patient improvement (Vaca Benitez et al., 2013). To encourage a higher uptake of at-home rehabilitation

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devices there needs to be a focus on designing rehabilitation devices, especially exoskeletons, which are cheap, portable, and easy to use.

A study (Biddiss & Chau, 2008) which surveyed a range of prosthetic hand users indicated that the most important requirement as defined by the users was a reduction in the weight of the device. A low-cost prosthetic was ranked as the third most important feature. Both cost and weight were considered more important than precise movement of the device. While this study was of prosthetic hand users and not exoskeleton users it is quite likely that a similar trend will occur for exoskeleton users. Patients are not likely to be tolerant of rehabilitation devices which must be constantly removed and re-attached, especially if the devices are time-consuming to attach or noticeable (heavy or bulky) when worn. It is therefore important that an exoskeleton designed for rehabilitation purposes must be lightweight as well as quick and easy to attach. A well-working exoskeleton is useless if patients will not use it.

Assessment tools currently used by physicians to monitor patient progress tend to be time-consuming, subjective, and lacking in sensitivity (Loureiro et al., 2011). Some of the more commonly used scales are only moderately reliable when patient improvements are small (Patton, Small, & Zev Rymer, 2008). Robotic devices offer new, more sensitive, and consistent options for monitoring of patient improvement but they need to be able to provide measures that can be easily understood by physicians and related to current methods. There is little consensus how to best evaluate the effect of robotic systems on patient progress and a wide variety of measures have been used throughout current research (Del-Ama et al., 2012; Lu et al., 2011; Maciejasz et al., 2014; Sivan, O'Connor, Makower, Levesley, & Bhakta, 2011). There is also a lack of wide-scale assessments of robotic devices. This can likely be contributed to the high cost to produce the devices (Loureiro et al., 2011). Some attempt has been made to assess and compare the pros and cons of current rehabilitation measures and create a standard for assessing the effect of robotic devices on patient improvement (Sivan et al., 2011). One of the more widely used scales in literature related to rehabilitation robots is the Fugl-Meyer scale (Sivan et al., 2011).

It is highly desirable in stroke rehabilitation robotics that a robot or exoskeleton be capable of performing assistance-as-needed. This way the patient is encouraged to make the effort to achieve movement rather than learning to rely on the robot to perform the movement (Jarrassé et al., 2014; Lu et al., 2011; Maciejasz et al., 2014). Appropriately timed action is more important than strength for functional gains, however repetitive practice which builds strength without specific functional application can still help to diminish impairment (Patton et al., 2008). The ability of rehabilitation robots to adapt to different users and even to the same user on different days or throughout the same session is also highly important with regards to minimising set-up time and cost of rehabilitation (Maciejasz et al., 2014). Compliance of assistive robots is another important factor to consider as the robot should aid and encourage but not limit the movement of the patient (Loureiro et al., 2011; Maciejasz et al., 2014). This is important for safety as well. The exception to this is robots which are deliberately used to temporarily constrain certain joints or for resistive training. However, consideration of the robot's interaction with the user in a safe manner is still the most important feature. Above all else the robot should pose no harm to the user or nearby individuals.

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REVIEW OF UPPER LIMB HYBRID EXOSKELETONS

The Potential Benefits

In future, we may find that a hybrid of FES and robotics may be the most efficient for providing continuous locomotion or performance of vital activities of daily living in individuals with paralysis. (Doucet et al., 2012)

Electrically controllable actuated exoskeletons offer huge advantages in their ability to repetitively and precisely provide assistance or resistance to a user. However electrically controlled actuators which provide the required forces are often heavy in weight and have high power requirements which limits portability. In addition, external movement of a patient's limb without effort from the patient does nothing to combat muscle atrophy. Thus exoskeleton devices are more useful to patients who already have some ability to move their limb (Hara, 2013).

Functional Electrical Stimulation (FES) allows for a much lighter device which is also better suited to reducing muscle atrophy in patients with no, or extremely limited, movement. However, precise control of FES is extremely difficult and producing the specific, repetitive, and functional movement desired for effective stroke rehabilitation is not easily accomplished. Furthermore extended use of FES is limited by the introduction of muscle fatigue caused by the unnatural motor unit recruitment order (Doucet et al., 2012). The forces required for large movements, such as shoulder abduction, are often too great to be provided by the use of FES which is much better suited to smaller movements such as finger extension (Pylatiuk et al., 2009; Schill et al., 2011). Some patients also find the use of FES painful.

Combining the use of FES and an electrically controlled actuator within an exoskeleton can potentially result in a device which is overall lighter (and thus more portable) than a non-hybrid exoskeleton and which can produce greater forces and more precise control than FES on its' own. Using FES to provide some of the required forces allows the use of smaller actuators and a reduction in the energy requirements of the device. Likewise, as some of the forces are provided by the actuator the FES does not need to be as intense to produce the same movement thus reducing the amount of pain at the electrode sites and delaying muscle fatigue.

The combination of devices potentially offers a greater ability to precisely monitor patient progress. FES in combination with electromyography (EMG) can provide information on the muscle fatigue of the patient which, when combined with the consistency in movement provided by the electrically controlled actuators, could be useful for tracking patient progress across several sessions. With these features, hybrid exoskeletons have potentially great benefits for upper-limb stroke rehabilitation. However, there is little literature reporting the use of such devices. This chapter reviews the state of the field and proposes that there is a need for a portable, hybrid, assist-as-need exoskeleton for upper-limb stroke rehabilitation.

A review has previously been conducted on hybrid exoskeletons for lower limb rehabilitation of spinal injury patients (Del-Ama et al., 2012) and readers may refer to this if they wish to learn more about lower limb hybrid exoskeletons. It should be noted that in stroke rehabilitation "often, more severe impairments are found in the upper limb" (Lu et al., 2011) yet rehabilitation research focus is largely placed on recovery of function in the lower limb. All further discussion within this chapter will be with regards to the upper-limb and focus will mainly be from a stroke rehabilitation perspective.

A recent review was conducted on hybrid robotic systems for upper limb stroke rehabilitation (Resquín et al., 2016) however it predominately covered passive devices and actively actuated end-effector devices.

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No actively actuated hybrid exoskeletons were reviewed. The main focus of this chapter will be on upper-limb hybrid exoskeletons which use an electrically controlled actuator in combination with functional electrical stimulation to provide active assistance or resistance to the user. The FES and actuator do not necessarily need to be operating on the same joint and the goal of the hybrid exoskeleton may be purely rehabilitative or it may be designed to aid with ADL during rehabilitation.

A search was conducted in the IEEE, PubMed, ScienceDirect, and Google Scholar databases for relevant papers added prior to October 2016. A total of 12 different exoskeletons were found which combine an electrically controlled actuator with FES to provide active assistance or resistance to the user. Table 1 on page 7 presents a summary of these 12 reviewed upper limb hybrid exoskeletons.

The results are discussed in five subsections based on the key features of exoskeletons in stroke rehabilitation. The subsections are as follows: Firstly, the suitability of hybrid exoskeletons to aid movement in the different joints is discussed. The second subsection discusses ability of hybrid exoskeletons to provide a portable aid and the impact of actuator selection. The third subsection addresses hybrid exoskeletons as a patient monitoring tool. The fourth subsection discusses the various control schemes used as well as intention estimation methods. The final subsection presents an evaluation of the usability of the current upper-limb hybrid exoskeletons and the clinical evidence regarding the benefits and costs of hybrid exoskeletons. Future directions are then discussed and several concluding remarks summarizing the chapter are made.

Supported Movements

Presently when FES is used on the upper-limb for stroke rehabilitation it is either used to prevent subluxation of the shoulder or to aid with grasping movements in the hand. Rarely, if ever, is FES used to actuate the shoulder or elbow joints. There are several reasons for this. FES induced fatigue is considerably less pronounced for movement of smaller limbs, such as the fingers. In addition, for some patients FES is only capable of producing limited forces and so is much less suited to larger movements. There is also greater difficulty in controlling FES-induced movements when they are very large. It is much easier for a patient to practice only opening and closing of the hand than it is for a patient to practice only shoulder or elbow movement. Any movement of the shoulder and elbow will also result in movement of the hand. When FES is used to help actuate shoulder or elbow movements a physiotherapist or other helper is generally required to hold the lower part of the patients' arm to keep it from flopping about uncontrollably.

The joints which electrically controllable actuated exoskeletons are used for in stroke rehabilitation depend greatly on where the weight distribution of the exoskeleton is predominately located. Exoskeletons and end-effectors which place weight through some medium other than the patient themselves (e.g. the floor, a table, a chair, a lower limb exoskeleton) also often tend to be used more for fingers and wrist movement. As mentioned previously, functional gains are predominately related to regaining movement in these joints and most patients tend to regain movement in the shoulder and elbow first so it is no surprise that the fingers and wrist joints receive so much attention. However, the movement of the arm as a whole should not be ignored. Many functional tasks require control of all of the joints in the upper-limb. The ability to reach out, grasp a cup, bring it to the mouth, take a drink, and return it to the table, is an example of a key functional movement that utilises all of the main joints in the arm. Evidence strongly indicates that rehabilitation which practices movement of the arm as a whole produces better clinical outcomes than rehabilitation which focuses only on one or two joints (Resquín et al., 2016).

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Table 1. Reviewed upper limb hybrid exoskeletons

System	Supported Movements	Portable	Stage of Development	FES	Actuator	Main Control Input	Control Methods	Feedback	Advantages	Possible Improvements
Orthojacket (Schill et al., 2011)	Shoulder, elbow (actuator only). Wrist and fingers (FES only).	Fixed to wheelchair. Elbow and wrist sections of the device can be made portable.	Investigative study on 3 healthy subjects (elbow only). Investigative study on 1 SCI subject (elbow only).	Motionstim 8 (wrist, fingers)	Stepper Motors (Shoulder). Fluidic actuators (elbow).	sEMG and/or joystick	sEMG proportional control.	Speed, position	Modularity.FES electrode array. Can be worn under clothing.	Full device has not yet been tested. Only testing of the modules have been done.No fatigue monitoring.
Haptic Robotic Glove (Hartopanu, Poboroniuc, Serea, Irimia, & Livint, 2015)	Fingers, thumb	No	Prototype	Motionstim 8	Firgelli linear actuators	Key/button press	Button proportional control.	Position	Allows independent control of fingers.	No fatigue monitoring. Response time is slow.
FES/Robot Hand (Wei Rong, Tong, Hu, & Ho, 2013)	Fingers	No	Pilot clinical study on 4 stroke subjects over 20 sessions.	2 channel stimulator	Firgelli linear actuators	sEMG	Model based. Open loop.	Position – for display only.	Shown to improve movement accuracy as well as voluntary effort and subject focus.	Some patients had trouble with the weight of the device.No fatigue monitoring.
Wearable Rehabilitation Robot (Tu, Huang, Yu, Xu, & He, 2012)	Shoulder, fingers	No	Prototype	Beurer EM41	Pneumatic muscles	Key/button press	PID control of a predefined trajectory.	Position	Demonstrates that hybrid exoskeletons can reduce the weight of the device with no performance loss.	Predefined trajectory. No fatigue monitoring.
EXOSLIM (Serea, Poboroniuc, Hartopanu, & Irimia, 2015)	Shoulder, elbow	No	Prototype	Motionstim 8	DC motors	Key/button press	Model based. Button proportional control.	Position, acceleration		No fatigue monitoring.
BCI-Controlled Exoskeleton (Elnady et al., 2015)	Elbow, wrist (actuator only). Fingers (FES only).	Yes	Investigative study on 9 stroke subjects over 2 sessions 7 days apart.	RehaStim 1 (fingers)	BLDC motor (elbow). Brushed DC motor (wrist).	EEG (Emotiv EPOC neuroheadset)	State machine with proportional control of predefined trajectories.	Position	Easy to put on (<30 s with help).	Predefined trajectory. No fatigue monitoring.

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Table 1. Continued

System	Supported Movements	Portable	Stage of Development	FES	Actuator	Main Control Input	Control Methods	Feedback	Advantages	Possible Improvements
MUNDUS (Ambrosini et al., 2009; CROSTA, 2012; Pedrocchi et al., 2013)	Shoulder, elbow (FES only). Fingers (actuator only or FES only, not both)	No. Fixed to wheelchair. Restricted to table.	Investigative study on 1 SCI subject for the hybrid part. Test was unsuccessful.	RehaStim 1 (shoulder, elbow)	DC motors (fingers)	EEG (other control options available as well, e.g. sEMG or head/ eye movement).	Intergral control, or Biomimetic feedforward control, or Adaptive feedforward control.	Position, force, object location	RFID tags for object recognization. FES electrode array. Modularity.	Trial was unsuccessful for the hybrid part.Takes 35-40 minutes to set up and calibrate.
BCI-Controlled Wearable Robot (Looned, Webb, Xiao, & Menon, 2014)	Elbow, wrist (actuator only). Fingers (FES only).	Yes	Investigative study on 5 healthy subjects.	EMPI300 (fingers)	BLDC motor (elbow, wrist)	EEG	State machine with proportional control of predefined trajectories.	Position, acceleration	Easy to put on (<30 s with help).	Predefined trajectory. Not backdrivable. No fatigue monitoring.
RUPERT (Tu et al., 2014)	Shoulder (actuator only). Elbow. Fingers (FES only)	Unknown (tethered?)	Investigative study on 3 healthy subjects.	RehaStim 2	Pneumatic muscles	sEMG	sEMG PID control.	Position, pressure, Kinect		No fatigue monitoring.
THINK2GRASP (Rohm, Schneiders, Kreilinger, Müller-Putz, & Rupp, 2012; Rohm et al., 2013; Rupp et al., 2013)	Elbow (actuator only and not all users). Fingers (FES only).	No	An investigative study was done on hybrid portion of the device with 2 SCI subjects.	Motionstim 8 (fingers)	Electric motor (elbow)	EEG + shoulder position sensors	State machine for type of movement (EEG). Shoulder position sensors control degree of movement. Open loop.	System state, and joystick angle – for display only	Neoprene sleeve with Velcro attached electrodes.Provides visual feedback to the patient.Modular.	Subject required trunk restraint in order to produce normal correct movement. Takes at least an hour to set up and the device caused mental fatigue due to complex control. Control is switched between elbow and hand.
Early Hybrid Exoskeleton (Varoto, Barbarini, & Cliquet Jr, 2008)	Elbow (actuator only). Fingers (FES only).	Fixed to wheelchair.	Investigative study on 5 quadriplegic subjects.	2 channel stimulator	Electric motor (elbow)	Voice	Neural network processes pretrained voice commands.	Force, position, 3D visual motion capture.	Force feedback is provided to users.	Requires movement in the shoulder.
ALEx (Crema et al., 2015)	Shoulder, elbow (actuator only). Fingers (FES only).	No	Investigative study on 1 healthy patient of the elbow and shoulder modules.	Rehastim	Electric motor (shoulder, elbow)	GUI - key press	Impedance control.	Position, impedance	Back-drivable. Adjustable assistance/resistance.	No fatigue monitoring. Possible misalignments with the shoulder of the subject and not adaptable to different sized patients.

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For electrically controllable actuated exoskeletons which distribute their weight predominantly through the user, focus is typically on the more proximal joints. Actuator weight is a much bigger issue the further one gets from the body, especially when one considers that stroke patients are even less capable than healthy individuals of supporting added weight on the end of their arm. Even when placed close to the body's centre of gravity actuator weight can still be an issue.

Of the twelve upper-limb hybrid exoskeletons in Table 1 only five use FES and an electrically controlled actuator for the same joint. With one exception, in cases where FES and an electrically controlled actuator are used for different joints the FES is used for the fingers and the electrically controlled actuator is used for the elbow and shoulder. All of the exoskeletons with the exception of one, attempt to aid with movement of the fingers. In contrast, only a little over half of the exoskeletons attempt to aid with movement of the shoulder joint. The distribution of actuation type used in these exoskeletons is displayed in Table 2 and may be further divided up as shown in Table 3.

When grasping an object like a cup the fingers must first extend then flex while the wrist remains extended. Generally, using FES to flex the fingers will also result in flexion of the wrist. Some devices which aid with grasping hold the wrist in a constant position while FES is used to close the fingers. The hybrid exoskeletons which use FES only for grasping and an actuator only for shoulder/elbow movements vary in their treatment of the wrist joint. The wrist joint may be fixed, actuated, or neither. Despite the differences in wrist support, all four exoskeletons which report results on reach and grasp performance using this combination, enabled the users to achieve successful reach and hand-opening movements or reaching and grasping of objects such as a cup or pretzel (Elnady et al., 2015; Looned et al., 2014; Rohm et al., 2012; Rohm et al., 2013; Rupp et al., 2013; Varoto et al., 2008).

Table 2. Distribution of actuation type by joint location

	Number
Fingers/wrist – Electrically controlled actuator + FES	2
Shoulder/elbow – Electrically controlled actuator + FES	2
Shoulder/elbow and fingers/wrist – Electrically controlled actuator + FES	1
Fingers/wrist – FES, shoulder/elbow – Electrically controlled actuator	6
Fingers/wrist – EC actuator, shoulder/elbow – FES	1
Total	12

Table 3. Distribution of actuation type by joint

	Fingers	**Wrist**	**Elbow**	**Shoulder**
Electrically controlled actuator and FES	3	0	2	2
Electrically controlled actuator only	1	2	6	3
FES only	7	1	2	1

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In the more proximal joints fatigue from FES is a much bigger issue, as is the case with actuator weight on more distal joints. MUNDUS (Ambrosini et al., 2009; CROSTA, 2012; Pedrocchi et al., 2013) is unique in its use of FES only for actuation of the shoulder and elbow joints in combination with use of an actuator only for finger movements. It is important to note that FES for the shoulder and elbow is not used entirely on its own for this exoskeleton but is done in combination with passive elements (springs and elastic wires) or electric lockable/unlockable breaks which provide support against gravity. The use of FES in combination with passive components for the elbow and shoulder was shown to result in a reduction in the energy required from the patient to perform tasks. The testing of the grasping component of this exoskeleton however, was not successful due to the weight of the actuators.

The size and weight of the actuators was also found to be an issue for two out of three of the exoskeletons using hybrid actuation for the fingers; the Haptic Robotic Glove and the FES/Robot Hand (Hartopanu, Poboroniuc, Serea, Irimia, & Livint, 2013; Hartopanu, Poboroniuc, Serea, & Livint, 2014; W Rong, Tong, Hu, & Ho, 2012; Wei Rong et al., 2013). Despite its' issues with actuator weight, the FES/Robot Hand was able to demonstrate a decrease in the muscular effort required to perform tasks and a decrease in unnecessary muscular activity. Artificial tendons proved to be a solution to the actuator weight issues for the Haptic Robotic Glove (Hartopanu et al., 2015) as they allowed placement of the actuators to be situated closer to the centre of mass of the patients' body. Initial validation of the Haptic Robotic Glove appears to have been successful with regards to performing the desired movement however the device was limited by its slow response time.

The Wearable Rehabilitation Robot (Tu et al., 2012) successfully demonstrated the ability of hybrid exoskeletons to improve the accuracy, and reduce the weight and energy requirements, when compared respectively to an electrically controlled actuator or FES alone for both grasping and shoulder movement. Actual weight reduction of the exoskeleton has yet to be done however. The other two exoskeletons which use hybrid actuation for the shoulder and/or elbow have only been developed very recently. The EXOSLIM and RUPERT use hybrid actuation for the shoulder and elbow, and the elbow respectively (Serea et al., 2015; Serea, Poboroniuc, Hartopanu, & Olaru, 2014; Serea, Poboroniuc, Irimia, Hartopanu, & Olaru, 2013; Tu et al., 2014). So far only limited testing has been conducted of these two exoskeletons but initial results are promising.

Actuator Selection and Portability

Actuator selection for an exoskeleton greatly influences several key features of resulting device and in many cases selection of one type of actuator results in a trade-off somewhere. An ideal actuator is lightweight, powerful, fast, easy-to-control, durable, portable, cheap, and compliant. Portability of an exoskeleton may be divided into three key areas; ease of relocating the device, portability with a wheelchair, and full portability. Even if the device must be plugged into a wall or computer the ability to take it home enables the patient to perform rehabilitation away from the hospital, reducing travel costs, and increasing the frequency and repetitiveness of training. Most of these exoskeletons, with a few exceptions could likely be easily relocated to a different location. There are a couple of exceptions, the Wearable Rehabilitation Robot and RUPERT (Tu et al., 2014; Tu et al., 2012), which are quite bulky and require large air supplies.

Various types of pneumatic actuators are used by three hybrid exoskeletons in this review; the Wearable Rehabilitation Robot, RUPERT, and the OrthoJacket (Pylatiuk et al., 2009; Schill, Rupp, & Reischl, 2009; Schill et al., 2011; Schulz et al., 2009; Schulz, Schmitz, Wiegand, Pylatiuk, & Reischl, 2011; Tu et

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al., 2014; Tu et al., 2012; Wiegand, Schmitz, Pylatiuk, & Schulz, 2011). Pneumatics can be light weight and are very compliant. However, they are difficult to control due to a non-linear performance, they can be slow to operate, and are they only capable of forces in one direction so must work in pairs. Perhaps the greatest barrier to the use of pneumatics is that they require a nearby air supply which can be difficult to make fully portable without adding significant weight. While the pneumatics used for the Wearable Rehabilitation Robot and RUPERT are quite bulky and pose as a barrier to portability, the OrthoJacket offers a much more compact solution.

The OrthoJacket is unique in its use of flexible fluidic actuators which may be actuated either by air or by liquid. These are lightweight and compliant and when pneumatic operation is used the supply easily fits under the wheelchair seat such that the OrthoJacket is portable with the use of the wheelchair. Typically hydraulic actuation sees more use in military lower-limb performance enhancement exoskeletons, such Raytheon XOS 2 (Army Technology, 2015), due to its' ability to produce large forces. However hydraulic actuation is usually very heavy and very expensive. Thus it is generally not well suited to medical rehabilitation applications, especially for the upper limb. Once again however, the OrthoJacket offers a unique solution, and when hydraulic operation of its's actuators is used the exoskeleton is capable of being made fully portable for the elbow and wrist sections (Pylatiuk et al., 2009). For the shoulder section, which uses an electric motor for actuation, the OrthoJacket is portable with the use of a wheelchair (Schill et al., 2011).

It should be mentioned here that only about half of the reviewed exoskeletons are aimed at stroke patients. The rest are aimed primarily at spinal cord injury (SCI) patients with some accounting for other neuromuscular and neurodegenerative dieses as well. Portability for SCI patients beyond the attachment to the patient's wheelchair is not often considered a high priority, as without a second exoskeleton for the legs the patient is not able to locomote independently anyway. On the other hand, stroke patients, who may have sufficient lower limb function but be lacking in upper limb function, can desire assistance with activities of daily living (ADL) which demand a higher level of portability.

Of the reviewed hybrid exoskeletons only the BCI-controlled Exoskeleton and the BCI-controlled Wearable Robot are fully portable for all of their joints (Elnady et al., 2015; Looned et al., 2014). In addition to the OrthoJacket, MUNDUS and the Early Hybrid Exoskeleton are also portable with the use of a wheelchair (Ambrosini et al., 2009; CROSTA, 2012; Pedrocchi et al., 2013; Varoto et al., 2008). Many of these exoskeletons are not fully portable because they are tethered to either a power/air supply or to a computer. For most of these exoskeletons, it would be possible to improve portability with wireless communications or a battery pack fixed on the user/wheelchair and in many cases future developments are planned to do so.

Electric motors are the most commonly used electrically controlled actuator among the reviewed hybrid exoskeletons and among upper-limb exoskeletons in general (Lo & Xie, 2012; Maciejasz et al., 2014), especially for movement of wrist, elbow, and shoulder joints. They are cheap, easy to control, compact, and powerful. The greatest limitations of electric motors are their weight and lack of compliance. Combining an electric motor with FES in an exoskeleton should reduce the amount of force needed and thus also the weight of the required electric motor. It is possible compliance could be improved by using methods such as Series Elastic Actuators (SEAs) (Veneman, Ekkelenkamp, Kruidhof, van der Helm, & van der Kooij, 2006). Electric motors have had most success on the proximal joints and are the actuators of choice in both reviewed exoskeletons which achieved full portability.

Two hybrid exoskeleton, the Haptic Robotic Glove and MUNDUS, attempted to use electric motors for finger actuation and neither was successful (Ambrosini et al., 2009; CROSTA, 2012; Hartopanu et

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al., 2013; Hartopanu et al., 2014; Pedrocchi et al., 2013). Linear actuators were then used as a replacement in the Haptic Robotic Glove. They were also used by the FES/Robot Hand (W Rong et al., 2012; Wei Rong et al., 2013). Linear actuators are slightly more suited for actuation of the fingers, however even these can be too heavy as was seen with the FES/Robot Hand. As mentioned earlier one solution to this may be the use of artificial tendons as used by the Haptic Robotic Glove. Linear actuators can potentially offer more compliance and reduced weight than electric motors, however they can quickly become very bulky if used for larger movements.

Patient Monitoring and Feedback

The vast majority of these hybrid exoskeletons are aimed purely at ADL assistance, or a combination of ADL assistance and rehabilitation, rather than rehabilitation alone. Thus, for these hybrid exoskeletons, more focus has been placed on achieving functional movement and reducing energy requirements, rather than on patient monitoring and feedback. Many of the assessment measures currently used in stroke rehabilitation consist of the physiotherapist evaluating the ability of a patient to perform a movement and assigning a course grading to this. In the case of the commonly used Fugl-Meyer Assessment, movements are assessed as; can perform, can partially perform, or cannot perform. Obviously, each of these measures, especially 'can partially perform', covers a very large range of abilities, and small improvements are impossible to distinguish. Use of an exoskeleton which can measure position, speed, and/or the amount of assistance needed to help a patient achieve a movement greatly increases the precision and range which a patient ability can be measured across and removes the subjectivity of the measurement.

Among these reviewed hybrid exoskeletons, in cases where the speed of the patient is monitored, such as the BCI-controlled Exoskeleton and the BCI-controlled Wearable Robot, the timing is not done by the exoskeleton itself but rather by the observer (Elnady et al., 2015; Looned et al., 2014). Often where error measurement is done for tracking it is not fed back to the user but is rather used simply for testing of the exoskeleton. Only in two cases, The FES/Robot Hand and ALEx, is the tracking task feedback an inbuilt function designed to be presented to the patient and/or therapist as a means of patient monitoring (Crema et al., 2015; W Rong et al., 2012; Wei Rong et al., 2013). In the case of ALEx, the impedance of the exoskeleton can also be adjusted and monitored, which when compared with the tracking error feedback, can help the physiotherapist to assess and adjust the difficulty of the tasks. Currently, this assistance adjustment is done manually.

Using sEMG to simply show the user and physiotherapist when an attempt to move is made, can also be very useful. The THINK2GRASP allows the patient to see the activation level and current state of the exoskeleton which can improve their ability to control the exoskeleton (Rohm et al., 2012; Rohm et al., 2013; Rupp et al., 2013). The FES/Robot Hand also monitors muscle activation levels however it is not known as to whether this is just for testing purposes of the exoskeleton or if it is intended to provide patient monitoring in a clinical setting. Other types of feedback can also be very useful when combined with exoskeleton rehabilitation. The Early Hybrid Exoskeleton provides haptic force feedback to the user which helps them relearn the force required to pick up objects and can especially aid patients who lack proprioception (Varoto et al., 2008).

At present, measurements of patient ability are largely limited to a combination of strength, precision, and speed. The ability of fatigue monitoring to be performed in combination with tracking and control of patient movements offers many advantages if fed back to the physiotherapist and could be extremely useful when selecting training programs. In addition, an exoskeleton could also be designed to auto-

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matically adjust its assistance in response to a combination of patient performance and physiotherapist commands. Little focus has been placed on muscular fatigue monitoring so far, let alone incorporating it into the feedback and control of the exoskeleton. Two of the exoskeletons, MUNDUS and THINK-2GRASP, monitor the muscular fatigue of the subject in order to test the performance of the exoskeleton (Ambrosini et al., 2009; CROSTA, 2012; Pedrocchi et al., 2013; Rohm et al., 2012; Rohm et al., 2013; Rupp et al., 2013) but none incorporate fatigue monitoring feedback in the control or user interface of the exoskeleton. While some of the exoskeletons are modular and can be adapted to the different patients, none are capable of automatically adjusting their assistance in response to muscle fatigue. Much more research is required in the area of muscle fatigue monitoring. Indeed, much improvement is needed in the area of patient monitoring in general.

Intention Estimation and Control

Compatible control of both the electrically controlled actuator and the electrical stimulation is one of biggest challenges facing hybrid exoskeletons. Control of exoskeletons is typically focused mainly on achieving the correct the movement of the exoskeleton however in the case of hybrid exoskeletons and any device using FES, control of muscle fatigue is also an important consideration.

Prior to achieving any type of control however, the desired movement must first be specified. Typically, the initialisation of movement is always specified by the user in some way, and the actual movement itself can be either user-controlled or user-initialised. If the movement is user-initialised then a predefined trajectory is used and the user has limited control once the movement has begun. If the movement is user-controlled, then the exoskeleton will produce a movement which is continuously proportional to the user's intent. This should not be confused with a proportional controller, which is a type of controller with a feedback loop, where the control signal is proportional to the size of the error between desired output and measured output (Figure 1).

User-controlled movement is used in most of these exoskeletons and is preferable for two reasons. Firstly, it is more useful for the patient with regards to helping them with ADL, and secondly a movement which accurately reflects that which the patient is attempting to perform has been shown to better help with the formation and reestablishment of neural pathways (Maffiuletti, Minetto, Farina, & Bottinelli, 2011). This can speed up the recovery of the patient and help them to relearn self-movement. It is however, much more complex to implement than user-initialised movement.

As described earlier, the simplest methods used to estimate the intention of the user is the use of key/button presses or a joystick. These methods are used in a few of these hybrid exoskeletons both as the sole method of intention estimation and in combination with other methods. The downside to using key/button presses or a joystick is that often then the patient's movement is limited in some way. Other methods for obtaining user intention include the monitoring of speech or eye movement. One exoskeleton, the Early Hybrid Exoskeleton, used voice recognition as its method of intention estimation. This method was correct in recognizing a particular command 92% of the time (Varoto et al., 2008). However, it should be noted that often speech can be impaired following a stroke so this method may not be suitable to all users. The exoskeleton, MUNDUS, which monitors eye movement was also successful in obtaining correct user intention. However, the eye-tracking unit used is mounted to a table and this method is thus limited in its portability (Ambrosini et al., 2009; CROSTA, 2012; Pedrocchi et al., 2013).

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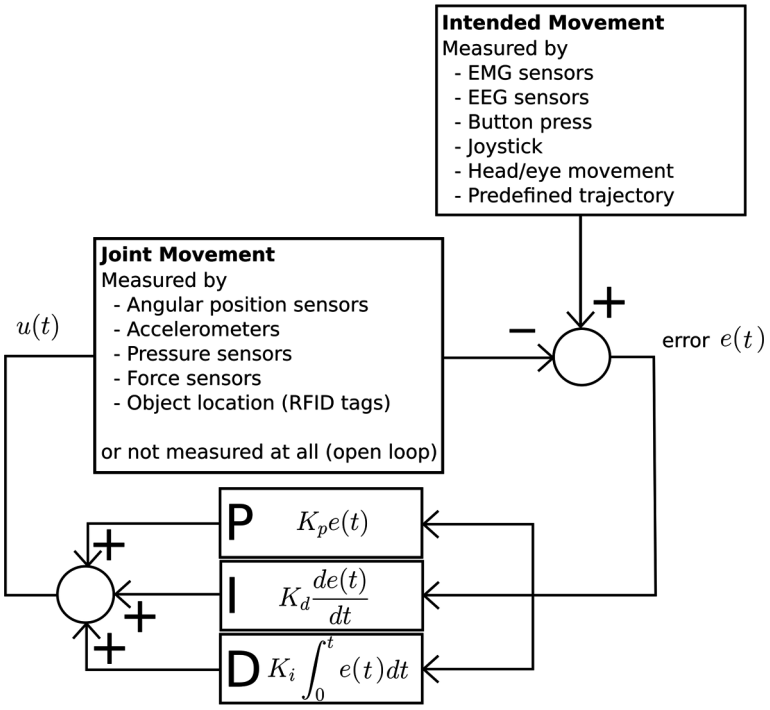
The use of EMG or EEG is much more portable and poses no limitations on movement. EEG was used by three of the reviewed exoskeletons, the BCI-Controlled Exoskeleton, the BCI-Controlled Wearable Robot, and THINK2GRASP. In all three of these exoskeletons EEG was used primarily to initialise movement which was either simply user-initialised or, in user-controlled exoskeletons, where the continuous control of the exoskeleton was done using a different method (Ambrosini et al., 2009; CROSTA, 2012; Elnady et al., 2015; Pedrocchi et al., 2013; Rohm et al., 2012; Rohm et al., 2013; Rupp et al., 2013). As described earlier, when EMG signals are present in a stroke patient, measurement of these is preferable over the use of EEG, as EMG is particularly useful for fatigue monitoring and does not require the training that EEG does. Three exoskeletons use EMG for user intention estimation, the OrthoJacket, the FESFES/Robot Hand, and RUPERT (Wei Rong et al., 2013; Schill et al., 2011; Tu et al., 2014).

Control of the reviewed exoskeletons is either open loop, or more predominately, proportional or a variation of proportional-integral-derivative (PID) control (Figure 1). Two exceptions are The Early Hybrid Exoskeleton, which uses a neural network to recognize and respond to predefined voice commands (Varoto et al., 2008), and ALEx, which uses impedance control to follow a predefined trajectory (Crema et al., 2015). In exoskeletons which are capable of multiple different movements state machines are often used to select which movement to perform. For example, THINK2GRASP uses a state machine based on EEG readings to select the type of movement and position sensors at the shoulder to control the degree of movement (Rohm et al., 2012; Rohm et al., 2013; Rupp et al., 2013).

Figure 1. An example of closed loop PID exoskeleton control



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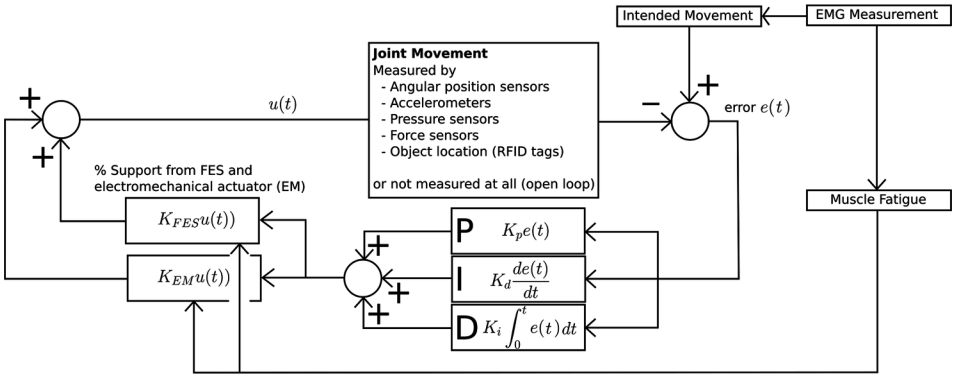
The parameters typically used for FES vary depending on the specific muscle, patient, and other factors, and have been discussed elsewhere (Doucet et al., 2012). Little feedback control of FES parameters has been performed in these hybrid exoskeletons. Parameters are often adjusted until desired movement is achieved and then fixed at a set level. The FES/Robot Hand compared different combinations of FES and electrically controlled actuator support with the aim of reducing tracking error. They found the optimal combination was to provide equally balanced support from each (W Rong et al., 2012; Wei Rong et al., 2013). It is important to note that the FES/Robot Hand did not use feedback in the control of the exoskeleton however, and thus these results are specific only to open loop control. With feedback, different combinations of FES and electrically controlled actuator support may produce different results. An example of what the PID control loop of an exoskeleton may look like with feedback of muscle fatigue added is displayed in Figure 2.

Figure 2. An example of closed loop PID exoskeleton control with fatigue feedback



Cycling pulses on and off has been shown to improve muscle recovery, reduce fatigue, and increase patient comfort (Doucet et al., 2012). It was noted earlier however, that minimal fatigue monitoring has been performed among hybrid exoskeletons so far and as such no automatic control or management of muscle fatigue has been done. In some hybrid exoskeletons, like THINK2GRASP, when muscle fatigue is noticed by the researcher the stimulation intensity is simply increased to compensate (Rohm et al., 2012; Rohm et al., 2013; Rupp et al., 2013). FES parameters such as frequency, pulse-width, ramp-time, and duty-cycle, can all affect onset of muscle fatigue. With the ability of the electrically controlled actuator to provide variable support the resulting movement of the hybrid exoskeleton need not alter with a variation in FES parameters. In such a case where multiple parameters of FES are varied it may be preferable to treat the muscle response from the FES as a disturbance and have the electrically controlled actuator compensate for the resulting output variation (Figure 3).

Usability and Trials

Usability is a key component in the ability of hybrid exoskeletons to improve patient outcomes. If patients and physiotherapist do not want to use the exoskeleton due to difficulties in using it or issues with comfort, then it does not matter how capable the exoskeleton is in improving patient outcomes.

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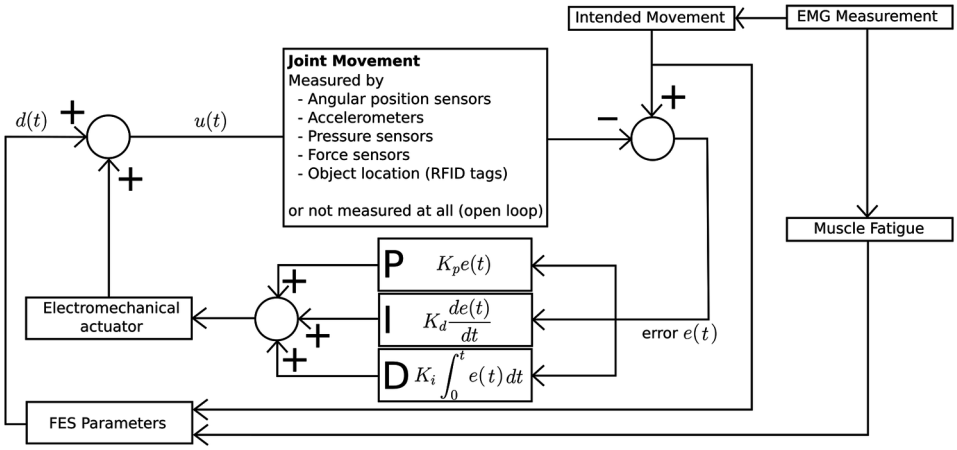
Figure 3. Closed loop PID exoskeleton control with fatigue modelled as a disturbance



The preparation time of the hybrid exoskeletons reviewed ranges from the very quick (<30 s with help) as seen with the BCI-controlled Exoskeleton and BCI-controlled Wearable Robot (Elnady et al., 2015; Looned et al., 2014), to the excessive (up to 1 hour) for the THINK2GRASP exoskeleton (Rohm et al., 2012; Rohm et al., 2013; Rupp et al., 2013). However, many of these exoskeletons do not detail the preparation time so it is difficult to fully evaluate the status of this area. A typical patient session is about an hour long and will sometimes be divided into one section for the upper-limb and one section for the lower-limb. For a hybrid exoskeleton to be useful it should not take up a significant portion of this time to achieve a ready-to-use state. In addition, if the patient is to use the device at home then they need to be able to attach it without help.

Some exoskeletons were difficult to use, caused mental fatigue, and/or required several training sessions prior to their use, as was the case with THINK2GRASP. In certain cases, like the Early Hybrid Exoskeleton, patients did not have sufficient limb movement to use the device (Varoto et al., 2008), or in the case of THINK2GRASP, were not sufficiently able to use the control interface. ALEx was only capable of fitting patients of a smaller and thinner stature and suffered from possible joint misalignment at the shoulder (Crema et al., 2015). On a more positive note some exoskeletons proved useful even for patients with proprioception problems (Hartopanu et al., 2014), and others, such as the FES/Robot Hand, reduced the energy required of the user for a particular task (W Rong et al., 2012; Wei Rong et al., 2013). Some exoskeletons, such as the OrthoJacket, consisted of modular components and were capable of being adjusted to suit patients with different abilities.

The user interface of the hybrid exoskeleton needs to be very simple and intuitive to interact with, as cognitive ability and focus of a patient can be considerably impaired following a stroke. It is desirable that a patient have some control over the device without the need for direct observation. Control which a physiotherapist has over the exoskeleton should also be distinctively separate to the control which the patient has, much like the commercial FES devices which can have their parameters pre-set and then locked so the patient has no concerns about accidently changing physiotherapist settings. Modularity of an exoskeleton and the ability to fit different-sized or different-skilled patients is highly useful and desirable if adjustments are not overly time-consuming or complicated.

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Hybrid exoskeletons are a very recent development and thus only limited testing has been done to date. In some cases, the entire exoskeleton has not even been tested as a whole, such as can be seen with the OrthoJacket, the Haptic Robotic Glove, and ALEx (Crema et al., 2015; Hartopanu et al., 2013; Hartopanu et al., 2014; Pylatiuk et al., 2009; Schill et al., 2009; Schill et al., 2011; Schulz et al., 2009; Schulz et al., 2011; Wiegand et al., 2011). In many cases the exoskeleton has only been tested on the designer themselves or a couple of healthy subjects. None of these exoskeletons have been tested on more than 10 subjects or over more than 20 sessions, and only one hybrid exoskeleton, the FES/Robot Hand, has been tested where established clinical measures (such as the Fugl-Meyer scale) have been performed on patients as an evaluative measure of the exoskeleton's ability to improve rehabilitation (W Rong et al., 2012; Wei Rong et al., 2013). In most cases only functional testing has been performed.

FUTURE RESEARCH DIRECTIONS

Overall most success towards achieving functional movement, such as a reach and grasp of an object, has been had with hybrid exoskeletons which do not utilize the combination of FES and electrically controlled actuation at the same joint, or which use a passive component in place of an active actuator. Indeed, both setups also result in a simplification of the control of the exoskeleton. The use of FES on its' own for grasping has also proven successful for allowing patients to achieve functional movement with sufficient precision. There is room for improvement with regards to increasing precision, however actuator weight is likely to remain a significant barrier towards achieving this using full hybrid actuation, as has been seen in the results of the hybrid exoskeletons which use full hybrid actuation for grasping. Other methods may be more useful here, such as electrode arrays which have previously demonstrated a significant increase in the precision of grasping movements (Malešević et al., 2012).

With regards to the shoulder and elbow joints there remains the issue that unless the patient has some movement in these joints already, using only electrically controlled actuation for these two joints can only help with neural repair but not with reducing muscle atrophy. This is especially true for patients early on in recovery who have very limited movement. It may be that exoskeletons with passive components are sufficiently suited in some cases to reducing exoskeleton weight, reducing muscle fatigue, and producing functional movement, however these exoskeletons still rely on the use of FES on its' own to produce the entire movement. In many cases forces produced from FES are insufficient even with the help of a passive component (Resquín et al., 2016). Precise control is also easier to achieve with the use of an active actuator. Hybrid exoskeleton development in this area is especially new. Initial results do indicate that hybrid exoskeletons may prove useful for helping to achieve functional movement and to improve clinical outcomes, especially for patients with limited movement, in these more proximal joints. Electric motors have had the most success so far although there is plenty of opportunity for research into novel methods of actuation. While hybrid exoskeletons have been shown capable of reducing the energy requirements of the exoskeleton, actuator weight remains a common issue. Placement of the actuator is an important consideration and cable-actuated exoskeletons offer a lot of flexibility here.

Hybrid exoskeletons present a unique opportunity to further investigate the effects of FES parameters on muscle fatigue and potentially to delay muscle fatigue onset. In all cases where the FES device has been specified a commercial device has been used instead of one being designed specifically for use in the hybrid exoskeleton. This makes it easier to incorporate hybrid exoskeletons into a clinical setting as most rehabilitation clinics already use FES, however, depending on the device used, it may limit the

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flexibility and controllability of the hybrid exoskeleton possibly reducing their potential advantages. While proportional, PID, impedance, and admittance control are simple to implement it may be that more robust control schemes, such as artificial neural networks (ANNs) or other types, are be better suited to take full advantage of the hybrid combination and to perform fatigue management, patient improvement monitoring, or assist-as-need.

There are currently no commercially available upper-limb hybrid exoskeletons and predicted prices for exoskeletons which do have a long term view of commercialization are not expected to be cheap (Pedrocchi et al., 2013). Due to cost of hybrid exoskeletons and indeed exoskeletons in general wide scale evaluation is difficult (Loureiro et al., 2011). Devices which can prove beneficial to a wider range of subjects will likely be easier to commercialize. Modularity, which has been attempted in some of these exoskeletons, may help to lessen the barriers to commercialization, however it is important that usability and comfort are not sacrificed.

CONCLUSION

At this stage, success has been most prominent among hybrid exoskeletons which are focused on the more proximal joints. Indeed, hybrid exoskeletons may be more useful for the shoulder and elbow joints while FES alone may be successfully used for grasping. Many of the reviewed hybrid exoskeletons are only in the initial stages of development with limited trials conducted thus far and the potential benefits of hybrid exoskeletons have yet to be fully taken advantage of. The control schemes used are typically simple in nature and none perform involved fatigue management. The assist-as-need paradigm has yet to be implemented in any hybrid exoskeleton. The usability of current upper-limb hybrid exoskeletons is mixed with many exoskeletons performing quite well in some areas but lacking in others. Additionally, predicted commercial prices are not expected to be cheap. Despite this, preliminary results are promising and the ability of hybrid exoskeletons to improve the energy efficiency of exoskeletons has been successfully demonstrated in prototypes.

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KEY TERMS AND DEFINITIONS

Activities of Daily Living (ADL): Activities conducted routinely during everyday life which most people can perform without assistance, for example, eating, bathing, dressing, toileting, transferring (walking), and continence.

Electroencephalography: The recording of the electrical activity in the brain.

Electromyography: The recording of electrical activity in muscle tissue.

Fugl-Meyer Scale: An index used to assess the sensorimotor impairment of people who have had a stroke.

Functional Electrical Stimulation (FES): Electrical stimulation applied to a muscle which results in functional movement.

Muscle Atrophy: A reduction in the mass of a muscle.

Muscle Fatigue: A reduction in the ability of a muscle to generate force.

Proprioception: The ability to sense the position and movement of the parts of one's own body.

Stroke: A stroke occurs when the blood supply to a section of the brain is blocked or reduced significantly, resulting in the deprivation of oxygen and nutrients.

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Chapter 36
A SWOT Analysis of Virtual Reality for Seniors

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ABSTRACT

The population of older people is increasing. In this book chapter, the author reviewed some of the applications of virtual reality (VR) for seniors in form of a strengths, weaknesses, opportunities, and threats (SWOT) analysis. This approach is commonly used to assess and guide internal and external parameters to accomplish a mission. Some of the challenges that the elderly are facing were reviewed and the way VR can help in overcoming those challenges were discussed. A comparison of VR technologies was also presented. The results show that VR's feasibility and concept are linked to existing technologies and the characteristics of each system control immersion, interaction, and stimulation. VR interventions might have the potential to be used as ecologically valid e-health screening systems. Systems should be specifically designed and adapted for seniors and usability issues should be addressed. Ideally, VR interventions work best in addition to traditional methods. Future studies should use more subjects to ensure the efficacy of such interventions for seniors.

INTRODUCTION

Human life expectancy and the population of elderly people over 60 years old are increasing. People might be less available to properly support older family members. Costs of hospitalization and nursery homes, as well as physical barriers, loneliness, and isolation, are among challenges that elderly are facing (Marcelino et al., 2018). Research has shown that regular physical activity (PA) is important for good health. It could also prevent various diseases and lower the risk of fall (Ofstedal, Zimmer, & Lin, 1999). Additionally, PA could improve memory and executive functions in the short and long term. However, aging is usually accompanied by deterioration of muscular strength, sensory sensitivity, and functional capacities (Park & Yim, 2016). These physiological changes affect the seniors' willingness to participate in regular PA (Lin et al., 2018). The physical decline also affects the elderly's quality

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of life, falls, admission to the healthcare centers, and mortality. Cognitive impairments also affect the elderly's functional autonomy and result in a decline in physical performance and unsafe decisions and behaviors (Dommès et al., 2015).

By means of computers interfaces, virtual reality (VR) allows users to enter a virtual world. It uses various audiovisual technologies to provide high interaction leading to a feeling of immersion (Lin, Jeng, and Yeh, 2018). VR simulates environments and activities by using real-time stimulation of one or more sensory channels. Its feasibility and concept have been linked to the existing technologies for simulation and interaction. VR settings provide immediate feedback that could be necessary for all forms of learning (Manera et al., 2016). They also offer personalized environments according to the needs of the different participants.

Although seniors shape a considerable portion of our population, they are often overlooked when it comes to newly introduced technologies. They may not always be willing to accept new technologies, in fear of not being able to use them (Lin et al., 2018). Despite the functional loss, seniors still have the abilities to acquire and re-learn performance skills (Skjæret et al., 2016). Technology might be used to promote better performance for them. Jeng, Pai, and Yeh (2017) suggested that to encourage the elderly to use technology, psychological barriers should be broken. Teaching and providing hands-on experience and assistance, increase their willingness to experience new things. VR may have the advantage to control the type and amount of experience each patient receives and may boost learning transfer to the identified targets (Maillot et al., 2017). VR also has the ability to change the existing scenarios by modifying physics and other aspects of reality. Virtual tasks might be designed according to the elderly's needs for acquiring and practicing new skills repeatedly. The immersive nature of these interventions may also offer implicit learning processes without the patient's awareness (Rand et al., 2017).

Telerehabilitation uses information and communication technology and offers accessible and affordable services to people in their homes (Kizony et al., 2017). The use of VR and serious games for older adults are generally categorized in improving upper and lower limbs movements, balance, mobility training, daily living, neglect, and cognition (cf. Deutsch and Westcott, 2017). The challenge is to provide enough amount and intensity and therefore, various technological approaches have been proposed. VR could also be used as an add-on to robotic devices for execution of movement or to be used as standalone systems using visual stimulation and interaction (Hoermann et al., 2017; Cameirão, Bermudez, & Verschure, 2008).

Considering these issues, this book chapter will present a SWOT analysis of using VR for seniors. SWOT stands for strengths, weaknesses, opportunities, and threats, and is usually used in business to analyze the parameters that affect the company's competitive position in the market. A strength is a positive capacity that allows an entity reaching to its defined goals. A weakness is a limitation that slows the progress towards the defined goals. An opportunity is an internal or external force in favor of that entity. A threat is an unfavorable situation that could present a barrier or limitation in achieving goals. SWOT analysis is done to reveal the optimal match between strengths, weaknesses, opportunities, and threats that the company is facing. SWOT framework could also be applied outside of the business domain (Rizzo & Kim, 2005). Based on a SWOT analysis, strategies could take advantage of opportunities by using their strengths and by actively addressing threats by correcting the weaknesses.

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BACKGROUND

In this part, some of the challenges that elderly people might face are explained:

Falls affect approximately one-third of older adults per year and could significantly reduce their independent functionality (Talamo et al., 2017). Injuries and fall-related costs are high and their prevention are important public health challenges. Fall risks can be attributed to both motor and cognitive deficits. Multimodal interventions that target both motor and cognitive functions may contribute to fall reduction (Mirelman et al., 2013). Surveys and physical tests are used to measure both intrinsic and extrinsic risk factors. Physical tests are easy to administer but they lack ecological validity or the degree of similarity between the training environment and the real-world. Moreover, traditional tests may not have the ability to isolate specific sensory defects (Saldana et al., 2017). This is important as ecologically valid tests add value for predicting improvements in everyday functioning.

Static and dynamic balance training are usually prescribed to overcome day to day tasks in the older population. Biofeedback systems could also be beneficial for building new motor skills. They allow motor-cognitive systems integration and self-perception of treatment effectiveness (Montero-Alia et al., 2016). However, these systems are expensive, are not highly accessible, and require an expert to operate them. Other existing proactive interventions for fall prevention may also produce mixed success results because these exercises do not specifically target the neuromuscular skills required for fall prevention (Parijat et al., 2015).

Stroke is the main cause of long-term disability, and the majority of stroke patients are over 65. It creates many problems such as difficulties in completing daily living activities. Neuroplasticity and recovery after strokes are improved by repetitive, task-oriented, and intensive training. However, general barriers of cost, transport, information (on how and where to exercise), and time exist. Moreover, it seems that motivation is a major challenge for rehabilitation adherence (Paquin et al., 2016). Other parameters such as the number of exercises, their effectiveness, and their complexities might also contribute to the adherence (Pallazo et al., 2016). Stroke patients may also experience visual neglect as a result of brain dysfunction. In clinical practice, these patients are often observed for far and near space sight check.

Personally lived events are called episodic memories and they shape our identity and connect us the past and future. Changes in this type of memory (e.g. due to age) could predict the evolution towards neurodegenerative disorders (Abichou, La Corte, & Piolino, 2017). Alzheimer's disease (AD) is a common form of dementia and results in a decline in cognition and daily living activities. Mild cognitive impairment (MCI) is the limited declination of cognitive abilities in the AD. Patients with MCI have problems remembering the relationship between objects or between objects and their contexts. Spatial disorientation is another early manifestation of AD and MCI in which patients have problems in unfamiliar places.

Cognitive and functional tools are usually used to detect early manifestation of the disease. Assessing instrumental activities of daily living (e.g. using a bus or a telephone) is important for choosing better interventions for AD patients. Traditional neuropsychological tools use simple situations and are able to partially measure the characteristics of episodic memory. Ecological tasks might be more beneficial compared to subjective questionnaire-based assessments (Vallejo et al., 2017). Novel screening tests use new technologies and game principles and focus on the immersion of the users in various scenarios to mislead and deceive patients' minds (Fernandez & Argyriou, 2017). Assessing patients with VR application seems legitimate because they could recreate conditions similar to that of the real world. In the

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next section, the differences between different forms of VR are discussed and after, a SWOT analysis of how VR could address the mentioned challenges is presented.

MAIN FOCUS OF THE CHAPTER

Differences Between Exergames and the VR

Early studies have characterized active video games (exergames) as forms of VR. In fact, these two terms are usually used interchangeably. We have heard research findings like these: Elderly may have higher interests in participation in exergame sport activities than real-world activities (Wollersheim et al., 2010); When exergames are used for rehabilitation, elderly are more motivated and rarely drop out (Pigford & Andrews, 2010). There are also demented pieces of evidence on better control over posture stability and balance when using exergames (Chiang et al., 2011). So, what are the differences between exergames and VR?

For a system to create the illusion of interacting with a virtual world, it should offer presence, immersion, and flow. The presence or the realness of the world is partly created by the system's ability to deliver an illusion or degree of immersion. This is where the differences of exergames and other types of hardware is more visible. Exergame platforms detect your movements with their sensors and transfer them to computerized avatars inside the games. Nintendo Wii also comes with a balance board, a small portable force platform that could be coupled with various Wii Fit games. It adds enhanced immersion by monitoring center of gravity while the participants interact with the on-screen characters (Rendon et al., 2012). More immersive virtual environments include cave automatic virtual environments (CAVE) which are basically a video theater within a room. The walls of the cave are made up of rear-projection screens. Users enter the cave while wearing 3D glasses and their movements are monitored to continuously adjust viewers' perspective. Newer technologies such as head-mounted displays (HMD) use participant-centric perspective. They have a larger field of view (FOV) and stereoscopic visual fields that are constantly modified by head position and rotation. The recent HMDs have higher FOV, display resolution, and tracking latency resulting in a better creation of the visual illusion of real objects and scenarios.

One reason to consider exergames as VR might be that exergame platforms provide immediate feedback to players' movements, offering immersive feelings. Therefore, VR's feasibility and concept are linked to the existing technologies for immersion, interaction, and stimulation. The characteristics of each concept are responsible for delivering an illusion of reality (immersion). These characteristics later affect presence or the sense of being in the VR (Borrego et al., 2018). For example, one might argue that HMDs and CAVEs are more immersive than exergames because they provide higher visual stimulation. However, this degree of immersion is not necessarily related to the effectiveness of the system (Deutsch & Westcott, 2017), and both VR and video games create a state of flow, the optimal performance zone of the players.

Lee, Chen, and Chang (2016) argued that tasks presented on LCD displays are in fact presented in 2D. In a 2D virtual environment, there is no stereo vision and subjects see one planar view. Other cognitive and sensory cues may be used to indicate depth; for example, an avatar walking in a jungle. As patients need to imagine 3D patterns, a huge cognitive load is created when the information is presented in a 2D format (Sweller et al., 1998). It has been suggested that augmented reality (AR) provides better 3D stimuli and manual spatial manipulation (Sweller et al., 1998). On the other hand, by using

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AR, users might change their behavior when they are aware of being observed (Sweller et al., 1998). Liebermann et al. (2012) also compared arm reaching movements made in 2D video VR environment with the real-world environment. They showed that movements patterns were affected by viewing angle and were slower, shorter, and less accurate compared to the real condition. They also suggested that a 2D VR environment may be perceptually and cognitively challenging for the participants because the intended 3D illusion presented by their VR was likely based on previous memories and experiences. They concluded that caution needs to be taken when using these environments for improving the quality of movement for rehabilitation of upper limb.

Another issue to consider is that visual systems contribute to balance and visual perturbation cause instability. Exergames do not completely encompass the viewer's FOV, and visual information from surroundings of the VR environment (e.g. TV or screen) can still provide stability cues (Menzies et al., 2016). HMDs obscure unwanted additional visual cues and add ecological validity through the addition of depth perception (Saldana et al., 2017). However, it may cause simulator sickness and if not properly designed or performed without supervision, may lead to falls.

Strength

Riva et al. (2004) used a VR-based multidimensional approach to treat body image (perception of the aesthetics or sexual attractiveness of one's body) attitudes. Their results showed positive short-term results in improving the overall psychological state of the participants compared to the traditional cognitive-behavioral training. Chang et al. (2014) compared the effects of a VR gaming system on sleep quality of elderly people with a disability. They showed that regular VR exercise significantly reduces stress among the older patients, confirming that it can improve their sleep quality. In his meta-analysis, Cardinale (2018) suggested that VR balance training using Nintendo Wii improves Borg balance scale score compared to no balance training, and helps people to multi-task during balance training. Parijat et al. (2015) used VR as a perturbation-based training tool for older adults. They found that their VR environment could induce perturbations similar to a slip. It could also reduce the incidence of balance loss during the actual experiment on a slippery surface. Mirelman et al. (2016) targeted the interplay between cognitive and mobility deficits and combined non-immersive VR gaming with treadmill training. After 6 months of training, those who trained on the treadmill using VR had a significantly lower fall incident rate compared to the treadmill only group.

Yasuda et al. (2017) examined the immediate effects of an immersive VR rehabilitation program (a reaching task and a visual searching task) using HMD. They concluded that this program might be beneficial for the visual searching task in far spatial neglect. Self-training compliance using video games for post-stroke rehabilitation is shown to be higher compared to traditional methods in elderly patients (Rand et al., 2017). Parsons and Barnett (2017) developed a VR measure of memory and validated it with traditional methods in older adults. Not only the VR measure was similar to traditional methods for memory measures, it provided objective measurements of individual memory components. Their subjects also preferred the VR task over the pen-and-paper measures. Vallejo et al. (2017) developed a VR serious game to assess cognitive function in healthy and AD patients using an ecological approach of daily living activities. Differences were expected between healthy and AD patients in terms of percentage of achievements and the time needed to achieve those tasks. However, the additional qualitative information regarding the errors in the achievement of the tasks provided information about cognitive functions.

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Nir-Hadad et al. (2017) also validate their VR shopping task for the assessment of executive function in stroke elderly population. Maillot et al. (2017) developed an affordable and transportable VR system to help older pedestrians make safer street crossing decisions. They also measured whether training with the small-scale simulator transfers to a full-size simulator where they could actually walk. They showed that the small-scale simulator triggers more unsafe decisions compared to full-scale. It also allowed learning new skills and modify behavior to use in the large-scale simulator (learning transfer).

Weakness

Manera et al. (2016) argued that their VR task needs to be improved to fix usability issues. They attributed the lower performance of elderly in VR to the difficulties elderly have with using the mouse and possibly to eye strain from wearing the 3D glasses. In general, the senior population suffers from technological illiteracy. For maximum efficacy, VR systems should promote a user-centered design and their primary focus should be on inclusive design, usability, and accessibility. Different sensors might demand higher body performances. For example, to use Kinect, it is necessary to move the whole body. Some sensors might require players to have better coordination and in elderly it might cause lower levels of performance. Other technologies like touch screens may not require high levels of body movement but may demand higher mental agility (Palacio et al., 2017).

Bezerra et al. (2018) showed that VR environments provide improvements of performance in healthy older adults. However, there is no transfer of performance from VR to the real task and vice versa. Rand et al. (2017) compared video game and traditional self-training for upper limb rehabilitation in older adults after a stroke. Although improvements were observed in the two methods, they showed that the differences were not significant. Zygouris et al. (2015) used a virtual supermarket task for MCI screening. Although the task displayed a high correct classification rate between MCI and healthy elderly, it was unable to differentiate between MCI subtypes. Dommes et al. (2012) assessed the effectiveness of a VR training program for elderly on the street crossing decision making. Although they showed that immediately after the training, the intervention group and the control group differed significantly, these differences were not significant after 6 months. However, a clear shift to making more safe decisions was observed for all participants. In general, due to the lower number of subjects in different studies, the generalization of the results are somewhat restricted (Yeşilyaprak et al., 2016).

Opportunities

Mattan et al. (2017) discussed that age is associated with reduced perspective-taking capacity. They showed that compared to younger adults, older people are relatively more egocentric and more accurate when they are in the first person perspective compared to the third person perspective. Mohammadi et al. (2018) also used two VR navigation tasks (allocentric and egocentric virtual neighborhoods) in different AD patients. They showed that patients needed more time to find the goal in egocentric tasks. It might be possible to properly distinguish specific types of AD patients from others. Sobral Monteiro-Junior et al. (2017) showed that exergaming could offer improvements in short-term memory, working memory, and semantic memory/executive function over time. Valladares-Rodriguez et al. (2017) used a digital game to assess episodic memory, which is used to evaluate potential cognitive impairments in the elderly. Using the new ecological, non-intrusive, and better administrable tool, they conducted the

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test in a shorter time. They could also introduce scenarios that are closer to real life while being more engaging and highly acceptable compared to the classical pen-and-paper based method.

Fernandes and Argyriou (2017) used VR as an affordable approach for creating e-health screening AD diagnostic systems. They proposed VR tests that could evaluate memory loss related to common objects, recent events, expressing and understanding languages, and the ability to recognize abnormalities accurately and similarly for the presence of AD. From their research, Plancher et al. (2012) concluded that VR is better adapted for early diagnosis of AD compared to traditional verbal memory tools. Manera et al. (2016) tested the feasibility of an image-based VR system in MCI and dementia. Their patients reported high feelings of security and low discomfort, anxiety, and fatigue. Although the VR task was more difficult, they were also more satisfied with the VR condition and preferred it to the paper condition.

Lin et al. (2018) used means-end chain techniques to examine elderly's awareness and personal values regarding VR activities. Elderly population mentioned leisure VR activities to be fun, safe, easy, and physically and mentally healthy. While playing with VR, they were also seeking enjoyment, improved quality of life, and a sense of belonging. Goršič et al. (2017) explored the role of competition while using VR. They concluded that stroke patients (including elderly) who exercise with a peer in an unsupervised situation (e.g. home) exhibit higher enjoyment and exercise intensity compared to those who exercise alone. Brunner et al. (2017) explored the effectiveness of their upper extremity VR rehabilitation system and showed that the improvements were similar to the conventional therapy. They also suggested that the motivating nature of VR could be a supplement to standard rehabilitation.

Saldana et al. (2017) used HMD in VR to objectively assess balance by using visual-vestibular conflict and by comparing the results of postural sway with a force plate. Their preliminary results showed that the HMD is a valid, reliable, and comparable to traditional mechanical perturbation approaches for measuring balance. Popular HMDs allow easy navigation in life-size virtual environments and provide required spatial requirements of non-immersive serious games, exergames, and motor rehabilitation applications (Borrego et al., 2018). Such interaction allows natural navigation and exploration and therefore, the improved ecological validity of the task while facilitating skill transfer. Albiol-Pérez et al. (2017) designed a low-cost active balance rehabilitation system and measured the performance of balance control during 15 sessions of virtual rehabilitation. Although there were no statistically significant differences between the left, central, and right positions, their results indicated a trend of improvement, especially in the left and right sway which are important in avoiding risks of falls. Tsang and Fu (2016) compared the efficacy of their VR balance system with traditional balance training. They attributed the improvements in VR system to the real-time performance feedback and cuing stimuli that supports error-free learning.

Paquin et al. (2016) used a VR rehabilitation program for fine motor recovery of stroke patients. All of their subjects experienced a perceived increase in hand function and that they would recommend the program to other stroke survivors. McDonald et al. (2013) used a VR pain coach for the effects on the communication of pain by older adults. They measured pain and depressive symptoms before and one month after the intervention. Older adults shared a significant amount of clinically important pain information with the pain coach than the pain communication-only group. Pain intensity and depressive symptoms reduction showed a non-significant trend one month after the intervention. The VR pain coach shows a possible strategy for pain management discussions between practitioners and older adults.

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Threats

Previous research has suggested side effects of display characteristics, obstacles, cost/benefit of the technology as weaknesses for the adoption of VR in rehabilitation (Rizo & Kim, 2005). Dizziness and imbalance might occur after using VR applications. Chairovano et al. (2018) perturbed visual inputs and measured their effects on self-report (complaint) vs. balance measurement (posturography). As they found no correlation between these two methods, it is important not to only rely on subjective measurement of dizziness, but also to objectively measure the imbalance; especially because questionnaires could be influenced by age, sex, motivation, and cognitive and emotional parameters (Yardley & Redfern, 2001). Eggenberger et al. (2015) also compared long-term multi-component cognitive-physical tasks: one was treadmill walking with simultaneous verbal memory training and the other VR video game dancing. Both types of training resulted in significant advantages in improving gait parameters compared to physical training only. However, these two interventions resulted in different training-specific adaptations in the gait. Cardinale (2018) suggests that VR balance training should be used in supplement with other interventions. With multi-component processes such as balance, there might be the possibility of errors leading to falls. The lower number of patients, especially in different types of AD might limit the generalization of the results (Mohammadi et al., 2018).

SOLUTIONS AND RECOMMENDATIONS

Technology is constantly evolving, and it has the potential to be applied to various domains. However, it needs to be adapted to meet the seniors' needs. Lee et al. (2016) designed a VR based rehabilitation and explored patients' perceived difficulty and enjoyment. They suggested that the level of enjoyment could be an indicator of the appropriateness of the difficulty levels. They identified five parameters that could affect this relationship: ease of following the directions, the experience of pain, achieved scores, novelty and immediate feedback, and self-perceived effectiveness. Participants' physical, cognitive, proprioceptive differences should also be considered while tailoring the VR systems. As mentioned by Lin et al. (2018), elderly people's decision-making processes are restricted to certain leisure activities. Different platforms should identify their feature and consider elderly's physiological functions to establish a marketing focus.

From their systematic review, Molina et al. (2014) concluded that most of the studies on the efficacy of inclusion of exergames for elderly have methodological problems. The duration of gameplay varies widely and therefore, it is hard to be conclusive about the physical benefits. Miller et al. (2014) also mentioned that although VR/gaming systems are effective and feasible, there is a high risk of bias for addressing impairments and participation. Booth et al. (2014) also systematically reviewed 251 articles on the effects of VR gaming systems on improving balance in older adults. The pooled results showed no significant differences. What is important is that video games for older people could help them to be more socially active. However, several parameters such as simplicity, social enjoyability, and entertaining new games should be considered. Video game controller should allow adequate time for the elderly to make decisions in order to achieve the games' objectives (Palacio et al., 2017).

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FUTURE RESEARCH DIRECTIONS

As mentioned before, most of the studies lack an adequate number of participants which makes it hard to generalize the efficacy of results. Future studies should use a larger sample size and consider culture and gender-oriented tasks (Vallejo et al., 2017; Yeşilyaprak et al., 2016). Future studies should also have appropriate dosages of use to improve the validity of treatment prescription and safe functioning levels of the seniors (Cardinale, 2018). Follow-up and longitudinal studies with normalized baseline levels are required to identify the consistency of the beneficial effects of VR (Maillot et al., 2017; Nawaz et al., 2016; Mirelman et al., 2016). Feasibility studies are important in enhancing performance and other cognitive tasks in the target population. However, randomized controlled trial (RCT) efficacy studies should be conducted with control groups of healthy elderly participants, while creating more complex versions of the task (Kizony et al., 2017; Marena et al., 2016). Control groups and blinding participants and the tests also help in avoiding bias and learning effects (Yasuda et al., 2017). Similar VR and real tasks could also help in better understanding the transferability of the intervention (Bezerra et al., 2018). It is also important to assess psychosocial and cognitive emotion improvements after VR interventions (Cardinale, 2018). As suggested before, it is also important to consider the VR training as part of a holistic platform and not the sole effects (Cardinale, 2018).

CONCLUSION

VR is a rapidly developing subject and in this book chapter, the author discussed how VR could help in overcoming various struggles of the seniors. Both exergames and newer VR technologies have the ability to immerse players and their effectiveness may not be related to the levels of immersion they offer. However, each technology might address specific needs. As shown in Table 1, it seems that VR interventions have the potential to offer ecologically valid scenarios for screening various diseases. It is suggested that these interventions are used in addition to traditional interventions. More subjects and longer duration of use are needed to validate the efficacy of VR for seniors.

Table 1. Summary of SWOT analysis of using VR for seniors

Strengths	Weaknesses
1. Short term overall psychosocial state improvements 2. Improved balance and decreased risks of falls 3. Improved visual searching 4. Higher compliance to self-training 5. Similar validity to traditional memory tests 6. Enhanced ecological validity	1. Adaptation issues (usability, display technologies, platforms) 2. Limitations in skill transfer 3. Limitation is differentiating between subtypes of cognitive tests 4. Short lasting results 5. Restricted generalization of the results
Opportunities	**Threats**
1. Ability to modify physics and scenarios according to the needs 2. Efficiency 3. Affordable 4. Possible similar results to traditional interventions	1. Mixed positive and negative results 2. Low number of subjects 3. Little cost/benefit proofs for VR adoption

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KEY TERMS AND DEFINITIONS

Alzheimer's Disease: Is a neurodegenerative disease that involves short-term memory loss, language disorientation, and other behavioral issues.

Ecological Validity: Refers to the extent to which the results of a research could be generalized to the real-life settings.

Exergame: A combination of exercise and gaming, exergame are video games that are also a form of exercise.

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Mild Cognitive Impairment: Is a neurological disorder that happens in older adults and involves cognitive and instrumental activities of daily living impairments.

Serious Game: A game that is designed for a primary purpose other than pure entertainment. The serious adjective refers to issues such as defense, education, health care, engineering, and politics.

Skill Transfer: Is the concept of exploring how individuals would transfer learning in one context to another one.

Virtual Reality: An interactive computer generate experience within a simulate environment and involves different types of sensory feedbacks.

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Chapter 37
Neurotechnology in the Development of Cyber-Psychotherapy Systems for Inducing and Measuring Altered States of Consciousness in Transpersonal Psychotherapy

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ABSTRACT

Transpersonal psychotherapy is based on transpersonal psychology and considers that the psyche is multidimensional and that there are several "levels of consciousness" and each has different characteristics and is governed by different laws. Transpersonal psychology is the study of human nature and proceeds on the assumption that human beings possess potentials that exceed the limits of their ego and integrate the spiritual experience within a broader understanding of the human psyche and consciousness. Altered states of consciousness have been used as psychotherapy in transpersonal psychology for decades. Although there are very well known techniques to induce altered state of consciousness as holotropic breathwork, Neurotechnology offers an alternative way not only to induce these states for transpersonal therapy but also to measure the level of a state of consciousness. The objective of this chapter is to provide a review of the main concepts of Neurotechnology and the main technologies that can be used to induce and measure altered state of consciousness for transpersonal psychotherapy and propose an architecture for a Cyber psychotherapy system that uses these technologies.

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INTRODUCTION

Cyber therapy is an Internet based computer-mediated system used to facilitate psychotherapy (Botella et al. 2009). This includes new applications of technology within psychology and healthcare, which utilize augmented and virtual reality components in order to facilitate psychotherapy (Botella et al 2009). Interest in Neurotechnological devices has grown strongly since the release of 1986's classic text of Michael Hutchison "Megabrain" (1986). Besides Neurotechnological machines, the industry has developed a range of related devices including peripherals-tapes, subliminal tapes, Hypno-peripheral processing, sound meditation devices and altered state induction software programs for personal computers, etc. It seems like Neurotechnology combined with contemporary psychology may seem to be revolutionary but its roots are much older as humanity has made many attempts in the past to involve consciousness with technology. The flashing LEDs in a light and sound machine can be traced back to the old practice of starting a fire in order to induce trance. Sound recordings of brain entrainment undoubtedly have their roots in the ritual singing and shamanic use of wind instruments.

This current era of Neurotechnology was born from the experiments made in biofeedback that resulted in the work of some researchers of consciousness as Masters and Houston (1966) that created the AVE (an abbreviation of Audio Visual Environment) that is one of the first electronic brain entrainment devices. The AVE was the first device to use visual and auditory stimuli as a means of altering consciousness. Not much different that many of audiovisual devices of today, the AVE consisted of a wrap-around screen and headphones to bomb the sense in these two stimuli.

These signals generated by AVE devices and detectable by electroencephalogram (EEG) tests at specific frequency ranges; seem to vary from one state of consciousness to another for their users. The products of Neurotechnology appear to make possible to "tune" the brain to these different alternating frequencies, and in turn achieve new psychological states.

When you "tune" into these frequencies at a slower pace, our thought processes and central nervous system are altered, causing the brain to fall into a deep level of activity. In addition, when one is tuned to a frequency faster and a higher range, the wave activity can have a highly stimulating effect on the brain.

Altered states of consciousness have been used as a therapy for modern psychological paradigms as transpersonal psychology (Valverde 2015). Although there are several techniques such as holotropic breathing used to induce these altered states of consciousness, Neurotechnology offers a more easy to control alternative to the transpersonal therapies.

In order to understand Neurotechnology, this review begins with an introduction to the technologies that made possible the modern Neurotechnology including biofeedback, quantum physics, quantum biofeedback, theory of consciousness, principles and applications of Neurotechnology for inducing altered states of consciousness in transpersonal therapies. Finally, the chapter proposes an architecture to conduct transpersonal therapy over the internet with the use of Neurotechnology in order to induce and measure altered states of consciousness.

BIOFEEDBACK

Biofeedback literally means, "responding to life". The work of Miller opened the doors to research processes in biofeedback. Miller (1978) constructed an apparatus equipped with sensitive electrodes connected to a monitor on which the patient could see how the skin temperature behaved, teaching

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patients to relax and concentrate to get it to relax the smooth vasculature of vessels peripheral blood in order to descend skin temperature.

Biofeedback is the process by which a person learns to influence involuntary body processes to receive physiological data from an electronic device that continuously monitors certain physiological parameters. It is a way of measuring the response to the physical, emotional, mental and spiritual stresses of life. Bodies under high stress are more prone to physical discomfort and even illness. The biofeedback response occurs when the body receives new information about their status (e.g. get 'feedback') and make healthy adjustments to reduce stress and tension. The result is a reduction of the nervous activity and increased vitality. Users of the feedback report a greater sense of well-being and joy.

Biofeedback Neurotechnology instruments measure muscle activity, skin temperature, electro-dermal activity (sweat gland activity), respiration, heart rate, heart rate variability, blood pressure, brain electrical activity and blood flow. These technologies are able to capture analog electrical signals from the body and translate those signals into meaningful information through complex algorithmic software that a technician can then decipher. Research shows that biofeedback, alone and in combination with other therapies is effective for treating a variety of medical and psychological disorders. Doctors, nurses, psychologists, counsellors, physical therapists, occupational therapists and other professionals currently use biofeedback. Computer scientists also use biofeedback in order to build human computer interactions (Valverde 2011).

Studies by Jonas and Levin (1999) show that biofeedback is ideal for patients that are looking for therapies that are softer, less toxic and less invasive. The biofeedback technique is applied in the field of psychology for treating phobias, neurosis, anxiety, depression and insomnia.

Quantum Physics

What we are able to perceive with our five senses is not reality. Quantum physics has shown that space and time are illusions of perception. Our body cannot really be a reality if it does not occupy most of the space it seems to occupy; an experiment made at the University of Manchester revealed the shape of the interior of an atom is almost entirely empty space. The question then became how we could possibly make the world around us see us if this is the case (Russell et al 1993).

Our true consciousness does not exist in our brains or in our bodies, but this illusion of our individual bodies along with the misinformation of our true origins has manifested the idea that we all think independently from one another. With this understanding, it seems possible to scientifically explain telepathy, clairvoyance, spiritual mediums related to the transfer of information between sources without physical means of communication phenomena. But when we understand that there is a common spiritual bond between all things in the universe and that we are all part of a divine intelligence, this simple understanding fills all the holes in modern religions and predictions about the future and literally every occurrence of events (Russell et al 1993).

According to quantum physics, the physical world and its reality, it's just a recreation of the observed. We created the body and reality, as we create the experience of our world in its different manifestations dimensional. In its essential state (atomic or cosmic sub quantum micro), the body is made of energy and information, not solid matter, this is only a meager level of perception. According to Tornell (2001), this is energy and information arising from the endless fields of energy and information spanning the entire universal creation. The quantum school explains consciousness by applying quantum theories and

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explains that consciousness has a quantum origin, is non local and creates our perceived reality from vibrating entities that can have multiple versions based on the observer's perception (Valverde 2016).

When looking at the electronic microscope, we are looking at our microcosm, we then can see how the quantum particles manifest virtually as a symphony and intelligent orchestration at speeds much higher than the visible light, this quantum view also represents the immutability of our macrocosm. In this reality, each individual inhabits a reality that is beyond all change, as more deep within us without the knowledge of our three-dimensional or physical outer senses. There is a core of being, an energy field that creates immortality in nature, and manifests as the physical body. This core is the essential being or soul, primordial seed, which is contained in an atom called seed. We are seeds of eternal essence at this stage of quantum eternity.

This is the seed based on new paradigms posed by Max Planck, J. Clark Maxwell, Faraday, Heisenberg, Schrodinger, Bohr, Einstein, S. Hawking, among many other pioneers of quantum mechanics. They understood that the way to see the world in their time was very wrong. Within the quantum paradigm, we are more than our physical body; our true self and personality are governed by the rules of the principle of cause and effect and are embedded into a body for the duration of human life. The field of human life is open and unlimited in its deeper quantum level, this means that we are immortal and timeless. Once we identify with the eternal reality that is consistent with quantum vision of the universe, we will enter the new paradigms of quantum consciousness. Everything that exists has a natural vibration to its atoms all the way up to the immensity of the universe to show a simple connection between land and our bodies.

Consciousness

Being aware is to realize everything that happens around you. It is as if in the previous moment you take an action, before acting you asking yourself: Is it right what I do? And someone who "is not you" answers only "yes" or "no" (Hawnser, 1997). Our mind before ordering an action to the physical body, studies the elements it has to do with the action: knowledge, physical strength, skill, etc. Consider the risks, the consequences, the material benefits that give us the results of the act, also any loss and damage and / or suffering that the action may bring to our selves or third parties (Hawnse, 1997).

Edelman and Tonomi (2000) think that the whole universe is actually one living organism with full conscious awareness of self. The consciousness of our universe is responsible for the form and purpose that all matter assumes. Carl Jung (1981) found that there is a collective unconscious connected to all humans. This means that all humanity shares a single mind with one another. This is evident in the world through accounts of shared mythology and symbols. This collectivity is a global example of the unconscious mind of the human body in which billions of cells share a similar signal. Human consciousness is an electromagnetic energy field; this could explain many paranormal phenomena such as telepathy and clairvoyance that seem to probe this.

Most Western scientists assume that consciousness is produced in some form by the brain. There is of course some evidence for that position. There is evidence of common sense in our daily lives. When we drink too much alcohol or takes a hard hit to the head, we do not think clearly. We also have more sophisticated tests of the relationship between the brain and consciousness. In fact all the theories of consciousness during the last century has been supported by psychologists who have been moving towards the materialism that characterized the nineteenth-century physics based on Newton's classical mechanics. These have been trying to show that consciousness is only the functioning of the physical brain. This materialistic psychology was supported by John Watson (1916), who wrote that psychol-

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ogy is a purely objective experimental branch of science that needs no consciousness in the same way that science does not need chemistry and physics. It is ironic that while Watson links psychology to the classical physical knowledge of Newtonian physics, there is overwhelming experimental evidence that the universe is related to quantum physics that could not be made without reference to consciousness.

John Lorber (1978) specialized in children with hydrocephalus, or water on the brain is a British neurologist. Children with this condition have an abnormal amount of cerebral spinal fluid accumulation in the cavities inside their brain compressing brain tissue that usually leads to mental retardation seizures, paralysis and blindness and if not treated to death. However, Lorber describes dozens of children and some adults with severe hydrocephalus but live normal lives. Indeed, in a sample of children with their cerebral space filled with ninety-five percent of spinal fluid in their skull leaving virtually no room for any brain tissue, half of them had a higher IQ than one hundred and thirty.

Some of the best evidence that consciousness can function independently of the brain come from near death experiences, profound experiences that some people report when they have been on the threshold of death. The near-death experiences are very short stories of people who have been clinically dead and then are resurrected or revived spontaneously after a brief interval with the memory of what they experienced during that period. According to Greyson (2010), many people with near death experiences reported vivid mental clarity exceptional sensory imagery and a clear memory of the experience and an experience that is more real, then in their daily lives.

Quantum Biofeedback

As the traditional biofeedback, uses sensors to monitor physiological relaxation indicators as the temperature of the skin and muscle tension, quantum biofeedback expands classical biofeedback by using galvanic skin response (GSR) and other similar devices together with modern computer technology to detect and measure the response of the built-mind-spirit body (sometimes called the super-conscious) to a large array of stress indicators. Quantum Biofeedback is a sophisticated biofeedback technique based on advanced scientific principles that promote a deeper understanding of health and healing. By seeing the body as a complex electrical circuit and by applying the principles of electrical engineering, wearable to analyze and balance the electric body. We usually think of the body as just anatomy and physiology; however, one of the easiest way to learn about the state of health of the body is by measuring electrical properties of the electric body.

Super-conscious makes adjustments to biological speeds to reduce internal tensions and sends 'back feedback' that allows the practitioner to focus the session on the parts of the body-mind-spirit more in need of relaxation. The result is a smooth passive relaxation session, still focused on those areas most in need of attention. When the body becomes so relaxed, the therapist can start the natural healing process. Many long-term stress cases can be reduced with biofeedback sessions. Quantum Biofeedback interacts with all cellular matrix of the body, which allows communication with the conscious and unconscious reactions of the body. This is accomplished by establishing electrical communication using 12 electrodes that are attached to the head, wrists, and ankles of the client. Classic Biofeedback is based on electrical measurements taken from the front (frontal cortex). This information is presented to the users who then try to consciously change his or her internal reactions to modify electrical results. Quantum Biofeedback uses people's link to all body cell matrix interface, not only the conscious aspects, but also with the unconscious, this provides greater gain in the understanding of health.

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Users of this technology experience increases in physical health, strength and stamina, they can also display more confidence, they may find it easier to sleep, which can be more relaxed, and they may experience more happiness and satisfaction in a day-to-day basis (Health and Public Policy Committee 1985). Today, thousands of doctors and medical researchers worldwide are investigating electro medicine and biofeedback Neurotechnology devices as effective traditional methods of treatment alternatives. These pathways are new possibilities for the treatment of conditions such as spinal cord injury, muscular restoration, nerve regeneration, brain stimulation, bladder disorders, tumors, heart disease and other chronic diseases and disorders.

Transpersonal Psychology.

Transpersonal Psychology considers that the psyche is multidimensional. There are several "levels of consciousness" and each has different characteristics and is governed by different laws. Transpersonal psychology does not deny other schools of thought, as psychoanalysis does not arise as opposed; the right thing would be to say that attempts to go further. For transpersonal vision, Freud developments have been of fundamental value in the development of psychological science to include the idea of the unconscious in a discipline that was tied to the positivist rationalism. Certainly, psychoanalysis opened the possibilities of understanding the human psyche. Transpersonal psychology integrates the spiritual experience within a broader understanding of the human psyche. It is with the study of states of consciousness and the full potential of man, that transpersonal psychology assumes that humans can achieve harmony and transcend through spiritual development. Transpersonal is something that exceeds the range of human's own experience or personal history. Transpersonal refers to that which is beyond of the person who is the essential being.

Much of its discoveries and contributions come from the study of Eastern religions, and Christian mysticism. Transpersonal psychology is interested in the different forms of Buddhism, for meditation, for yoga, for mystical experiences, psychophysiological effects that all these phenomena, the limits of consciousness, etc. The ultimate goal of all this is to try to achieve an awakening that is the greater awareness that would raise the level of "being" that integrates psychology and spirituality.

Transpersonal psychotherapist Anthony Sutich (founder and first editor of the Journal of Transpersonal Psychology) provides one of the first formal definitions of transpersonal psychology in 1969 at the inaugural edition of the Journal of Transpersonal Psychology (Vol. 1, No. 1, Spring 1969). "The emerging Transpersonal Psychology refers specifically to the empirical, scientific study, and the responsible application of relevant results, becoming meta-needs individual and species-wide, the final values, conscience unitive, peak experiences, values, ecstasy, mystical, amazing experience, being, self, essence, joy, wonder, ultimate meaning, transcendence of self, the spirit, unity, cosmic consciousness, synergy of individual and species level, maximum interpersonal encounter, sacralisation of everyday life, transcendental phenomena, self-cosmic humor and joy maximum sensory awareness, responsiveness and expression; and concepts, experiences and activities " (Sutich, 1969).

Stanislav Grof, co-founder of transpersonal psychology with Abraham Maslow, defines transpersonal psychology as "The psychology that respects the entire spectrum of human experience, including holotropic states, and all domains of the psyche. - Biographical, perinatal and transpersonal "(Grof, 2000). Transpersonal psychology covers a multitude of experiences and behaviors produced by spontaneous or altered states of consciousness, impulses into higher states of being, and extraordinary spiritual practices induced. Transpersonal phenomena include the meditative experiences, dreaming, drug-induced

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psychedelia, peak experiences, cosmic consciousness, enlightenment, mysticism, out of body experiences, channeling trance, near death experiences, memories reincarnations, extrasensory awareness, archetypal phenomena, accelerated learning, exceptional state of health and well-being, the mind-body healing and miraculous cures. Parapsychological phenomena are important for the reduction of science and spirit implications.

Altered States of Consciousness and Transpersonal Psychology

Ludwig (1972) defines an "altered state of consciousness" as any mental state (s) for various manoeuvres of physiological, psychological or pharmacological agents, which can be recognized subjectively by the same (or an objective observer of the individual person induced) as representing a sufficient deviation in the subjective experience or psychological functioning of certain general rules for that individual during alert awareness. This deviation can be sufficiently represented by a greater concern than usual with internal sensations or mental processes, changes in the formal characteristics of thought, and the deterioration of the test of reality to varying degrees. The cognitive approach to altered states of consciousness has revealed that similar features that are characteristic of many altered states of consciousness including "alterations in thinking", "sense of disturbed weather", "loss of control", "change in emotional expression "," change of body image, "" perceptual distortions "," change in the meaning or importance "," sense of the ineffable," and " feelings of rejuvenation "(Ludwig, 1972).

By applying the disruptive force requirement for the basic state of consciousness (either through some physiological action, such as drugs or deployment of attention and meditation), the current organization of cognitive subsystems is destabilized until a new force patterns (such as mental set, setting, expectations, drug effects) is applied to shape the subsystems in a whole new system, the production of a new discrete state of consciousness with its own stabilization processes.

Cognitive awareness approach has helped differentiate transpersonal psychologists' grades waking state of consciousness. Awareness, for example, is not one homogenous thing, but varies and changes as the colors of the rainbow. It is possible to stratify and states order to raise awareness of alert and focused relaxed concentration and spread the cosmic consciousness. A range of altered states of consciousness has been identified as drug-induced states, hypnosis, biofeedback, daydreaming, night dreaming, sensory deprivation, and paranormal experiences. With each state consisting of many levels and functions, in each region or area of consciousness, individuals are able to process different types of information at different levels of control (Goleman & Davidson, 1979; Ornstein, 1972).

Transpersonal psychologists tend to see the experiences of "mystical union", "enlightenment", "nirvana", and related experiences as natural and beneficial non-ordinary states of consciousness that may be subject to effects of state-dependent learning. The idea that the experience of the sacred can be interpreted as altered states of consciousness arose from the observation of twice that (a) psychedelic drugs have been used through the centuries and cultures to induce religious experiences and (b) reports from some drug experiences are phenomenologically (descriptively or experiential) indistinguishable from accounts of natural mystical experiences (Doblin, 1991; Grinspoon & Bakalar, 1997; Smith, 1964).

Transpersonal psychologist Charles T. Tart has examined the altered states of consciousness from a cognitive perspective in terms of changes in the configuration and operation of the underlying mental processes (Tart, 1971, 1976, 1983, 1992). A state of consciousness involves cognitive functioning following subsystems: exteroceptors (receives sensory information), interoceptors (kinesthetic receives input), input processing (working memory), the subconscious processes, sense of identity, evaluation

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and decision making, emotions, space / time sense, long term memory, the motor output (behavior) plus latent functions. These 10 subsystems (more possible latent functions) define any discrete state of consciousness. The particular configuration of the subsystems in a given time is shaped and limited by the deployment of attention, the body's energies, characteristics of the structures themselves and the particular social and cultural environments in which they operate.

Grof (1988) suggested that the term "altered states of consciousness" cover transpersonal experiences; however, there are certain types of altered states of consciousness that do not meet the criteria for being transpersonal (involving an expansion or extension of consciousness beyond the limits of the usual and limitations time and space). For example, a living and complex childhood memory occurs in an altered state of consciousness (e.g. hypnosis or psychedelic sessions), but do not meet the criteria for being transpersonal. The cultural context of the 1960s and 1970s provided fertile ground for the emergence of transpersonal studies as an independent field of study in psychology. The infusion of ideas Eastern contemplative traditions of Zen, Advaita, Vedanta and Taoism, along with the institutionalization of the humanist revolution in academic psychology, and the growing interest in consciousness and altered states of consciousness that are triggered by the widespread use of psychedelics, paved the way for the birth of transpersonal psychology movement in California in the late 1960s (Ferrer, 2002).

Since the 1970s, transpersonal psychology, as the humanist movement that preceded it, has been divided into three different groups; the first group represented by the ideas of Grof (1988) that believes that transcendence can only occur in the presence of a altered state of consciousness. This group produces conceptual models of non-ordinary states of consciousness. The second group, led by Wilber (1980), include those trying to assign internal states of consciousness and identify with the monistic and perennial philosophy of Aldous Huxley. Wilber believes that all expressions of the highest state of consciousness in each tradition are the same as the psychopathic conditions occurring at the bottom, the normal waking reality in the middle and meditative states of higher consciousness in the top. The third and by far the largest segment of the transpersonal movement has no identifiable bearer, it sees the self as getting up and go to work in the morning, the higher consciousness is sweeping the floor, washing dishes, and raking leaves. The lighting is doing everything we are supposed to be doing at this minute. There is a preconceived thing; is not an altered state of consciousness, it is simply the deep philosophy, which is to be found most clearly in the mundane (Taylor, 1999).

Altered states of consciousness answer the question "who we really are?" The answer to this question is that we are a part of God and that humans are spiritual beings having human experiences that somehow reveal the direction of our full identity of our cosmic status (Valverde 2015).

Brain Waves

Our brain works primarily with bioelectrical energy. Although the power of electricity that handle our neurons is low (measured in mill volts), this power processes, manage, distribute and use vast amounts of information and generates multiple answers (almost infinite in possibilities). So by using micro electricity, we can conclude that the brain is a machine of low frequencies. Our brain, in addition to process information that comes by the senses, is capable of emitting extra-sensory information received via similar "electromagnetic waves", but with lower intensity similar to the frequencies of a radio transmitter-receiver. Our brain can act as a radio station, similar to numerous species of birds that in their migrations are guided by a genuine receiver of terrestrial magnetism located in the pituitary gland. With this receiver,

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they know where they have to fly and in what direction. It's like having a real compass incorporated into the brain. The mind could be defined as the "sense" of the brain (like sight is the sense of the eye).

A German psychiatrist, professor at the University of Vienna named Hans Berger (1.843-1941), demonstrated that a device "amplifier" that was called later electroencephalograph could capture electrical potential (voltage fluctuations) in the human brain. Before him, the English physician Richard Caton (1842-1926) showed similar potential in dogs. The first types of brain frequencies that were discovered were the "alpha" and "theta".

Later, these findings were complemented by research in the range frequencies captured by the electroencephalograph. Each type of wave results in a different neuropsychological state. That is, our mind, our body and our physical and physiological activity are completely different in each of these states or frequencies. The type of neuro-chemicals and hormones substances discharged into the blood flow varies depending on frequency and as much as the presence and quantity of such substances as the mood we have, interact to produce a physiological-mental-physical-end that involves a mental state. A level of consciousness is conscious thought that is always thinking even in moments of apparent inactivity, but trivial ideas continually pass by consciousness. Most of the thoughts are accompanied by reactions in behavior, and small involuntary movements. When you're not actively thinking then you're probably dreaming, according Signer and Streiner (1966) a person has throughout the day about 200 daydreams. Therefore, consciousness is the sum of all the different perceptions. The most common consciousness are wakefulness and sleep; however, changes in expressing both cerebral and psycho states change according to conscious or subconscious feelings of each person are distinguished. These changes are directly related to the electrical activity of the brain. This activity can be measured by the number of oscillations per second (Hz) that are linked to different states of consciousness in the brain: our brain only perceives a limited range of frequencies indispensable to operate with ease in this three-dimensional medium. 20 to 20,000 vibrations per second are perceptible by our ears, the colors perceived by our eyes range from red to violet (although extending beyond, up and down), all possible smells and tastes (which are also vibrations) and the endless textures that we can distinguish with our skin. But the brain is not only receiver but also is sends vibrations. It has been proven thanks to the EEG that the brain emits waves of varying intensity and frequency depending on the mental state of the person being observed. These waves are classified into:

The alpha state is when, if we would connect to an electro encephalogram, our brains would work between 7.5 to 14 cycles per second. When "operate" in this state, we rank among the border of the conscious and the unconscious. Is the gate between both states of consciousness and this makes "Alpha state" therefore a special status because it allows us, on the one hand, still have a conscious activity of our mind and body, that is, we realize what we think and happening around us. On the other hand, since the "lift" of consciousness in the "lower floors" of the mind, gives us access to information and own subconscious states, can use all the wealth of the 90% of "power" mental residing in the subconscious. This state is a "being comfortable" in inner peace and happiness, in deep relaxation. Greatly increases the power of suggestion and autosuggestion, that is, anything that we suggest alpha, will be more easily accepted and less "filters" by our conscious rationality.

Music is a very effective instrument of suggestion and production of alpha state made many instruments produce vibrations at that frequency. Hence, with relative ease, many people stay asleep at concerts or simply feel "moved" by the music to another dimension. If we put them to an electroencephalograph, most of those attending a concert in an auditorium would be running on alpha. The contemplation of the sea, the rolling waves and the sound they produce is a good inducer of alpha state. The tone of in-

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Table 1. Type of brainwaves

Types of Brain Waves	States of Consciousness
BETA WAVES: 14 Hz to 30 Hz	This type of waves are recorded when the person is awake in a state of normal activity. Correspond to states of conscious attention, anxiety, surprise, fear, stress.
GAMMA WAVES: 25 and 100 Hz	They express pathological conditions of maximum tension, excitement and the individual enters a state of STRESS in which the coordination of ideas and normal physical activity are seriously altered.
ALPHA WAVES: 8 Hz to 13 Hz	Relaxation and rest, calm, reflective state. Reduction of bodily sensations. The subconscious begins to emerge: Abstraction, suggestibility. Assimilation of the study. Ease of visualization of mental images.
THETA WAVES: 3.5 Hz to 7 Hz	During sleep or in deep meditation, autogenous training, hypnosis, yoga (whenever the formations of the subconscious act). The state stimulates creative inspiration. Considered a state for maximum capacity of learning. Fantasy, imagination. Hypnagogic images.
DELTA WAVES: 1 Hz to 3 Hz	It arises mainly in the states of deep sleep and unconsciousness. Very rarely can be experienced being awake unless with a very hard training (Yoga, Meditation, Zen, Hypnosis, Self hypnosis) or with a synchronizer of hemispheres. It corresponds to deep sleep, hypnotic trance, REM sleep. It corresponds to sleep without dream, trance, deep hypnosis. Delta waves are very important in the healing process and strengthening the immune system.

dividuals things like music, prayer, smells, certain types of images (especially of nature, certain types of painting, Tibetan mandalas symbols or own) can be used to put ourselves in this special state of the mind, that makes us touch our innermost and reach the "spiritual zone" of human beings. Therefore, as we see, there are many things that can induce this state.

Magnus & Van der Holst (1987) speak of frequencies whose frequency ranges from 3.5 to 7.5 cycles per second. They are associated with the states of creative and decisive hallucination. During its broadcast, the person can discover events deeply hidden in the recesses of your subconscious, as well as conflicts and personality in particular. Is the wave of imagination and dynamic contact with other possible "dimensions psi" offering you the opportunity to research our personality and deep in our psychology?

Neurotechnology Principles

Robert Monroe (1982), one of the most prominent people in Neurotechnology in particular in the field of sound with neurological efficiency, devised the method HEMI-SYNC: (Synchronization of the cerebral hemispheres by means of sounds). Like a glass that resonates when a pure tone is emitted, the brain resonates when receives certain frequencies of waves, being synchronized with these, this effect is known as FFR Frequency Following Response (FFR).

Machines created based on FFR began to be popular in the 80s, the typical machine based on the principle of Monroe used stereo headphones that are used to send sound signals to each ear, for example 2 signs of 300 and 304 Hz. One ear will hear only 300 Hz signal and the other only 304, but since the sounds are combined in the brain, this will hear a third signal of 4 Hz, which is the difference between the two sound impulses. This third signal is not an audible sound, but an electrical signal that can only be created by the cerebral hemispheres acting in unison, and may go unnoticed, producing as a result, the two hemispheres are focused simultaneously on the same state of consciousness, increasing the brainpower.

The Monroe Institute was created based on the principles of Monroe. The Neurotechnology of the Monroe Institute is a system that mixes and sequences sound patterns designed to evoke beneficial

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brainwave states for different human activities. Robert A. Monroe, who began studying the effects of sound on accelerated learning in the 50s, founded this institute. The work is the result of thousands of hours of laboratory sessions. Participants in these sessions listen to specific combinations and sequences of sound patterns and simultaneously report their experiences while electronic instruments measure the effects on the activity of their brain waves.

Walter (1964) while conducting experiments in which strobe devices used to send rhythmic flashes of light in the eyes, watched amazed that the flickering light could alter the activity of the entire cerebral cortex, rather than exclusively associated areas with vision. The subjective experiences of those who received the flashes were even more curious reported seeing "lights like comets, ultra fantastic colors, color mental". Moreover, Walter discovered that certain visual stimuli of a certain frequency could cause the brain to respond quickly adjusted to the same frequency of the stimulus it received. In 1982 a psychiatrist Denis Gorges created a machine called brain wave synchro-energizer, which applies the latest technology in the first device designed optical-acoustic stimulation. This is able to promote as its inventor claimed "an increase in the capabilities and functions of the human mind", this unleashed a wave of unprecedented research and experimentation, catalyzed by M. Hutchinson (1986) through his famous book Megabrain.

Our scheme of thought is influenced by the predominance of left hemisphere, logical and analytical thinking. Right hemisphere, creative thinking, visualization, and which carries out a holistic synthesis. On the back of the brain is where the intuitive thought takes place. Obviously use one of the two hemispheres or either of the brain regions severely limits our abilities. The optimal functioning of our brain, is given by the synchronization of the two hemispheres: by left-right and front-back alternating stimulation occurs almost simultaneously, an issue of brain wave of an identical amplitude and frequency. Neurotechnology is typically used for process brainwave entrainment to tune brainwaves. With these machines, we may experience theta waves, alpha, delta or including combinations of ranges using frequencies layered that mix several brainwave ranges in a synergistic pattern.

Hemi-Sync is a patented process sound that pulses to create the same electric waves in frequency and amplitude simultaneously in both hemispheres of the brain for specific purposes. Our brains have a hemisphere left and right. The left-brain is linear, logical, practical, and time -oriented. The right hemisphere seems to be much more nonlinear, abstract, creative, holistic, and not logic. We tend to use one hemisphere at a time, or better said, will favor hemispheres particular in terms of what we're doing. An accountant probably uses less of his right hemisphere than an artist would during the course of his workday. If the person were doing math, the staff would be using more of your left side. If the person were going to paint a masterpiece of art, the person would have the activity hemispheric more in the right. Both hemispheres are constantly interacting and both can be used simultaneously.

By merging both hemispheres we can make them to work together and with this we can increase our ability mental and improve our performance cognitive in general. Basically, it's like having a computer processor faster able to work at faster speeds. The greater integration creates better performance.

The mind machines that help the brain synchronizes naturally to balance hemispheric activity and adjusts the activity of brain waves to match the carrier frequencies embedded brainwaves. This hemispheric coherence induced audio produces an optimal state of comprehensive synergy of the entire brain. These hemispheres are connected by the corpus callosum that it serves as a conduit or a bridge between both sides. This bridge literally be exercised and strengthened until it is physically larger and more capable of transmitting data, ideas and feedback between the hemispheres.

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The advance occurs when you use this principle to synchronize our brain wave frequencies chosen with the help of specific mental machines. We can do this easily by using technology of binaural beat audio and monophonic ringtones. This phenomenon is called trailing phenomenon.

The scientific principle of drag can be used to resonate, or synchronize our brain to tune specific frequencies. The drive is quite simple. If we have two tuning forks of the same pitch, if we strike one and hold it near the other both resonate at the same frequency. Given the fact that our brains function as a resonating chamber, oscillating pulses and patterns of neural excitation ripple through our brains like endless waves on a pond of a subtle dynamic electric field.

The creation process of frequency binaural beat is very simple to explain. First, we create two audio tones with two frequencies slightly different (i.e. 100 Hz and 107 Hz). When playing a tone in the ear left and the other tone in his right ear, the brain reacts to the stimulus audio by resonance brain activity to the difference between these two tones. Our brain waves adjust to match this frequency differential. For example, if we play a frequency of 100 Hz in the ear and left 107 Hz in the right ear, our brain tune the 7 Hz differential (107 Hz - 100 Hz = 7 Hz). This frequency tracking response makes our brain to resonate at 7 Hz frequencies and this falls within the range of theta brainwaves. This psychoacoustics state can create phenomenal results.

The electrical activity of neurons is changing patterns of electrical potential through all cell membranes. Each cell generates in the membrane potential that can be detected in about one micrometer of the cell and in large sets of brain cells that can work in harmony to generate potential of few micro volts, this can be detected through the skull and scalp by using electrodes. The variation of the electrical potential around the scalp is the basis of operation of the electroencephalogram (EEG). This method of recording the electrical activity of the brain, digitized maps produces the electrical activity of brain. The state in which the two hemispheres are synchronized by showing similar activity in both hemispheres, is sometimes known as “whole brain” and occurs randomly for short periods. Stimulation through the differential tone makes it possible to sustain this state for longer periods.

The Hemi-Sync process has already been tested and implemented in many ways for:

- Sleep better
- Reduce tension or stress
- Control pain
- Accelerate learning
- Study and concentration
- Enhance creativity
- Find solutions to problems

The Induction and Measurement of Altered States of Consciousness by Using Neurotechnology in Transpersonal Psychotherapy

The most frequently heard of studies of altered states of consciousness criticism is that they are hoaxes, some form of mental delusion. A good example is the case of Eastern yogis who for years claimed to be able to control parts of the nervous system and the body such as heart rate, blood pressure, hormone secretion, etc. Western scientists considered these claims impossible whose theories and personal experience denied this possibility.

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Biofeedback research shows that many of the claims made by physicists yogis, changing the sound pattern proved to be true can change particularly the state of consciousness at will. EEG measurements have been based on the research and theories developed from the early work of Adrian and Matthews (1934) that discovered that the brain could go to certain frequencies with electronic brain stimulation, this work led to the discovery that various frequencies were linked to certain psychological states (Kamiya, 1968), and ultimately the work of Green et al. (1977) demonstrated the ability to control these states and frequencies. You could say that these tests were the first to show how the brain can boot, such as a computer with the right input frequency.

What exactly happens neurologically when we walked into alternate states of consciousness is still far from being understood. This gap in our knowledge of these kingdoms is largely due to deficiencies in both research tools and philosophies employed by scientific research, and our general reluctance of society to accept such states as real. Within the traditional scientific practice is important to understand how our brains create the bridge to stimulate altered states of consciousness, but understanding it tells us little or nothing about the correlation with psychological phenomena with which we are able to interpret altered states of consciousness. It is this inner cosmological view or its representation of our quantum reality.

Once we accept this premise as our fundamental metaphor for altered states of consciousness, then it is possible to postulate that our brainwave frequencies are measurement indicators of our psychological states and correspond to the various ways in which we produce. That is, these frequencies are the units of our quantum reality. This is how we create, outside the sphere of influence of the Heisenberg principle that says that our fields are a unified experience. Cade et al (1979) conducted EEG tests in 70 subjects and measure the ESR (electrical resistance of the skin) and with the application of its results to the work of Lesh (1970) was able to build in the table below that represents the objective and subjective correlates of these states.

Table 2. states of consciousness and frequency measurements

Consciousness	Measured Frequency	Types of Waves
Just he is beginning to relax with difficulty quieting the mind.	25-20	alpha and beta
Not very clear conscience or sense of anesthesia	20-16	Guests beta alpha continuous
Calm and relaxed with memories	16-13	Alpha continues without beta theta intermittent
State definite feeling of floating with increased imagination and more concentration sustained	13-10	Alfa falling Continuous theta
Living consciousness the body modification between awareness internal and external	10-8	alpha continuous theta falling Frequency
Awareness with satisfaction and deep intense alertness and calmness and detachment	8-5	Theta continuous alpha close to theta
New way of feeling by intuitive vision synthesis of opposites in a higher unity	below 4	Delta occasionally

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One of the determinants of the results of the induction of altered states of consciousness in psychotherapy comes from Penfield and Perot (1963) who developed a study where a series of what was called in those days outside the body psychic visions were caused a that emerged not only for his epileptic patients but also in patients who had at the operating table for which they stimulated the surface of their brain. In one case study, one of his epileptic patients actually had visions of God descending from heaven.

An important factor in the development of Neurotechnology step was carried out by Persinger (1983). Persinger is the director of the neuroscience program at Laurentian University. Persinger (1983) is able to induce visions of God and other religious and mystical experiences in the laboratory by using a computer and what he calls the koran helmet was also given the nickname God helmet. His most important contribution to the induction of altered states of consciousness came when he had a vision as to the origins of spirituality in human evolution. He found that the temporal lobes of the brain are the source of most spiritual and mystical experiences= of the scientific literature.

The God helmet is a device used to induce altered states of consciousness using weak magnetic signals to direct brain activity. This can induce spiritual experiences and helps auto wing transpersonal exploration and transformation of many people. Persinger (1983) investigated some common perceptions of the inner mind by taking electromagnetic brain patterns seen in people who have near-death experiences. Persinger (1983) found that it can simulate that by applying complex significant magnetic fields in the brain that can also induce altered state of consciousness such as near-death experiences. Persinger et al (2000) conducted an experiment that tested the idea that mystical perception and stimulating the nerve activity in the brain can trigger paranormal experiences. In the experiment, volunteers were blindfolded in a soundproof chamber, this sensory deprivation allowed the mind to concentrate on electromagnetic patterns sent through the brain via a modified helmet. In the experiment, they were able to simulate the exact brain patterns that occur in near-death experiences.

Dr. Persinger (2000) suggests that his research will benefit psychotherapy by producing altered states of consciousness including near death experience, hearing voices and the sense of a presence as patients will able to deal with things like psychological depression by experiencing these altered states. Persinger (2000) suggests that these experiences are so strong that they are completely real to the person who has them. As a tool of science, the God helmet technology can bring us valuable new insight into the dark depths of the human mind. Persinger (1983) conducted experiments of the type of stimulation of the low level temporal lobes of the brain, in order to induce altered states in the subject in the experiment. After an initial feeling of floating in the air, the individual was feeling 'out of body'. Then the experiments used different subjects but whose constant is to describe their feelings with cosmic and spiritual meanings. Persinger mentions "Often intense listening experiences in which the person feels that some messages are communicated to him occurs". This transmission is perceived by the individual through a kind of feeling of "knowing what happens" without being able to necessarily say that hears a voice ". Persinger suggests that people with epilepsy, (temporal lobe dysfunction), are more likely to experiment altered states.

With the aid of Neurotechnology, people can discover hidden deep subconscious events as well as conflicts of personality offering the opportunity to research our personality and discover the depths of our psychology. Green, et al. (1970) mentioned, "every change in mental-emotional state, conscious or unconscious, is accompanied by an appropriate change in the physiological state." Our travels along with the continuous-consciousness is manifested by a wide range of psychological and physiological changes, inducing altered states of consciousness take our mental functions to places normally out of reach of our everyday consciousness, these areas are usually reserved for religion, mysticism and inges-

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tion of psychoactive substances. The experiences one is on a journey through the fall of consciousness into the realm of psychological experience known as the transpersonal, these transpersonal experiences are such that exceed normal limits of our existence and leave the empirical way of knowing, initiating human consciousness in a meeting with those areas of consciousness that are, in normal conditions, being largely inaccessible to us. This process of leaving the empirical normal physical limits of our existence seems to serve as further proof of what was described in this chapter before that religious, mystical and philosophical thought are related to quantum physics.

When individuals use Neurotechnology using the phenomenon of entrainment in the brain for days or weeks in a row, the out of body experience seems to be more the rule than the exception. Normally these experiences manifest as spontaneous feelings flying above a landscape. It is nothing strange that the same feeling out of the body that occurs in many different practices aimed access to altered states of consciousness as well as show as the main subject of near-death experiences. The timing and the subsequent stimulation of the two hemispheres of the brain entrainment can result with the use of Neurotechnology as Fischer and d'Aquili (1986) suggest. Much of what appears to take place within the transcendental experience of parapsychology seems to be what many of us commonly called the synchronicity. The synchronicity can be defined as a causal connecting principle of coincidence of events in space / time. Carl Jung, who is the first to describe the concept of synchronicity, saw that this state could be related to many transcendental experiences. These synchronistic events can be linked dreams, visions, meditative states and other inner experiences with tangible events in the life of the subject.

A growing number of professional researchers postulated that ESP could be linked to the alpha state (Lawrence, 1972). Dr. Edward Bokert of the American Society for Psychical Research analyzed mental states and has concluded that they are, at least in its early stages, "characterized by a highly aroused autonomic nervous system" (Lawrence, 1972) precisely what one finds in the ergotropic excitement associated with the brain and the use of neuro technologies. Dr. Charles Honorton of the Maimonides Medical Center has also found that the ESP seems to be associated with "relaxation, mild dissociation, passivity, and reduced visual imagery" (Honorton, 1970), which is commonly found when waves alpha occur with brain entrainment technologies. Indeed, Honorton found that the higher alpha production, the higher the score obtained in the individual tests ESP. It seems as if many of the psychic states that identified Grof as part of the "Experiential Extension Beyond the consensus reality and space-time" may be associated with changes in one level of consciousness to another.

Proposed Cyber-Psychotherapy System with the Use of Neurotechnology

The state of consciousness of someone can be measured by using physiological changes. Some physiological changes are typically associated with altered state of consciousness so measuring these physiological changes may provide evidence to more accurately determine the state of consciousness someone is in. Cade and Coxhead (1979) was able to map altered state of consciousness with alpha brain waves between 10 to 8 cycles.

The proposed Cyber-psychotherapy system uses EEG to show the ephemeral patterns of the electrical signals from the two hemispheres of the cortex as they are happening (Cade & Coxhead 1979). The EEG captures the users' brainwave signals. After being converted to digital form, the brainwaves are processed, and the results are wirelessly transmitted to the USB receiver. A brain mapping software interprets these signals to displays mental activity in real time. The software displays brain activity in four significant brainwave frequency bands (Delta, Theta, Alpha, Beta) and uses the headset to read data.

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An application of quantum physics (Neurotechnology) in the altered states of consciousness was carried out by Persinger (1983). Persinger (1983) was able to induce visions of God and other religious and mystical experiences in the laboratory by using a computer and with what he called the Koran helmet that has also the nickname of the God helmet. He found that the temporal lobes of the brain are the source of the most spiritual experiences and other alternate state of consciousness.

This God helmet is a device to induce altered states of consciousness using weak magnetic signals to direct brain activity that can induce spiritual experiences that helps with transpersonal exploration and transformation of many people that is able to heal because of these transpersonal experiences (Persinger, 2000). It is suggested that altered states of consciousness such as sensed presence and out-of-body experience whether they are produced by magnetic, electric or other stimulations or circumstances can be most effectively explained as the changes of the relative contents and/or intensities of the test subjects' neural quantum entanglement with their surroundings including possibly spiritual environments or information (Hu & Wu, 2012).

The proposed Cyber-psychotherapy system uses the Koran helmet of Persinger (1983). The koran helmet software produces EEG signals. These are applied to the brain using modified commonly available magnetic coils. The magnetic signals are applied to the head at very low strength. The signals are short bursts, followed by intervals of silence. Each signal speaks a language that only one brain structure understands and responds. The brain has two hippocampus and two amygdalas, one on each side. When these structures respond, they can put the person in a positive altered state of consciousness.

The proposed architecture of the Cyber-psychotherapy is depicted in Figure 1. The therapist computer has installed Brain activity map software and Skype. Skype is a telecommunications software that allows verbal and text communications with the patient, the Brain activity map software allows the therapist to visualize the states of consciousness of the patient by detecting the frequency band with the highest level of activity. The therapist is able to access the EEG signals collected by the EEG headset wore by the patient. These digital signals are transmitted over the internet by using a cloud based hub such as Flexihub software (Flexihub 2016), FlexiHub is a USB over IP software solution, it enables sharing access to USB devices over Internet. The EEG headset is connected to the USB of the patient's computer via a USB wireless adaptor. The koran helmet is wore by the patient and is meant to induce altered states of consciousness by receiving modulated signals to both temporal lobes from a signal generator installed in the patient's computer.

CONCLUSION

Our present understanding of "brain entrainment technology" is still in its infancy, however, this chapter intends to open the eyes of the reader that this technology has great potential particularly for transpersonal therapies.

This chapter introduced Neurotechnology based technologies including quantum biofeedback; the latter has proven curative value for particular diseases that seem to be psychosomatic and also has been proven to help to measure state of consciousness of individuals. Transpersonal psychology was presented as a paradigm that recognizes the immortality of consciousness and relies on spiritual concepts that have roots in mystic religions as reincarnation and survival of consciousness after the brain death. The immortality of consciousness is based largely on the quantum theory explaining the origin of consciousness and its connection to the universe.

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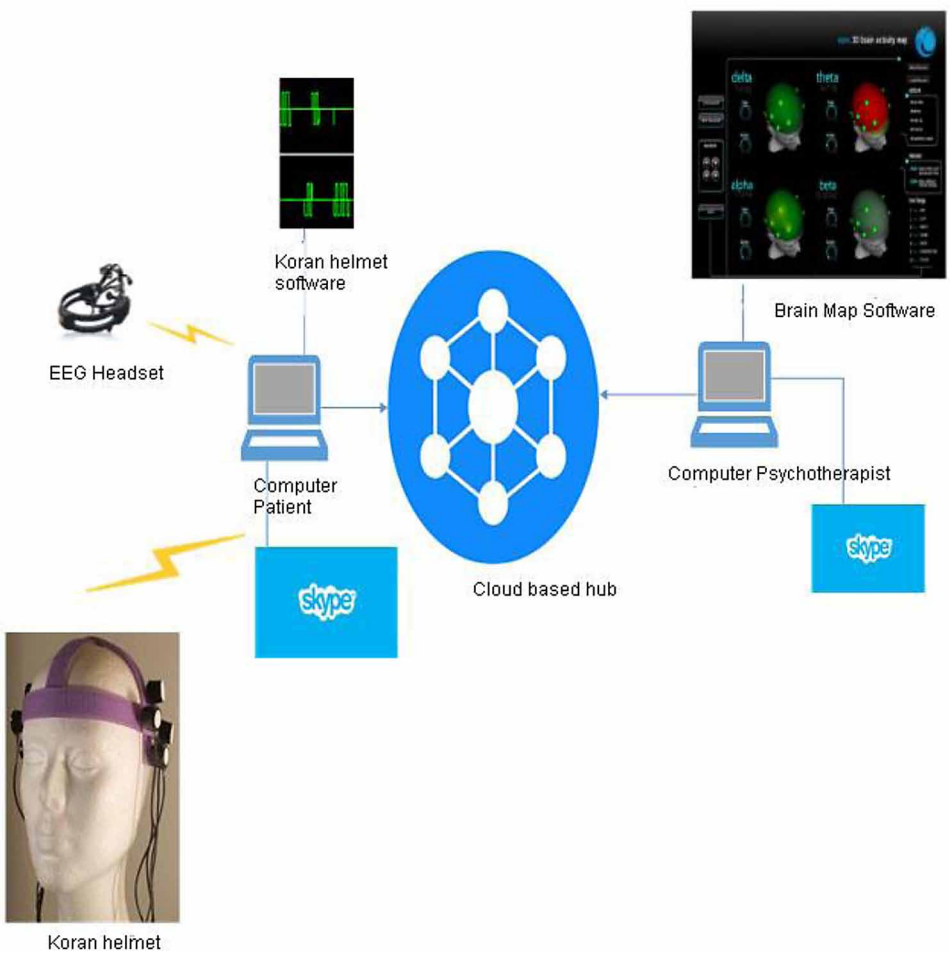
Figure 1. Proposed cyber-psychotherapy system



Neurotechnology explores the use of technologies of sound, light and radiofrequency to control the frequency of brain waves with the reason to induce altered states of consciousness. Altered states of consciousness have been proposed as therapies for healing in transpersonal psychology, these therapies recognize the spiritual essence of the individual and are based on the concept that psychological illnesses are rooted in the spirit and not in the brain. Once the patient knows the root of his or her problems, seems to find the answer to his or her anxieties and can self heal with these transpersonal experiences.

Inducing altered states of consciousness with Neurotechnology is a relatively new concept and although there are serious studies, they are not incorporated into traditional medicine more than anything by a lack of understanding of this technology in traditional medicine. The aim of this chapter is to open the eyes of the therapists about the potential of these technologies in the use of transpersonal therapies.

In this chapter a Cyber-psychotherapy system is proposed to support transpersonal psychotherapy. The system can be used to induce non-ordinary state of consciousness that can be used by transpersonal psychologists as a healing tool to cure his patients with psychological problems such as psychosis at a distance location with the help of Internet technologies. The proposed cyber psychotherapy system uses quantum signal generator for the induction of altered states of consciousness and has integrated an

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EEG that serves as a biofeedback device in order to assess if the patient has reached the desired level of consciousness and can be used it to adjust the frequencies of the signal generator in order to improve the psychotherapy experience of the patient if necessary.

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Chapter 38
Positive Technology for Helping People Cope with Stress

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ABSTRACT

The emerging convergence of new technologies and health care is offering a new approach to support effective interventions. This chapter aims to describe how Positive Technology can help people cope with stress in several contexts. On the one hand, the potential capacity of sensor technologies to offer individuals the technology with which to monitor certain biological signals known to be associated with stress might serve to promote engagement with a mediated experience for stress management. On the other hand, the chapter focuses on the hedonic and eudaimonic experiences supported by technology in terms of inducing positive affective states and supporting personal growth by teaching strategies to reduce stress and enhance well-being. To further connect mediated experiences with real ones, the Interreality approach (IR) allows for the combination of assessment and intervention as inseparable parts of the general process of coping with stress.

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INTRODUCTION

Stress is currently a growing problem that affects many people and significantly worsens their quality of life (Cohen, Janicki-Deverts, & Miller, 2007). Stress has various definitions that all converge upon the notion of "strain" or "the nonspecific response of the body to any demand placed upon it" (Selye, 1956).

According to Cohen et al. (Cohen et al., 2007), psychological stress occurs when people perceive that environmental demands tax or exceed their adaptive capacity. Thus, stressful experiences are conceptualized as person-environment transactions whose result is dependent on the impact of the external stimulus at three levels:

1. **Primary Appraisal:** i.e., A person's judgment about the significance of a stimulus as stressful, positive, controllable, challenging or irrelevant;
2. **Secondary Appraisal:** Which address what one can do about the situation;
3. **Problem Management Phase:** Which is aimed at regulation of the external stimulus.

According to these levels, it's evident that there is no ''best'' stress response: an optimal adaptation to environmental demands requires the ability to flexibly use coping strategies depending on the particular context and the specific stressors. In order to effectively manage stress, it is crucial to help people change the way they see the events and to learn to use coping skills.

While the mind and body's responses to stress can be helpful and adaptive in the short-term (McEwen, 1998), repeated or long-term activation of the stress response can damage the body over time (McEwen & Stellar, 1993; Seeman, Singer, Rowe, Horwitz, & McEwen, 1997), and the effects of chronic stress are common and costly (Kalia, 2002). Indeed, chronic stress is associated with lowered immune functioning, impaired memory, chronic headaches, cardiac disease and premature aging of genes, among others (Hammen, 2005; Kiecolt-Glaser, McGuire, Robles, & Glaser, 2002; Leserman et al., 2002; McEwen, 2006; Rozanski, Blumenthal, & Kaplan, 1999). Psychological stress has been linked empirically with dysregulation of facets of the human immune system. A recent review that focused on the effects of stress on inflammation in clinical populations has demonstrated that stress exposure can increase the likelihood of developing disease, as well as exacerbate pre-existing conditions (Morey, Boggero, Scott, & Segerstrom, 2015). For example, in persons with a particular genetic disposition, as well as high level of trait anxiety, repeated and early exposure to stress may result in a decreased threshold for developing anxiety (Jackson, Knight, & Rafferty, 2010; Lupien, McEwen, Gunnar, & Heim, 2009). Stressful events influence the pathogenesis of physical diseases by causing continuous negative affective states (potentially leading to feelings of anxiety and depression), which in turn may induce changes in the emotional circuitry of the brain that can contribute to stress-related psychopathology (Davidson, Jackson, & Kalin, 2000).

The range of considerable problems related to stress highlights the importance of successfully managing stress.

Is it possible to live and live well under stress? To answer this question Antonovsky proposed the salutogenesis model (Antonovsky, 1987, 1996), which deals with the issue of stress from a whole different perspective. According to Antonovsky, daily life is constantly subject to the micro- and macro-stressors that prevent a person from achieving a state of homeostasis. However, the vast majority of people are able to maintain a balanced relationship with the environment. In some cases, even under the most challenging circumstances, people succeed in developing, growing and achieving increasingly intense levels of well-being.

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Pathogenesis and salutogenesis are seen as complementary approaches. On the one hand, pathogenesis focuses on discovering the causes and precursors of disease and identifying disease risk factors. On the other hand, salutogenesis represents a model or framework focused on discovering the causes and origins of health and wellness (Latin *salus* = "health;" Greek *genesis* = "origins") (Antonovsky, 1979) and looks prospectively at how to create, enhance and improve physical, mental and social well-being. This paradigm focuses on locating and developing personal and social resources and adaptive tendencies, which result in effective coping behaviour and growth. Strümpfer (Strümpfer, 1995) suggested that there are six significant salutogenic strengths: the sense of coherence, hardiness, learned resourcefulness, potency, internal locus of control and self-efficacy. The salutogenic paradigm and its constructs developed from various personality theories emphasising personality growth, wellness and optimal psychological functioning (Antonovsky, 1987; Strümpfer, 1995).The work started by Antonovsky has been further developed within Positive Psychology, an emerging field that is defined as the scientific study of ordinary, positive and subjective human strengths, virtues, experiences and functioning (Seligman & Csikszentmihalyi, 2000; Sheldon & King, 2001).The progressive convergence between the objectives of Positive Psychology and the impressive advances of Information and Communication Technologies (ICTs) has led toward a new paradigm that has been named Positive Technology. This is a scientific and applied approach to the use of advanced technology for improving the quality of our personal experience (Botella et al., 2012; Riva, Banos, Botella, Wiederhold, & Gaggioli, 2012).Within this framework, this chapter aims to describe how interactive technologies can be effectively used in the assessment of stress and to support interventions for stress management. Proposals about how to combine assessment and interventions and integrate technology in these processes (Pallavicini, Gaggioli, et al., 2013; Riva, 2009a; Riva, Banos, et al., 2012) will be described at the end of the chapter.

PSYCHOLOGICAL ASSESSMENT OF STRESS SUPPORTED BY NEW TECHNOLOGIES

Typically, two main approaches are used to assess psychological stress in naturalistic conditions: the first is based on self-reporting of participants' subjective experiences and perception of stressful events; the second approach is based on sensing physiological signals associated with the stress response.

The first approach includes self-report questionnaires, such as the psychological stress measure (PSM) (Di Nuovo, Rispoli, & Genta, 2000; Lemyre & Tessier, 1988) or the perceived stress scale (PSS) (Cohen, 1986), the experience sampling method and the day reconstruction method.

The experience sampling method (ESM), also known as ecological momentary assessment (EMA), is a naturalistic observation technique that allows the capturing of participants' thoughts, feelings and behaviours at multiple times across a range of situations as they occur in the natural environment (Csikszentmihalyi & Larson, 1987). In a typical ESM study, participants are asked to fill out a form when prompted by an acoustic signal. Thanks to repeated sampling, a number of surveys are collected from each participant throughout the day, thus providing an ecologically valid and highly detailed description of the subjective quality of experience. ESM has been applied to study a wide range of behaviours and experiences, including daily stress (Serino et al., 2012). However, this procedure has high costs and places a significant burden on the participant (Scollon et al. 2003), thus limiting its practical applicability as a stress monitoring technique.

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A less expensive and time-consuming approach for assessing experience and affect in everyday life is the day reconstruction method (DRM), developed by Kahneman and colleagues (Kahneman, Krueger, Schkade, Schwarz, & Stone, 2004). It involves the retrospective recall of the study period as a continuous sequence of episodes, which are rated on a series of affect scales. DRM reports have been validated against experience sampling data, showing that this technique allows the identification of changes in affect over the course of the day with almost the same accuracy as ESM (Kahneman et al., 2004; A. A. Stone et al., 2006). However, since DRM respondents are asked to reconstruct the previous day by completing a structured self-administered questionnaire, this method is potentially susceptible to recall biases. Furthermore, it has been suggested that using retrospective measures as proxies for actual experience may result in weaker or inconsistent results, particularly when tested in connection to biologic pathways (Conner & Barrett, 2012).

The second strategy to assess stress in everyday situations is based on the analysis of physiological correlates of this experience. Psychological stressors are linked with the activation of two main neuro-physiological pathways that are involved in the maintenance of homeostasis: the hypothalamic-pituitary-adrenocortical (HPA) axis and the sympathetic-adrenal medullary system (SAM). One of the most investigated biomarker in the first system is salivary cortisol, which, together with catecholamines, is one of the end products of HPA activation (Kirschbaum & Hellhammer, 1989; G. E. Miller, Chen, & Zhou, 2007). However, due to significant between- and within-individual variation in the diurnal secretion of cortisol, the measurement of the magnitude of cortisol response is a difficult procedure that requires the application of advanced statistical approaches such as multilevel models (Hruschka, Kohrt, & Worthman, 2005; Ice, Katz-Stein, Himes, & Kane, 2004). With respect to the SAM system, heart rate variability (HRV), defined as the variation over time of the period between consecutive heartbeats, is increasingly regarded as a potentially convenient and non-invasive marker of autonomic activation associated with psychological stressors (Orsila et al., 2008). The normal variability in heart rate (HR) is controlled by the balancing activation of the (acceleratory) sympathetic and of the (deceleratory) parasympathetic branches of the autonomic nervous system. However, in stressful events or contexts, there is a trend towards increased sympathetic control and reduced vagal tone, which is associated with decreased HRV (Berntson & Cacioppo, 2004).

Higher HRV has been also associated with the availability of context- and goal-based control of emotions (Thayer, Ahs, Fredrikson, Sollers, & Wager, 2012). Based on this preliminary evidence, several authors have been experimenting with wearable heart monitors for the identification of stress levels from HRV, in both healthy and clinical populations. For example, Kim and colleagues (Kim, Seo, Cho, & Cho, 2008) used HRV patterns to discriminate between subjects reporting high and low levels of stress during the day, with an overall accuracy of 66.1%. In a similar study, Melillo et al. (Melillo, Bracale, & Pecchia, 2011) compared within-subject variations of short-term HRV measures using short-term ECG recordings in students undergoing university examination. By applying Linear Discriminant Analysis on nonlinear features of HRV for automatic stress detection, these authors were able to obtain a total classification accuracy of 90%. Kimhy and colleagues (Kimhy et al., 2009) investigated the relationship between stress and cardiac autonomic regulation in a sample of psychotic patients, using experience sampling in combination with cardiac monitoring. They found that momentary increases in stress were significantly associated with an increase in sympathovagal balance and parasympathetic withdrawal. In addition to studies that have examined the association between HRV and stress during waking hours, other recent research has proposed the use of HRV patterns during sleep as a supplement to the analy-

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sis of subjective assessments and voice messages collected during the workday (Muaremi, Arnrich, & Tröster, 2013). Results, though preliminary, have been encouraging.

As previously discussed, a fundamental issue in the measurement of stress in everyday life is that this response is idiosyncratic because it depends on an individual's perception of challenges and the skills that he/she can use to face those challenges. As a consequence, any approach aimed at inferring stress levels from "honest" physiological signals should take care not to overlook the role played by the subjective appraisal of the situation. Furthermore, since HRV values are characterized by high interindividual variability, it is important that the system be tailored to individual characteristics (Cinaz, Arnrich, La Marca, & Tröster, 2013; Morris et al., 2010).

One possible approach to developing adaptative systems for stress recognition has been suggested by Morris and Guilak (Morris et al., 2010). The strategy proposed by these authors involves identifying a subject's baseline and stress threshold in the lab by elicitation of sympathetic and parasympathetic responses, and then using this information to differentiate between stress and nonstress in daily life. A first attempt to implement this approach was performed by Cinaz and colleagues (Cinaz et al., 2013). These authors measured participants' sympathetic and parasympathetic responses during three different levels of mental workload (low, medium and high) in a controlled laboratory setting. Then they investigated whether the data collected in this calibration session were appropriate to discriminate between the corresponding workload levels that occurred during office work. To this end, individual HRV responses of each workload level were used to train the models and test the trained models on the data collected while the subjects performed normal office work, using a mobile ECG logger. Afterward, a multiple regression analysis was applied to model the relationship between relevant HRV features and the subjective ratings of perceived workload; resulting predictions were correct for six out of the seven subjects.

A possible integration between the above presented approaches is PsychLog (Gaggioli et al., 2013), a mobile experience sampling platform designed for research in mental health, which allows simultaneous collection of psychological, physiological (ECG) and motion activity data. PsychLog proposed the Italian adaptation of the ESM questionnaire applied by Jacobs and colleagues (Jacobs et al., 2007) for studying the immediate effects of stressors on mood. Specifically, psychological data are collected from surveys that can be simply customized by the experimenter by including open-ended and closed-ended questions investigating thoughts, current context (activity, persons present and location), appraisals of the current situation and mood. HR and activity data are acquired from a wireless electrocardiogram (Shimmer Research™) equipped with a three-axial accelerometer. The wearable sensor platform includes a board that allows the transduction, amplification and pre-processing of raw sensor signals, and a Bluetooth transmitter to wirelessly send the processed data. The unit is mounted on a soft-textile chest strap designed to seamlessly adapt to the user's body shape, allowing full freedom of movement. Sensed data are transmitted to the mobile phone's Bluetooth receiver and gathered by the PsychLog computing module, which stores and processes the signals for the extraction of relevant features.

Serino and colleagues (Serino et al., 2013) tested the use of PsychLog to investigate the fluctuation of individuals' experience and to detect, on the basis of psychophysiological real-time assessment, stressful events that normally occur during daily activities and situations. Promising results led the authors to consider PsychLog a valid tool to detect and offer real-time and effective interventions.

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POSITIVE TECHNOLOGY INTERVENTIONS FOR STRESS MANAGEMENT

The emerging convergence of technology and health care is offering new methods and tools not only to assess but also to cope with stress. According to Botella and colleagues (Botella et al., 2012), the potentiality of technologies for psychological interventions has been demonstrated in several technological domains, including computer-assisted therapy (e.g., (Carr, Ghosh, & Marks, 1988; Proudfoot et al., 2004), virtual reality applications (e.g., (Glanz, Rizzo, & Graap, 2003; Riva, 2009b), the Internet and its evolution—Web 2.0 (e.g., Andersson, 2009; Gorini, Gaggioli, Vigna, & Riva, 2008) and mobile devices (e.g., Free et al., 2013; Phillips, Felix, Galli, Patel, & Edwards, 2010).

Specifically, there is growing empirical support for the use of these technologies for stress management training (Gorini et al., 2008; Preziosa, Grassi, Gaggioli, & Riva, 2009; Riva, 2009a).

If Positive Psychology identifies three constituents of well-being—namely positive emotions/pleasure, engagement/actualization and meaning/connectedness—positive technologies could be classified according to their effect in promoting these three features (Riva, Banos, et al., 2012):

1. **Hedonic Level:** Technologies used to induce and/or enhance positive and pleasant experiences;
2. **Eudaimonic Level:** Technologies used to support individuals in reaching engaging and self-actualizing experiences;
3. **Social and Interpersonal Level:** Technologies used to support and improve social integration and/or connectedness between individuals and groups.

These levels led to the manipulation of crucial features aimed to help people manage their stress through different positive technologies. Specifically, within this chapter we will focus on the hedonic and eudaimonic experiences supported by technologies in terms of inducing positive affective states and supporting personal growth by teaching strategies to reduce stress and enhance well-being.

Using Technologies to Foster Positive Emotional States

The first level of Positive Technology concerns how to use technology to foster positive emotional states.

Emotions occur at many levels of user experience, and positive emotions have the potential to trigger an upward spiral of flourishing (Fredrickson & Losada, 2005). According to Fredrickson (Frederickson, 2009), even though a positive emotional state is only momentary, its benefits can last in the form of traits, social bonds and abilities that endure well into the future.

The first step is to clarify the construct we are dealing with because it is essentially diffuse and conceptually difficult to define. Specifically, we want to delineate how we are using the term "emotions" and how we see it relative to related constructs such as mood and affect, according to many theorists and researchers (Batson, Shaw, & Oleson, 1992). Emotions are usually described as intense, short-lived affective states in response to particular stimuli. Moods, by contrast, are more diffuse and longer lasting, and it is often more difficult for an individual to describe the particular cause of his or her mood. The terms "affect" and "affective state" are broader and more inclusive, encompassing emotions, mood and some aspects of motivational processes.

Here we talk about positive emotions with a focus on relaxation as a positive psychological state. To induce positive emotional states in mediated experience, a typical approach is based on the exposure of emotion-eliciting materials, such as pictures, music or films (Codispoti, Bradley, & Lang, 2001; Eich,

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Ng, Macaulay, Percy, & Grebneva, 2007; Gross & Levenson, 1995; Philippot, 1993). A more recent approach is related to the use of Virtual Reality (VR) in inducing positive affective states. In order to develop virtual environments aimed to help people feel relaxed, one of the first aspects to consider is related to the virtual scenario in which participants can live a positive experience. Typically, virtual environments for stress management depict natural settings.

The theory at the base of the use of natural virtual environments is that restoration from stress and from mental fatigue relates to exposure to nature (Hartig, Evans, Jamner, Davis, & Gärling, 2003). Natural environments protect people against the impact of environmental stressors and offer physiological, emotional and attention restoration. Restorative environments are natural places that allow a shift towards more positively-toned emotional states and positive changes in physiological activity levels, behavior and cognitive functioning (Kaplan, 1995). In particular, immersion in a virtual computer-generated nature setting has been found to be a valid therapeutic aid in the treatment of anxiety disorders, as well as an effective tool in stress management and relaxation (Kahn, Severson, & Ruckert, 2009; Villani, Riva, & Riva, 2007). Plante and colleagues (Plante et al., 2003; Plante, Cage, Clements, & Stover, 2006) reported that individuals who interacted in a mediated environment enriched with a variety of positive visual and auditory stimulation reported greater improvement in self-efficacy and mood. Recently, computer-generated nature of VR has been demonstrated to promote restorative effects (Valtchanov, Barton, & Ellard, 2010).

Riva and Colleagues tested the potentiality of VR in inducing specific emotional responses, including positive moods (Riva et al., 2007). Results suggested the efficacy of VR as an affective medium: the relaxing virtual environments induced relaxation. Within the EMMA Project (Engaging Media for Mental Health Applications), some VR environments (Emotional Parks) were developed to induce positive states (Rosa María Baños et al., 2004; Rosa M Baños et al., 2008; Rosa María Baños et al., 2006). The strategies used to induce positive affective states within the experience in the virtual Emotional Parks combined Velten's self-statement (Velten, 1968), affective images from IAPS (Lang, Bradley, & Cuthbert, 1997) and music. The VR scenario experience was vivid and real and induced a high sense of presence that affected relaxation and the emotional response (Riva et al., 2007).

Villani and colleagues compared the efficacy of structured experiences provided through different technologies (video, audio and VR) for inducing relaxing states (Villani et al., 2007). Results of this experiment showed a significant reduction in anxiety and a significant improvement in positive emotional states, measured through self-report questionnaires and physiological parameters, but there was no difference among the media conditions. However, these results suggested two applied directions: when the goal is to produce a positive experience inducing positive emotions, the context (media form) plays the critical role; when the goal is to use the virtual experience to influence the affect, for example helping participants to cope with a problem, the content (media content) plays the critical role. This means that the virtual scenario and the technological devices can be helpful in affecting short-term psychological states, while the content of the experience plays a critical role in supporting the development of psychological skills useful to cope with real stressful situations. Participants may feel more engaged if they consider the experience to be crucial to their needs and goals (Scherer, 2001), and this is also true for mediated experiences (Villani, Repetto, Cipresso, & Riva, 2012; Villani et al., 2007; Villani & Riva, 2012). Thus, it is important to select people that recognize the importance of the proposed intervention for their well-being.

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Using Technologies to Learn Strategies to Reduce Stress and Enhance Well-Being

As decribed before, the acquisition of specific skills of stress management during the mediated experience can promote a sense of personal self-efficacy and prepare people to cope with real stressful situations. According to Bandura's (Bandura, 1977) theory, once established, self-efficacy tends to generalize to other situations. Indeed, once acquired, these competencies assigned to internal factors become a means to the management of stressful situations, and they can be transferred and applied to other contexts.

According to this view, three approaches aimed to enhance well-being and strengthen specific mental abilities to cope with stress have attracted some interest: relaxation practices, meditation and stress management training.

Guided Relaxation Practices

The use of positive mediated interactive experiences to help people manage stress represents an innovative perspective. In this view, several studies have been carried out in the last ten years to verify the effectiveness of relaxation protocol supported by new technologies.

In a pilot study, Villani et al. (Villani et al., 2007) found that, after a brief protocol of two sessions where the virtual experience was accompanied by a relaxing narrative, people could learn relaxation strategies. These results led the authors to develop an extended stress management protocol (six sessions) that integrated other strategies. To develop the extended protocol, Villani and Riva (Villani & Riva, 2012) considered stress as having multiple components that typically involve cognitive, experiential, physiological and behavioral response systems that require multiple levels of analysis (Folkman, 2009). In accordance with Murphy (Murphy, 1996), authors combined different strategies used in cognitive-behavioral therapy (CBT) to yield better stress management than single-strategy programs. Specifically, the protocol aimed to increase emotional awareness (Greenberg, 2004), to learn to control emotions and to relax (Borkovec & Costello, 1993), to induce positive emotions (Folkman, 2008; Fredickson, 2001) and to substitute negative emotions through the imagination process (Roemer & Orsillo, 2002). Relaxation practices included in the training were autogenic training (Schultz & Luthe, 1969), Progressive Muscular Relaxation (Jacobson, 1938) and breathing techniques. Authors demonstrated that interactive media could be usefully used to reduce stress.

Recently, Gaggioli and colleagues (Gaggioli et al., 2014) carried out a block randomized controlled trial involving participants recruited from two different worker populations—teachers and nurses—that are recognized as highly exposed to psychological stress. The experimental group received a 5-week treatment course based on the Interreality paradigm that combines experiential virtual scenarios with real-time monitoring and support using advanced technologies (see the last paragraph of the chapter for a deeper description of the Interreality approach). Relaxation was induced through immersion in a natural scenario selected by the subjects where they could move and interact (see Figure 1).

The experience also integrated different pre-recorded audio narratives describing the specific setting and guiding the execution of different progressive muscle relaxation/deep breathing exercises. The control group received five weeks of traditional stress management training based on cognitive-behavioral therapy (CBT), and the waitlist group was reassessed and compared with the two other groups five weeks after the initial evaluation.

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Figure 1. The natural interactive scenario

Although both treatments were able to significantly reduce perceived stress better than the waitlist group, only experimental group participants reported a significant reduction in chronic trait anxiety and a significant increase in the emotional support skill. These studies suggest the importance of integrating relaxation practices with other strategies in stress management interventions supported by new technologies.

Online and Mobile Meditation and Mindfulness

Many people use meditation to treat stress and stress-related conditions and to promote general health (Goyal et al., 2010). Interest in meditation, which comes from Eastern traditions that emphasise lifelong growth, has rapidly grown during the past 30 years in Western. The umbrella of meditation covers various methods whose backgrounds and techniques are quite different. Thus, meditation refers to a family of techniques that have in common a conscious attempt to focus attention in a non-analytical way (Shapiro Jr, 2008).

According to a recent review (Goyal et al., 2014), meditation programs can reduce the negative dimensions of psychological stress more than they can improve the positive dimensions of health and well-being. Uncertainty remains about the role of the specific features of the different meditation techniques in actually influencing psychosocial stress outcomes (Chiesa & Malinowski, 2011; Sedlmeier et al., 2012).

All forms of meditation imply that more time spent meditating will yield larger effects. Thus, long-term trials may be optimal to examine the effect of meditation on many health outcomes.

Among the meditation approaches, mindfulness meditation can be described as a process of present-focused awareness or mindfulness (Bishop et al., 2004; Kabat-Zinn, 1990; Kabat-Zinn, 2003). Several interventions using the Mindfulness-Based Stress Reduction protocol demonstrated good results in reducing levels of stress, anxiety and depression in both clinical and nonclinical populations (Chiesa, Calati, & Serretti, 2011; Eberth & Sedlmeier, 2012; Hofmann, Sawyer, Witt, & Oh, 2010; J. J. Miller, Fletcher, & Kabat-Zinn, 1995; Shapiro, Schwartz, & Bonner, 1998; Shonin, Van Gordon, & Griffiths, 2013).

Despite the efficacy of these programs, the commitment required could cause barriers to its widespread application (Carmody & Baer, 2009). In fact, these programs are time-intensive and require both in- and out-of-session practice; they are also sometimes difficult for people with minimal experience with meditation.

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To overcome these limitations, both online interventions and mobile applications offer several advantages, and both can provide helpful mental health resources that may be inaccessible otherwise. The Internet and mobile apps allow providers to deliver interventions, with reduced cost to the health services and to patients, to complete courses in their own comfortable, familiar surroundings (Powell et al., 2013; Zetterqvist, Maanmies, Ström, & Andersson, 2003).

There is growing evidence for online mindfulness courses being as effective as other face-to-face interven- tions (Glück & Maercker, 2011; Krusche, Cyhlarova, King, & Williams, 2012; Morledge et al., 2013). In this view, Krusche and colleagues (Krusche, Cyhlarova, & Williams, 2013) investigated the feasibility and effectiveness of an online mindfulness course for perceived stress, anxiety and depression. The programme consisted of 10 sessions, guided meditation videos and automated emails with elements of Mindfulness-Based Stress Reduction and Mindfulness-Based Cognitive Therapy. Participants could complete the programme at a pace that suited them individually (minimum length of four weeks), and the study evaluated the amount of practice as a mediator of change. Authors found that participants who were more stressed, depressed and anxious at baseline tended to practice less and take more time to complete the course. A longer course time predicted less of a change in stress, anxiety and depression, while more mindfulness practice significantly improved stress, anxiety and depression outcomes when accounting for baseline severity. Results for the effectiveness and feasibility of online mindfulness courses look promising.

Recently, brief mindfulness meditation protocols have also been integrated in self-help interventions supported by new technologies and mobile apps (Ahtinen et al., 2013; Cavanagh et al., 2013; Ly et al., 2014; Warnecke, Quinn, Ogden, Towle, & Nelson, 2011). The efficacy of brief mindfulness meditation protocols have been confirmed for nonclinical populations also at risk for stress-related health problems (Klatt, Buckworth, & Malarkey, 2009; Olivo, Dodson-Lavelle, Wren, Fang, & Oz, 2009).

Although a wide selection of mindfulness-based mobile apps (MBMAs) are available on the market (Plaza, Demarzo, Herrera-Mercadal, & Garcia-Campayo, 2013), the effectiveness of self-help intervention aimed toward helping people practice mindfulness techniques has not been broadly studied yet.

Recently, the effectiveness of a mobile app focused on a specific technique called thought distancing (i.e., a mindfulness technique that requires a person not to react in response to one's own thoughts but to be aware of them and observe them while they go away), which aims to enable decentering, has been tested (Chittaro & Vianello, 2014). Good results have been obtained in terms of achieved mindfulness, perceived level of difficulty and degree of pleasantness.

Carissoli and colleagues (Carissoli, Villani, & Riva, 2015) tested the effectiveness of a brief self-help protocol inspired by mindfulness meditation and delivered through a smartphone app in reducing stress for the nonclinical population. Authors used a controlled pragmatic trial that represents a trial typically designed to test the effectiveness of interventions in real life in order to maximize their applicability and generalizability (Patsopoulos, 2011). Sitting meditation was the focus, consisting of different exercises, such as mindful breathing and thought distancing. Authors found a reduction in hyperactivity and accelerated behaviors, which is consistent with meditation practice as mindfulness is a type of meditative technique that emphasizes an observant and nonreactive stance toward one's thoughts, emotions, and body states. Nevertheless, authors suggested that participants would need more time to become confident with the meditation approach—more time spent meditating could yield larger effects (Goyal et al., 2014).

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Cyber-Stress Inoculation Training

SIT, or stress inoculation training (Donald Meichenbaum, 1977; D. Meichenbaum, 1985), represents a validated short, semistructured and active approach to managing psychological stress (for a review, see Stetz et al., 2007). SIT is a type of training conceived to prepare individuals for stressful events by helping them diminish the potential for a negative cognitive, psychological and behavioral reaction.

SIT is based on the premise that to effectively manage stress, it is crucial to change the way people see the events and how they use their own coping skills. Thus, SIT is generally implemented through gradual and repeated exposure to the elements previously identified as stressors. The clinical rationale behind this approach is to ''inoculate'' the stressor in a person's experience, in combination with the acquisition of effective coping skills, so that people could be prepared when they inevitably encounter similar situations in daily life.

The general objectives of SIT are threefold and related to the three phases of the protocol. First, SIT aims to change the maladaptive stress response of the individual, thanks to the acquisition of active coping strategies. Thus, the first phase, named conceptualization, aims at making individuals aware of the transactional nature of psychological stress (Lazarus & Folkman, 1987) by giving them general information about the main effects and symptoms that could appear in different stressful situations. Second, SIT aims to develop the activity of self-regulation. Thus, the second phase, named skill acquisition and rehearsal, aims at teaching individuals to manage emotions and maladaptive behaviors, as well as learn new active coping skills. Third, SIT aims to explore and modify dysfunctional cognitive appraisal related to stressful events. Thus, the last phase, named application and follow-through, aims at increasing self-efficacy (Bandura, 1998) by helping individuals use the acquired coping skills in real contexts. Typical techniques used in this phase are imaginative rehearsal (in which an individual has to image stressful scenarios and think about coping strategies), behavioral rehearsal (role-playing) and the graded in vivo exposure.

The main objectives and three stages of SIT have been recently implemented in cyber-interventions based on SIT methodology (cyber-SIT), which utilise advanced technologies to create simulations to teach individuals how to effectively cope with psychological stress (Stetz et al., 2007; Wiederhold & Wiederhold, 2006).

In a recent review, Serino and colleagues (Serino et al., 2014) intended to outline the state-of-the-art of cyber-SIT interventions. According to the results of this systematic review, cyber-SIT appears to be a promising clinical approach, and there are interesting researches that effectively combined traditional SIT clinical protocol within advanced technologies. However, at the moment it is an emerging field of research. Thus there are still few studies in the literature meeting the requirement of using cyber-SIT in all its clinical elements and phases. Authors found that two main groups of technologies have been used for delivering cyber-SIT: virtual-interactive environments and mobile technologies. Villani and colleagues tested the effectiveness of a cyber-SIT delivered through mobile phones by comparing it with a control group (neutral video through mobile phones) in a sample of oncology nurses (Villani et al., 2013). Results showed psychological improvement of the experimental group in terms of anxiety state, anxiety trait reduction and coping skills acquisition.

Furthermore, up to now, cyber-SIT interventions have been applied to different contexts, targeting both chronic stress (such as PTSD) and acute stress related to a specific situation (such as stress experienced before an examination). For this reason, Serino and colleagues (Serino et al., 2014) suggested the

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importance of critically choosing the sampling strategies and defining the inclusion/exclusion criteria according to the specific aim of the protocol.

Practically, how may advanced technologies efficiently support all three phases of SIT? As far as the conceptualization phase, the interactive virtual worlds can use motivation to teach users about the transactional nature of stress, its main causes and effects (Riva, Vigna, et al., 2012). Furthermore, thanks to multimedia presentations where information is enriched and distributed through several channels, new technologies could enhance both the reception of instructional material and also the profound understanding of it (Mayer, 2009).

As far as the skill acquisition and rehearsal phase, advanced technologies can help individuals in acquiring effective coping skills, such as relaxation and meditation strategies. Bandura (Bandura, 2004) suggested that interactive features are the greatest strength of new media. Thus, computer-based feedback can be specified to accommodate the individual's motivations, current self-efficacy levels, unique obstacles and setbacks and progress toward specific goals and positive reinforcements (Bordnick, Traylor, Carter, & Graap, 2011; Fox & Bailenson, 2009).

Finally, as far as the application and follow-through phase, digital environments can be used for patients' exposure to stressful stimuli. Researches demonstrated that the exposure to multimedia/virtual contents has therapeutic benefits for participants (Emmelkamp et al., 2002). Within a cyber-SIT, this could be particularly useful in the last phase by creating controlled, graded and safe simulations of stressful scenarios to allow participants to use the acquired coping skills.

Beyond the exposure, there are currently other techniques used to consolidate the acquired coping skills, such as self-attribution procedures, relapse prevention procedures, helping others with similar problems and booster sessions (Donald Meichenbaum, 1977; Meichenbaum, 1985).

Frontiers of Biofeedback

Several studies showed interesting results that support the feasibility of detecting affective states through psychophysiological data acquisition and analysis (Giakoumis et al., 2012; Magagnin et al., 2010). Led by Rosalind Picard, a computing group at MIT published several studies that highlighted the use of psychophysiological measures to deduce and classify emotional states while study participants were performing different kinds of PC activities (Mauri et al., 2010; Picard, 2000).

The potential capacity of sensor technologies to augment the mediated experience (through objective, automatic monitoring and feedback) has attracted some interest (Alcañiz, Botella, Banos, Zaragoza, & Guixeres, 2009). Thus, offering individuals the technology with which to monitor certain biological signals, known to be associated with stress, both over time and in real-time biofeedback, might serve to promote engagement with a mediated program for stress management.

Specifically, to detect changes in the physiological and affective states of subjects, researchers highlighted the usefulness of wearable biosensors in mobile platforms, virtual reality environments (Pallavicini, Cipresso, et al., 2013; Raspelli et al., 2012; Villani et al., 2012), or both (Repetto et al., 2013). This can be essential for situations in mobile clinical settings to share that information with the subject and, eventually, interested caregivers, such as professional medical staff, relatives, or even friends (see Figure 2).

An accurate electrocardiogram (ECG) analysis algorithm can be developed to elaborate and process signals generated from the wearable biosensors for effective real-time biofeedback. The QRS complex needs to be detected to generate heart rate and RR intervals. Thus, an accurate QRS detector is impor-

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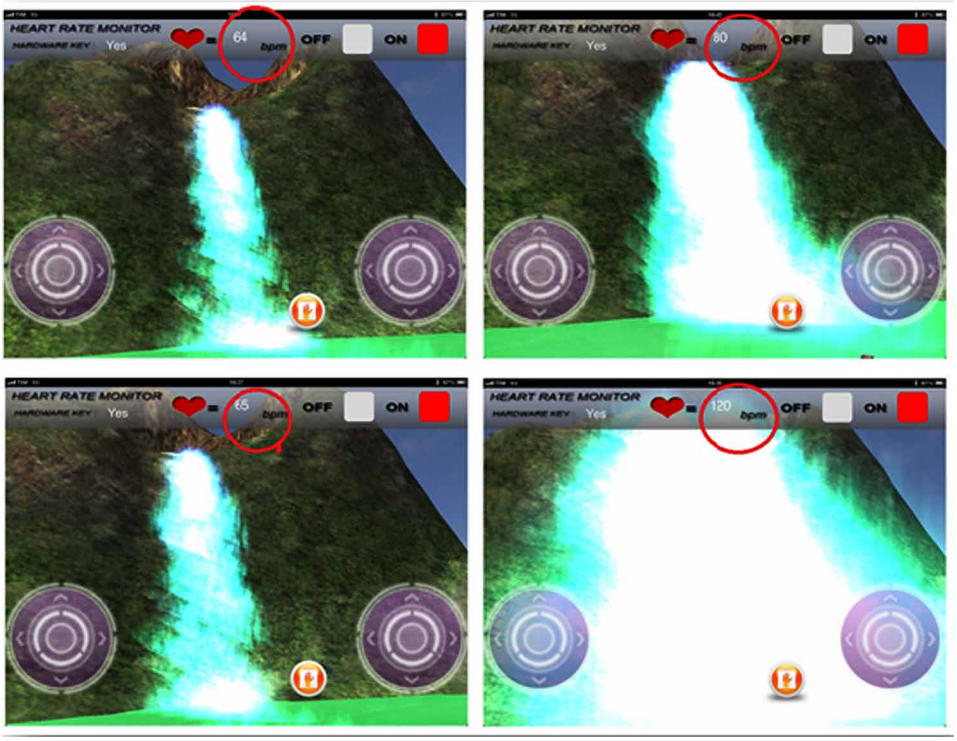
Figure 2. Biofeedback screenshots



tant in order to extract reliable HR or RR intervals to make meaningful HRV analysis and a correlation to mental stress. However, an accurate QRS complex detection may be difficult due to the physiological variability of the QRS complex and various types of noise that can be present in the ECG signal. Typical noise artifacts in ECG signals include power line interference, electrode contact noise, motion artifacts, and baseline drift (Friesen et al., 1990). Wearable monitoring systems used for out-of-clinic daily activity tracking utilise motion artifacts the most, where it is important to measure physiological signals accurately anytime and anywhere.

There are numerous detection methods for QRS complexes, including the Pan-Tompkins method (Pan & Tompkins, 1985). Moreover, morphological approaches were developed for baseline correction and noise suppression in clinical ECG signals (Sun, Chan, & Krishnan, 2002).

HRV measures provide a great opportunity to treat stress by using biofeedback based on relevant indexes. In a controlled clinical trial, Gaggioli and colleagues (Gaggioli et al., 2013) specifically tested HRV biofeedback for stress training and found results supporting the idea that it works very well when used alongside cognitive behavioral therapy. Furthermore, they found that specific indexes can be used for stressed patients—in particular temporal indexes, such as NN50, RMSSD, and spectral indexes, such as LF/HF (Malik, 1996). The combined use of respiration techniques and biofeedback would help in developing cognitive strategies for cardiorespiratory interventions aimed to reduce stress levels. Moreover, the use of LF/HF index gives patients indirect access to their sympathovagal balance information, which could greatly improve the impact of treatment for high stress levels.

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Another interesting challenge that could be further investigated is represented by electroencephalography (EEG), and, in particular, the use of neurofeedback. Asymmetry on frontal brain activation can be measured through Alpha waves from the EEG, which be used as neurofeedback for stress patients (Millings et al., 2015).

COMBINING ASSESSMENT AND INTERVENTION: THE INTERREALITY APPROACH

Assessment and intervention are inseparable parts of one general process and represent a dynamic spiral across time. To better integrate each other, Riva and colleagues (Pallavicini, Gaggioli, et al., 2013; Riva, 2009a; Silvia Serino et al., 2013) suggested the use of the "Interreality" paradigm (IR), which combines assessment and intervention within a hybrid environment and connects the physical and virtual worlds. The basic idea of IR intervention is to bridge mediated experiences with real experiences. In the IR strategy, behaviour in the physical world influences experiences in the virtual one, and behaviour in the virtual world influences the experience in the real one.

The assessment is conducted continuously in the virtual and real worlds through the tracking of individuals' behavioural and emotional status over time in the context of realistic task challenges. At the same time, the information is constantly used to improve both the appraisal and the coping skills of the patient through a conditioned association between effective performance state and task execution behaviors.

Within a recently funded European project "INTERSTRESS – Interreality in the management and treatment of stress-related disorders," a stress management protocol based on the Interreality paradigm has been proposed. The INTERSTRESS Project is intended to help individuals effectively manage psychological stress through the acquisition of techniques like relaxation and coping strategies within six weeks' treatment supported by advanced pervasive sensors and computing. Specifically, Gaggioli et al. (Andrea Gaggioli et al., 2014) evaluated the efficacy of Interreality for the management and prevention of psychological stress and compared it with a similar non-technological protocol based on the CBT approach. In that case, the main feature of Interreality was a twofold link between the virtual and the real world achieved through experiential virtual scenarios (fully controlled by the therapist and used to learn coping skills and improve self-efficacy) with real-time monitoring and support (identifying critical situations and assessing clinical change) using advanced technologies (virtual worlds, wearable biosensors, and smartphones). Findings provide initial evidence that a technology-enhanced IR protocol provides better outcomes than the traditionally accepted gold standard for psychological stress treatment, CBT, in terms of reduction of chronic trait anxiety and improvement of emotion-related coping skills.

Stressed people can be continuously assessed in the virtual and real worlds by tracking their behavioural and emotional status in the context of challenging tasks (customization of the intervention according to the individual characteristics), and feedback is continuously provided to improve individuals' skills (improvement of self-efficacy).

It is possible to identify two potential clinical advantages of the IR strategy. First, the integrated and quantitative assessment of the user's stress level using biosensors: the level of stress is continuously assessed in the virtual world and in the real world by recording the participant's behavioural and emotional status for the decision support system. Second, the provision of warnings and motivating feedback to improve self-awareness, compliance and long-term outcomes: on the basis of the decision support system,

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participants constantly receive feedback to improve their appraisal and coping skills in an entertaining and motivating manner both in clinical and mobile settings (Pallavicini, Gaggioli, et al., 2013; Riva, 2009a).

To better understand the potential of the IR approach, it is helpful to take another example—not specifically linked to a clinical scenario—such as the job interview, where individuals can be effectively helped to cope with stress (Villani, Cipresso, & Repetto, 2014). Typically, applicants feel anxious and stressed both because talking to strangers could provoke anxiety and because they could perceive a lack of control of the situation. Mediated interventions based on the different protocols (see previous paragraphs) can give applicants useful information, help them in acquiring effective coping skills, such as relaxation strategies, and let them experience, with controlled, graded and safe simulations, their competence to cope with a job interview. Applicants can do this training anytime and anywhere thanks to mobile technologies. Thanks to psycho-physiological assessment enabled by biosensors, the applicant's emotional states can be monitored during training to tailor the proposed experiences, to provide real time feedback and to administer positive reinforcement of good conduct. Furthermore, this assessment is possible until just a few minutes before undertaking a job interview. If biosensors reveal a high level of anxiety, the system could increase the comfort level by proposing ad hoc relaxation exercises and, by lessening anxiety, the system can support the applicant's performance.

The IR approach constitutes a sound foundation and rationale for future researches in technology-enhanced protocols for psychological stress management.

FUTURE RESEARCH DIRECTIONS

Despite the opportunities described in the chapter about how integrating technology in positive psychology can help people cope with stress, we have to consider important challenges that need to be dealt with.

First, as described in the chapter, it's easier to focus on the hedonic dimension of the experience by inducing positive emotional states such as relaxation, instead of developing the eudaimonic dimension by improving coping skills and promoting resilience. Nevertheless, as previously shown, if the goal is to promote self-empowerment, the better strategy is to work on both levels.

Second, to our knowledge there are still few studies that tested the effectiveness of experiences supported by technology and compared it with traditional methods. Because many stress management apps, blogs and digital tools are already available in the market, and the popularity of these services is increasing among people, trials showing the effectiveness of these approaches are needed. Pragmatic trials, typically designed to test the effectiveness of interventions in real life in order to maximize their applicability and generalizability (Patsopoulos, 2011), are encouraged.

Third, most apps and tools have been developed thanks to the support of research funding. As a consequence, they are focused on the rationale underlying the proposed content, but too often they don't have adequate usability features. Future researches should test and enhance the user experience of stress management apps and technological tools.

Finally, over the potential opportunities, it will be important to conduct more research on the possible inconvenience of using technology in daily routines so as to preclude constant accessibility and overuse (Thomee, Harenstam, & Hagberg, 2011).

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CONCLUSION

This chapter aimed to describe how positive technologies could be involved in helping people cope with stress.

On the one hand, thanks to the combination of traditional assessment measures of stress and the analysis of physiological correlates of this experience, it is possible to overcome limitations related to self-reported data and move towards self-tracking. Self-tracking is a fast-growing trend in the field of e-health that involves the collection of biological, physical, behavioural or environmental information that can be integrated within a feedback loop of introspection and self-experimentation. The fecund convergence between ICTs and wearable biosensors allows personal health data to be collected, aggregated, visualized, collated into reports and shared (A. Stone, Shiffman, Atienza, & Nebeling, 2007).

On the other hand, the emerging convergence of technology and health care is offering new methods and tools not only to assess but also to cope with stress. In this view, there is growing empirical support for the use of several technologies for stress management protocols.

This chapter focused on the hedonic and eudaimonic experiences supported by technologies in terms of inducing positive affective states and supporting personal growth by teaching strategies to reduce stress and enhance well-being. If natural virtual scenarios and technological devices can be helpful in inducing positive emotions, the content of the experience plays a critical role in changing the affective component and in supporting the development of psychological skills useful to coping with real stressful situations. To reach this goal, three approaches aimed to enhance well-being and strengthen specific mental abilities to cope with stress (such as guided relaxation practices, online and mobile meditation and mindfulness and cyber-stress inoculation training) have been described.

Assessment and intervention are inseparable parts of one general process and represent a dynamic spiral across time. The "Interreality" paradigm (IR) allows the combination of both and a connection between mediated experiences with real experiences.

To conclude, the positive technology approach offers researchers and clinicians new effective opportunities for the assessment and treatment of psychological stress in several contexts.

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KEY TERMS AND DEFINITIONS

Biofeedback: A technique people can use to learn to control their body's functions. With biofeedback, people are connected to electrical sensors that help them receive information (feedback) about their body (bio). In essence, biofeedback helps them focus on making subtle changes in their body; it is often used as a relaxation technique.

Mindfulness: A type of meditative technique that emphasizes an observant and nonreactive stance toward one's thoughts, emotions and body states. It involves purposeful attention to daily activities.

Physiological Signals: The body generates physiological signals during the functioning of various physiological systems. Hence, physiological signals hold information that can be extracted from these signals to find out the state of the functioning of these physiological systems.

Relaxation: Relaxation training can include several strategies that help a person to relax. Relaxation techniques are often employed as one element of a wider stress management program and can decrease muscle tension, lower blood pressure and slow heart and breath rates, among other health benefits.

Stress Inoculation Training: Developed by Meichenbaum in the 1960s, SIT is a form of cognitive restructuring. It is a method of changing an individual's thinking patterns about themselves and their lives. It is based on the assumption that people experience stress because they interpret an event or situation in catastrophising ways and their internal dialogue (their thoughts) are negative.

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Chapter 39
Efficacy of Art Therapy in Treating Patients with Paranoid Schizophrenia

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ABSTRACT

Paranoid Schizophrenia chronic mental illnesses according to DSM-IVTR characterized by the presence of delusion of persecution, suspicious, distrusting, guarded, reserved, tensed, and also sometimes hostile or aggressive. Patients also perceive exaggerated warmth and friendship by the professionals as attempt at bribery, manipulation or exploitation. But therapeutic relationship between patient and the professional is integral to the recovery process and the outcome. Good communication on the part of health care professionals is an essential element in developing the strong practitioner-patient relationship necessary in the treatment of schizophrenia. Professionals are usually at a look out for tools to build a working alliance best used in such cases. Usually behavioural therapy, supportive therapy and family therapy are used for such patients. But sometimes with chronic and resistant client will get stuck at the initial rapport itself. At this stage probably art therapy as an advance intervention strategy to work with patient as an advanced intervention strategies and treatment.

INTRODUCTION

Art therapy is based on the idea that the creative process of art making is healing and life enhancing and is a form of nonverbal communication of thoughts and feelings (Malchiodi, 1996). Like other forms of psychotherapy and counselling, it is used to encourage personal growth, increase self-understanding, and assists in emotional reparation and has been employed in a wide variety of settings with children, adults, families, and groups. It is a modality that can help individuals of all ages create meaning and achieve insight, find relief from overwhelming emotions or trauma, resolve conflicts and problems enrich daily life, and achieve an increased sense of well-being (Malchiodi, 1998). Art therapy supports the belief that

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all individuals have the capacity to express themselves creatively and that the product is less important than the therapeutic process involved. The therapist's focus is not specifically on the aesthetic merits of art making but on the therapeutic needs of the person to express. With the advent of brief forms of therapy and the increasing pressures to complete treatment in a limited number of sessions, therapists are finding that art activities help individuals to communicate relevant issues and problems quickly, thus expediting assessment and intervention. Even the simplest drawing task offers unique possibilities for expression that complements and, in many cases, helps a child or adult to communicate what words cannot.

APPROACHES TO ART THERAPY

Rubin in his book, Approaches *to Art Therapy* (Rubin, 1987/2001), discussed the diversity of theoretical positions within the field of Art therapy.

Psychodynamic Approaches

The ideas of Freud and his followers have been part of art therapy since the earliest days, although contemporary writers are more likely to apply terms such as "transference" and "the defense mechanisms" to articulate a position rather than employ classic psychoanalytic techniques with any degree of orthodoxy. Kramer, Rubin, Ulman, and Wilson (all cited in Rubin, 1987/2001) and Levick (1983) all use psychoanalytic language and concepts. Interpretations of the newer developments in psychoanalysis such as the theories of Klein (Weir, 1987), self-psychology (Lachman-Chapin) and object relations theory (Robbins) can also be found in the art therapy literature (both cited in Rubin, 1987/2001). With his emphasis on images from the unconscious, it was natural for Jung's concepts of analytical and archetypal psychology to cross over into art. Work by Edwards and Wallace (both cited in Rubin, 1987/ 2001), Mcconeghey (1986), and Schaverian (1992) all reflect this emphasis.

Humanistic Approaches

Elkins and Stovall (2000) suggest that only a small number of art therapists operate from a humanistic position (among humanistic, Gestalt, existential, and client centered; the highest response was to the first category with 2.9%). Yet if these approaches can be defined as sharing "an optimistic view of human nature and of the human condition, seeing people in a process of growth and development, with the potential to take responsibility for their fate" (Rubin, 1987/2001), these figures belie a sentiment held by many art therapists. Garai (cited in Rubin, 1987/2001) has written from a general humanistic position, Rogers (1993) and Silverstone (1997) use a person-centered model, and Dreikurs (1986) and Garlock (cited in Rubin, 1987) have adapted ideas first articulated by Alfred Adler. Other models that fall under the humanistic heading include existential (Moon, 1990/1995), phenomenological (Betensky, 1995), and gestalt (Rhyne, 1973/1995) approaches.

Learning and Developmental Approaches

Perhaps because they are perceived to be mechanistic, those psychological theories that emphasize learning tend to be less popular with art therapists. In the Elkins and Stovall (2000) survey, cognitive-

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behavioural, cognitive, developmental, and behavioural received an endorsement of over 2%. Yet there are art therapy authors whose work has been informed by these theories.

Silver (2000) has written extensively on assessment using a cognitive approach, and the work of Lusebrink (1990) and Nucho (1987) is based in general systems theory. Art therapists working with children with emotional and developmental disabilities have also adapted concepts from developmental (Roth, cited in Rubin, 1987/2001).

Family Therapy and Other Approaches

A number of writers (Landgarten, 1987; Linesch, 1993; Riley & Malchiodi, 1994; Sobol, 1982) have built on Kwiatkowska's early family work, particularly in California where art therapists become licensed as marriage and family therapists. Riley (1999) also incorporates concepts from narrative therapy into her work. Relational (Dalley, Rifkind, & Terry, 1993) and feminist (Hogan, 1997) approaches question the hierarchy in the client/therapist relationship and empowering the client and have also shaped contemporary art therapy practice. Publications by Horovitz-Darby (1994), Farrelly-Hansen (2001), and Mcniff (1992) reflect an emphasis on spiritual and philosophical concepts over psychological theory. Franklin, Farrelly-Hansen, Marek, Swan-Foster, and Wallingford (2000) describe a transpersonal approach to art therapy. Allen (1992) called for a reversal of the perceived trend in overemphasizing the clinical orientation and encouraged art therapists to refocus on their artist identity. Writings by Lachman-Chapin (1983) and Knill (1995), who espouses an expressive arts therapies approach (Moon, 2002) reflect this studio approach to theory and practice.

Clinical Implication of Art Therapy

Art expression has been extensively used in therapy with children for several reasons. It is a natural language for most children and can be a valuable modality in enhancing expression of trauma, distress, or loss (Malchiodi, 1997, 1998). Also, children do not have the verbal capacity to articulate crisis and for those who have been violated or abused, art is a way to communicate feelings and experiences without words. Gross and Haynes (1998) hypothesized that there may be several reasons why art expressions are helpful adjuncts in child therapy:

1. They may reduce anxiety and help children feel more comfortable with the therapist.
2. They may increase memory retrieval.
3. They may help children organize their narratives.
4. They may prompt children to tell more than they would during a solely verbal interview.

Mental health workers may refrain from using art in counselling adults because many adults feel inadequate about their skills or embarrassed over expressing themselves artistically (Gladding, 1998). Nevertheless, there are many documented benefits of employing art as a part of a treatment plan with adult clients including:

1. Taps the unconscious and helps individuals express covert conflicts, bringing into awareness thoughts and feelings that were previously hidden (Liebmann, 1990).

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2. Acts as a metaphor for the conflicts, emotions, and situations experienced by clients (Ulak & Cummings, 1997).
3. Assists people in picturing themselves or their situations in a concrete, objectified manner (Rubin, 2001).
4. Acts as a bridge between the counsellor and the client, especially when the subject matter is too embarrassing or difficult to talk about, such as family violence, illicit relationship and abuse (Brooke, 1995; Liebmann, 1990; Trowbridge, 1995).
5. Creates a visible trail, provides a tangible record, and allows clients and counsellors to review a series of past sessions and note development and change (Ganim, 2000; Liebmann, 1990).
6. Inspires and helps people become more connected with the transcendent and growth sides of their personalities (Mills & Crowley, 1986).
7. Provides a process that is energy enhancing (Kahn, 1999); art gets clients "doing" rather than thinking and therefore can be more activating than verbal counselling (France & Allen, 1997).
8. Can easily be combined with other expressive arts such as music, movement, creative writing, and imagery (McNiff, 1997).
9. The case mentioned here very well illustrates most of the benefits of using Art therapy with the client.

Psychoanalytic theories postulated that various symptoms of Schizophrenia have symbolic meaning for individual patient (Sadock & Sadock, 2003). Freud (1920) said that the symptom carries a meaning and is connected with the experience of the patient. According to Jones (1916), 'only what is repressed is symbolised; only what is repressed needs to be symbolised'. Grunbaum (1986) reminded that 'symptoms, as compromise formations, have traditionally been viewed as "symbols", but they are "symbols" in the no semantic sense of being substitutive formations affording replacement satisfactions or outlets, not linguistic representatives of their hypothesized unconscious causes'

The following case of a client who is married and denies her actually identity is because of her unconscious desire to be the wife of the boy she ones loved. In the reality her desire is unacceptable and illicit so her illness gives expression to her illicit desire.

In her art work she drew hearts and flowers on a same stem depicted her conflict. She wants to be a wife of the boy she loved but current a mother of beautiful children who she also loves. There was a huge social taboo to her desire but she could express this much easily with minimum anxiety through art work.

A house without an entry metaphorically depicted her delusive world which no one could entry. It was also about her anger of being unable to meet her loved ones in her ward.

Drawing of umbrella depicted the metaphor of longing for the love and protection of her father.

Thus clinically Art therapy is a very useful modality even with adults specially where the client if not able to verbally express their conflicts due to various reasons.

Art Therapy with Client Having Paranoid Schizophrenia

A patient with paranoid schizophrenia is mainly characterized by the presence of delusion of persecution i.e. a false, firm and fixed believe or a suspicion that people would harm him or her. The said patients are suspicious, distrusting, guarded, reserved, tensed, and also sometimes hostile or aggressive (Sadock & Sadock, 2003). The patient is likely to perceive exaggerated warmth and friendship by the professionals as attempt at bribery, manipulation or exploitation. On the other hand, we know therapeutic relationship

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between patient and the professional is integral to the recovery process and the outcome of the illness (Ivezic, Ljubimir, & Urlic, 2001) which is also true for treating patients with Schizophrenia (Burns et al., 1999; Eisen, Dickey, & Sederer, 2000). This challenge of building a strong therapeutic alliance with the patient without it being perceived as manipulation or exploitation makes the situation tricky. So there is a constant need for multiple tools which can help a professional in communicating with the patient without making them hostile or defensive.

In the cases presented below, the team of mental health professionals had a similar challenge with the patient diagnosed with Paranoid Schizophrenia. The Psychiatrist tried various combinations of antipsychotics drugs with no change in the symptoms of the patient. During this phase she refused any interaction with any other professional and also denied attending any group activity sessions as she felt she was normal and unnecessarily forced to stay away from her family and the boy she loved. In reality she was talking of her parental family and the boy was actually a relative whom she liked before her marriage. She had denied recognizing her husband, children or any one from his family. At this stage where every other method of communicating with the patient seemed fruitless, a new clinical psychologist was assigned who got a break though with the patient using art therapy.

CASE STUDY

Mrs. H who is a 34 years old house wife, was brought to the clinic by her husband and family. The husband chief complaint was that she talks irrelevant about his illicit relationship with others including his sister. Since six months she is very irritable and use abusive language. There had been frequent incidents of unprovoked aggression. But the situation got worse just six days before this visit, when she left her home and was found wandering near the railway tracks in the absence of her husband. She was brought back home from there. Thereafter she stopped recognizing her husband and children and said she was not married.

To understand the current situation better let's know our Patient, Mrs. H right from her birth. She was born to a low middle class family in a small town in the north. She was the youngest of the five siblings. She had three sisters and one brother. As a child she was very emotional and had limited friends. Like many other girls of her age in her town, she used to be actively involved in house hold chores after returning from school or college. She lost her father in a rail accident when she was 14 years and in the 9th standard. The patient was very attached to her father, thus the event was a traumatic experience for her. Soon she lost companionship of her sister with the latter's love marriage after two years. This marriage led to her first episode of the illness. She would be irritable and would talk of illicit relationships of various people. This had to be treated. She was given electro convulsive therapy (ECT) and medication for the same which lead to remission.

In 1997, she completed her graduation and soon after that, she got married. The marriage was performed against her will as she was interested in a boy known to the family, whom she would have seen at her sister's marriage. Within few days of marriage she had a psychotic breakdown. She again was observed as irritable, used to physically hit people, throw things, smile while she was sitting alone and would eat excessively. She would also blame her husband of illicit affairs. Due to such behavior with in the short duration of her marriage, she was brought back to her parental home and psychiatric treatment was sought. During the same duration, she started calling herself as "Laxmi," who is in love with another boy and is waiting to get married to him. With medication and ECT, her condition improved and there

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was partial remission after one and a half year of illness. She started helping her brother actively in his shop. However, during her phase of partial remission, symptoms like having doubts on her husband's intentions and having frequent fights with him subsequently continued which led to her divorce in 2007. In the same year she got re-married to a man who was 10 years elder to her and had a son aged 17 from his previous marriage. Since the very initial days of marriage, her husband noticed that she would not trust him and would doubt his intentions and would also blame him for being involved with any female who was around him. In 2008, she gave birth to a baby girl. In April 2012, she aborted her second pregnancy as the fetus was a girl child. After which she started talking irrelevantly about her husband's affair with his sister and would get irritable blaming him of the same. She would also use abusive language. Most of the time, she was observed sitting alone with reduction in her interaction with people. Around, she held the neck of the servant and slapped her without any provocation. Thereafter, six days back, she left home and was found by the police walking on the railway track when her husband was not at home. She could not recall how and when she reached there but gave details of her husband and family to inform them about her wellbeing. Since last four days, she claimed that she is "Laxmi" who has never been married. She is also denying recognizing her parents as her own and identifying her cousin brother as her real brother. During this period she also stopped taking care of her daughter and her step son.

Case Formulation by Using Psychodynamic Approach

Based on the attachment theory client's psychosis can be understood to be triggered by the loss of secured base with the death of the father which made the client insecure. The other boy she saw at her sister's marriage came as a loved object but under family pressure got married to another man this making her ambivalent towards the husband. To understand it further let's understands the attachment theory.

Attachment theory (Bowlby, 1969) has been used as a theoretical base for psychotherapy for many years but has more recently become a major focus of neuroscience and renewed interest among therapists. Siegel (1999) explains attachment as follows: "Attachment is an inborn system in the brain that evolves in ways that influence and organize motivational, emotional, and memory processes with respect to significant care giving figures" (p. 67). Schore (1994) offers a neurological model for the importance of infant attachment throughout life. He notes that soon after birth the caretaker and infant develop interactions that are important to the process of affect regulation. Face-to-face contact and soothing touch are examples of ways the infant learns to respond to stimulation from people and experiences. Perry, Pollard, Blakley, Baker, and Vigilante (1995) propose that successful attachment is critical to optimal development of specific parts of the brain. He believes that a healthy attachment between infant and caretaker sets the stage for the individual to develop the capacity to "self-regulate" stimulating experiences. Early childhood bonding is imprinted on the brain, laying a foundation for relationship patterns later in life; when trauma is present; brain imprinting is changed, but may be corrected with appropriate intervention.

Research in neuroscience is demonstrating that infancy is not the only chance a person has for healthy attachment and there seem to be ways to reshape and repair some early experiences. Art therapy is one way being explored to re-establish healthy attachments, both through therapist and client, and through encouraging healthy interactions between parent and child. Riley (2001) cites how art activities are being used in early childhood attachment programs and how simple drawing exercises can be used to resolve relational problems and strengthen parent–child bonds. She explains that the nonverbal dimensions of art activities tap early relational states before words are dominant, possibly allowing the brain to establish new, and more productive patterns.

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Siegel (1999) and Schore (1994) believe that interactions between baby and caretaker are right-brain mediated because during infancy the right cortex is developing more quickly than the left. Siegel also observes that just as the left hemisphere requires exposure to language to grow, the right hemisphere requires emotional stimulation to develop properly. He goes on to say that the output of the right brain is expressed in "non-word-based ways" such as drawing a picture or using a picture to describe feelings or events. According to this idea, art therapy may be an important modality in working with attachment issues, among other emotionally related disorders or experiences).

TREATMENT AND THERAPY

She was given a diagnosis of episodic paranoid schizophrenia with marital discord and she was put on anti-psychotic drugs. She was also admitted in the psychiatric setup for close monitoring of drugs and intervention. There she denied participate in any group activity organized for the patients. Any intervention of any sort was not acceptable and she would keep sleeping in her room with minimal required communication with the staff. She only wanted to go back to her house, her parental house. As every other tool had failed to build a strong therapeutic alliance with the patient, a therapist was given this case, hoped that some innovation and creativity by her might work miracle with the patient.

The new assigned clinical psychologist wanted to use 'Art therapy' because she believed that being a non-directive method it will subtly allow the patient to symbolically reveal the inner conflicts without the fear of disclosure. As Susan Hogan and Annette M. Coulter (2014) said- 'Being revealed can be both cathartic and empowering for the patient.' Indeed, it is believed that even without direct interpretation of art in therapy it can be of great use with a patient with paranoid schizophrenia. Art therapy allows exploration of the patient's inner world in a non-threatening way through a therapeutic relationship and the use of art materials. Indeed, if we look at the history of Art therapy for treatment of schizophrenia has developed its initial stages within Pennsylvania's Western Psychiatric Institute and Clinic with the utmost of success. It was developed in adult psychiatric inpatient units and was designed for use with people for whom verbal psychotherapy would be impossible. Helping people communicate what they are unable to think and feel on a normal level is the ultimate goal of art therapy. Robyn Cruz, director of creative and expressive arts therapies has talked about the success of art therapy program for outpatients with schizophrenia. The reason that art therapy for treatment of schizophrenia is successful is because art therapy is a safe and effective tool to use with people who cannot share their thoughts and feelings adequately through the tried-and-true traditional methods of "talk therapy" conversation. Through art therapy, those with schizophrenia can develop ways to achieve self-expression while simultaneously being able to utilize social skills, new hobbies and personal interests through their creativity. Alison Cobb from the mental health charity mind said, "Art therapy is non-threatening and accessible therapies that can help people express their feelings without the need to talk them over." Thus art therapy with family therapy can be used successfully with eclectic components of other therapeutic approach also.

Being sure about the success of art therapy with such resistant patients of Schizophrenia she was allowed to work with the patient.

The first session with her was in her personal ward in the Psychiatric setup as she denied coming out for any activity or therapy. But this too started only with rejection from her. As she was drowsy with medicine she said she wants to sleep and turned towards the wall ignoring the psychologist's presence and went to sleep. She was found to be unkempt, disoriented and guarded.

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Not losing any hope the psychologist went to her room the next day too. On being asked how she was, she again displayed the frustration of being held up in the hospital setup for no visible reason. Even that day too she was feeling drowsy with medicine. Thus, even on the day two nothing could be done with her but then psychologist plan to stay in her room in silence for the complete one hour.

On the visit by the psychologist on day three, she looked better and little receptive of the psychologist. She did complain about being refrained in the hospital with none of the family members with her. She added that her brother (actually her cousin brother who she identifies as her own bother) was not even informed that she is in hospital. MMSE was done on her, which proved she had started reciprocating to the medicine and thus was oriented to time and the place, her recent memory was intact but there was difficulty in recall. The insight into the illness was at Grade 1. She was not ready for any further intervention for the day.

Day four was very similar to day 3 where she was again complaining about being refrained in the hospital with none of the family members, including her brother around. Her insight was still at Grade 1 level.

For facilitating further intervention her family was called to visit her. Her brother knew much about the illness but the husband was ignorant so he psycho-educated about the illness. Besides his initial ignorance, he was very cooperative, and this made things easier. They were allowed to meet the patient with clear instructions not to challenge her delusions till we work through them therapeutically. The husband due to his business could not stay back to actively be part of the therapeutic process any further.

In the next session with the patient, as per the protocol of the clinical institution Sentence Completion Test (SCT) was done on the patient but the patient was not forced to fill all the columns. Expecting early discharge from the hospital she was trying to be very cooperative with the testing. Although she left lot of column unfilled saying she has nothing more to say.

On the analysis of the SCT, the principal conflict areas identified were her relationship with her father, interpersonal relationships with others and fear of her treatment and being alone. The index patient fear loss of her father whom she had already lost in 1993. She feels that people can betray her so she should not trust them. She also expressed her fear of being alone at home and fear of being treated with ECT.

Next day she was encouraged to do Rorschach, she was again very cooperative. The results indicated coping perceptual thinking problems. Further, it indicated that the patient has high vulnerability to loss of control and becoming stressed. There were indications which indicated possibility of chronic vulnerability to become disorganized by natural every day stresses of life. The protocol indicated possible history of numerous events of faulty judgment, emotional disruption and behavioral ineffectiveness.

For adequate functionality, she needs to be in an environment which is highly structured, over which she has some sense of control. She seemed to be overwhelmed or flooded by emotions. This flooding of emotions could have impacted on thinking. There is a possibility of her experiencing seemingly random, disconnecting patterns of thinking due to her ungratified needs.

Relationships with others are likely superficial and thus regarded by others as distant, inept and helpless. She generally prefers passive role in a relationship and avoid the responsibility of decision making.

Now after completing the testing as per the protocol of the institute, we next started with free drawing so that she would easily express her inner conflicts in an indirect manner. She was introduced to the idea of drawing and coloring and expressing about her drawing. She drew Drawing No. 1, which has a house and fruits on 1 side and reddish, peacock, fish, flower, grapes and water on the other side. These drawings on both side of the paper could be pictographically representing the two separate worlds which she is experiencing in the in-house setup (see Figure 1). One is the world of her delusion, and other is the

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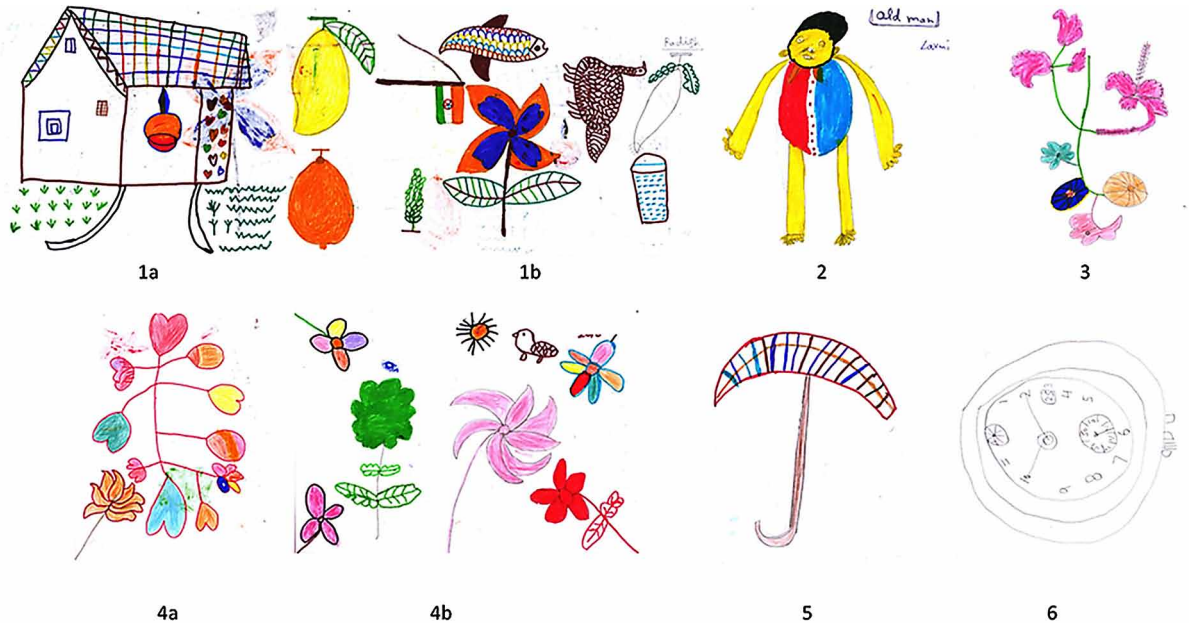
Figure 1. Depicted by patients eight of her drawings



world of reality with basic necessary aspects of life. In her delusive world, she is closed in a house with no door to it. With the help of our understanding of drawing of a person with house tree, the analysis of her house showed that she feels she is in a restricted environment and has high sexual fantasy needs which could be the cause of psychotic breakdown.

The receptivity by the therapist about her psychotic delusions and absence of any refutation by the psychologist of her thoughts started bridging the therapeutic alliance between the psychologist and the patient which was visible in the next session. She was in a good mood and she drew a flower stem (Drawing No. 3) and for the first time she wrote her real name on the drawing which was an indication of a big break through. This flower can be interpreted as thanks to the psychologist for welcoming her emotions which would otherwise be seen as illicit and wrong. After her drawing she started talking about her liking for a boy before her marriage and how seeing her love at a common relatives' marriage resurfaced her love for him. She realized about her delusion as part of her illness. She with no hitch expressed her fantasy to have this boy whom she loved as her husband.

Next day was a Sunday, so there was no therapy session as the psychologist was on a holiday.

The following day her drawing had flowers as expression of her various emotions, hearts for the man he loved, ball for her daughter and her desire to connect emotionally to all what her bunch of life has for her. She wanted to connect with her current environment and seek sunshine here. She talked about her fantasy to get married to the young man known to her and thus a conflict of being with an elderly man.

Her mourning couldn't be completed without talking about her loss of her father at that early age. She was intensively attached to her father and he would give her whatever she demanded till his death. She also had a fantasy that had her father been alive he would have married the man of her choice. The next day's drawing was thus an umbrella and she talked elaborately about her father's love, care and protection for her.

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On the next day's visit by the psychologist she was asymptomatic of any active symptom. She seemingly didn't want to talk further about her fantasies and past as the realities of the day were very different and she realized the importance of her adjustment to her current situation. She also understood her family condition and lack of funds to work further extensively in therapy. She knew immediate discharge was important which was only possible if she adapts to the current reality and thus that day she drew watch in the newspaper kept in her room.

Being asymptomatic of any active symptom, her family that evening took her back home and the therapy had to be ended there. Although the end of the therapy seemed abrupt as no formal ending was defined but the therapist and the patient both at one level communicated the end in the form of need to live in today.

CONCLUSION

The author says that art therapy even without any formal interpretation during the therapy session communicated a lot of material in the therapy sessions which help the flow of therapy process leading to a successful result. This case is another feather in the hat of an art therapist for its accomplishment with a patient resistant paranoid schizophrenia. This case reassures us that art therapy is a safe, effective and successful tool for the management of schizophrenia with medication and family therapy for a complete biopsychosocial intervention. For sure art therapy is a tool to use with people who cannot share their thoughts and feelings adequately through the tried-and-true traditional methods of "talk therapy" conversation.

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KEY TERMS AND DEFINITIONS

Art Therapy: Art therapy is non directive method that subtly allows the patient to symbolically reveal the inner conflicts without the fear of disclosure by the means of art.

Biopsychosocial Intervention: Approach stating that biological, psychological (which entails thoughts, emotions, and behaviors), and social (socio-economical, socio-environmental, and cultural) factors, all play a significant role in human functioning in the context of disease.

Paranoid Schizophrenia: Paranoid Schizophrenia is one of the chronic mental illnesses according to DSM-IVTR mainly characterized by the presence of delusion of persecution, suspicious, distrusting, guarded, reserved, tensed, and also sometimes hostile or aggressive.

Phases of Sessions: The progress of case of seen in phases like initial rapport building phase, middle phase and ending phase.

Therapeutic Techniques: Skills used in the treatment or management of the illness.

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Chapter 40
Introductory Analysis of Human Upper Extremity After Stroke

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ABSTRACT

The most reliable prognostic factors associated with upper extremity (UE) recovery are localized motor impairments, especially in the musculature of the hand and abduction of the shoulder in the first days after a stroke. An evaluation of the biomechanics of the hand allows an accurate identification of the motion arcs of the digital joints. This article includes an assess the prognostic value of the range of motion of the finger joints using an instrumental glove (CyberGlove II®) for the time one week after stroke for UE functional recovery. A prospective, longitudinal, observational study is made with follow-ups at 3-4 days, 1 week, 3 and 6 months of the patients with UE motor impairment. Variables collected included: demographic data, level of stroke severity (NIHSS), deep sensitivity, sphincter incontinence, Fugl Meyer assessment of UE (FM-UE), muscle balance with the Medical Research Council (MRC), muscle tone (Modified Ashworth Scale) and pre- and post-stroke functional ability (Barthel Index and Modified Rankin Scale).

INTRODUCTION

Stroke is one of the leading causes of death in industrialized countries as well as of disability and economic cost in adults. Stroke is associated with a connotation of poor prognosis and difficult recovery. It has an impact at personal, family, social and work level, in addition to producing a high expenditure for all health and social services.

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Therapeutic advances of the last years, both in prevention and in diagnostic and therapeutic complexity, have determined a change in stroke management towards the multidisciplinary approach and the creation of specific units that has led to a significant decrease in mortality and its sequels.

Most studies on the evolution and functional prognosis of patients with acute stroke are focused on the assessment of gait recovery and the performance of daily life activities. Predictors of survival, hospital discharge, hospital stay, and overall motor recovery have also been described. Studies on the prediction of recovery of specific neurological deficits, such as upper extremity (UE) function, have been increasing in recent years. In this sense, in the last years there are more studies on the specific evaluation of the functional recovery of the UE after having suffered a stroke. This increase in the prevalence of this type of clinical research could also be due to the recent development of validated predictive measures of motor function of UE useful also to establish appropriate therapeutic programs (Chen and Winstein, 2009).

Approximately 70-80% of patients with stroke have deficits in UE in the acute phase and 40% in the chronic phase (Nakayama et al., 1994, Broeks et al., 1999). These deficits limit voluntary movement, coordination, sensitivity, level of physical activity, as well as the realization of activities of daily living (Feys et al., 1998). This aspect implies a limitation and difficulty in their reintegration in their socio-labor environment (Nakayama et al., 1994) and it affects their quality of life (Nichols-Larsen et al., 2005).

Carrying out studies on prognostic factors of the functionality of UE paresis in people who have suffered a stroke is important because of its incidence, its prevalence, its sequels and disability, and its difficulty to predict recovery and functional prognosis of UE.

In another line, several authors are working in design and built an exoskeleton to help rehabilitate UE after stroke. In this sense, (Durairajak et al., 2018), work in a low-cost hand exoskeleton that is design and developed for rehabilitation while the safety rules and regulation kept in mind. Xiao et al. (2018), proposes seven degrees of freedom cable-driven upper limb exoskeleton (CABXLexo-7), which is compact, lightweight, and comfortable for post-stroke patients. For wrist rehabilitation (Saadatgi et al., 2018) presented an experimental implementation and comparative accuracy evaluation of five methods for estimation of human-robot interaction torques are. For rehabilitation of post-stroke patients (Plitea et al., 2017) presents the kinematics of an exoskeleton-based robot for elbow and wrist. There are representative works in rehabilitation after stroke, however, we propose a study that obtains data that can help to build and design these exoskeletons.

Therefore, the involvement of UE and specifically the hand in diseases such as stroke implies in these patients a significant alteration in the performance of many activities of daily living, as well as motor, sensory and body expression limitations that can seriously affect the relationship of these people with their environment.

Alt Murphy et al. (2018) work in kinematic analysis method for objective assessment of upper extremity movements in a three-dimensional (3D) space. In Department of Clinical Neuroscience at Institute of Neuroscience and Physiology at University of Gothenburg an active group are doing research in stroke based in kinematic analysis (Alt Murphy et al., 2017; Olsson et al., 2017).

The aim of the present study is the simulation in patients at the beginning and at the end of six months of suffering from a stroke. The intention of this work is to show a novel virtual environment to simulate the improvement of the functions of the upper extremity a few days after having suffered a stroke and to simulate its recovery under a rehabilitation program.

This document continues with a section of materials and methods. Next section is dedicated to the results, the next section is the discussion and it ends with the conclusions.

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MATERIALS AND METHODS

Patients admitted due to acute stroke and motor involvement of UE in the neurology department of Sant Joan de Deu Hospital who met the inclusion criteria and none of the exclusion criteria were selected. The inclusion criteria were:

- Patients older than 18 years;
- Patients who have suffered a stroke for the first time with motor deficit in the UE, admitted to the service of Sant Joan de Deu hospital, with confirmation of neuroimaging brain injury during the first 48 hours;
- Patients without cognitive impairment that makes it difficult for them to understand and follow up the assessments;
- Patients who before the stroke were independent in their activities of daily living (ADL);
- To accept to participate in the study and signing the informed consent.

The exclusion criteria were:

- Patients with deficits and sequelae in their UE of any pre-stroke etiology;
- Patients with subsequent follow-up and control difficulties;
- Patients with terminal illness with a life expectancy of less than six months.

Withdrawal criteria were also taken into account, such as:

- Appearance of a new stroke during follow-up;
- Onset of concomitant pathology affecting the patient's vital prognosis and/or subsequent follow-up;
- That the patient decides voluntarily;
- Lack of compliance and collaboration on the part of the patient;
- Death of the patient.

In total, 18 patients who met the inclusion criteria were selected. The first follow-up visit was performed 3-4 days after the stroke and data were collected during hospital admission. The next visit and data collection were performed at 7 days, at 3 months and the last at 6 months post-stroke. In this last visit, one of the patients was able to perform the whole validated Action Research Arm Test (ARAT) table. It is in this last visit that we will focus the simulation and in which we will create the virtual simulation environment.

Evaluation of the Functionality of the US With the ARAT Test (With CyberGlove II® Glove and Without)

This evaluation with ARAT was only carried out at the last follow-up visit (visit 4). The equipment to do this test was achieved thanks to an agreement with the School of Engineering of Manresa, who prepared it according to the instructions and measures obtained of the model described by Lyle (Lyle 1981), as can be seen in Figure 1.

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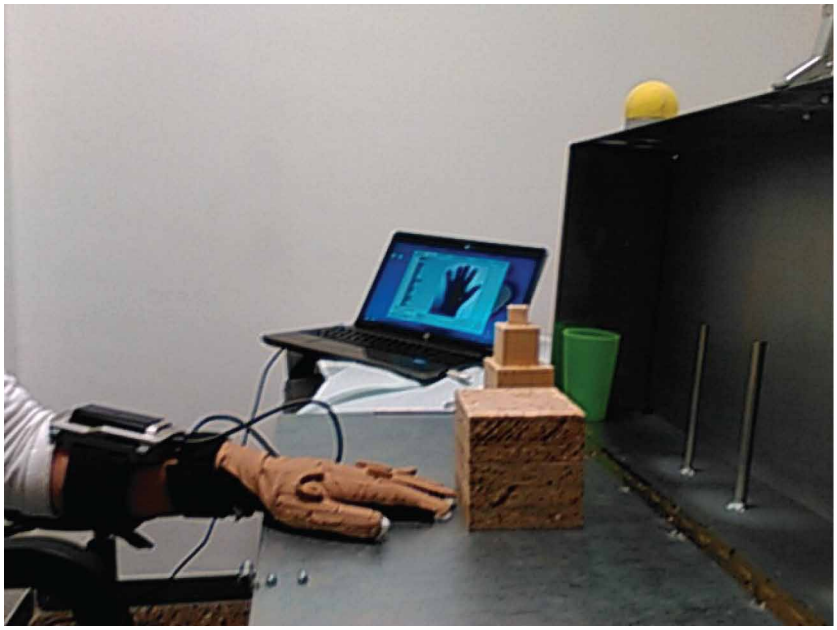
Figure 1. ARAT test

On visit 4, after evaluating the patient clinically and neurologically with the evaluations and scales described previously, the ARAT was first passed without the glove and then with it Glove, as shown in Figure 2.

Figure 2. Patient doing the ARAT test



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Assessment of Joint Balance With Cyber-Globe II® Glove

In order to obtain information on the angles of the joints of the hand, the 18-sensor Cyber-Globe II® glove was used, which also has a resolution of one degree, with a ratio of 90 measurements/s. An interface for capturing data with the glove was made, as shown in Figure 3. After obtaining all the data with the glove, the data were converted to the hand model proposed by the authors (Peña-Pitarch et al., 2014). The hand model is 25 degrees of freedom (DOF), not counting flexion/extension (F/E) and adduction/abduction (Ad/Ab) of the wrist, as shown in Figure 4.

Figure 3. Screenshot of the data collection and numbering of the sensors

The procedure to pass the readings of the 18 sensors of the glove to the 25 DOF model is the same for each joint with its movement (q). This procedure is based on a linear interpolation, since there are DOF that depend on the readings of one or more sensors and takes into account the maximum and minimum reading of the movement of each sensor and the maximum and minimum of the range of movement (flexion and extension) of each hand joint (q). Table 1 shows the movements of the joints that each sensor picks depending on where it is located. Sensors numbers are shown in Figure 3. Table 2 shows the range of motion for each joint.

The minimum value corresponds to the position of the joint when you perform an extension or abduction, and the value maximum, when the joint flexes or enlarges. Table 3 shows the minimum values and maximum that collects the sensors of the CyberGlove II® glove.

F/E is Flexion/Extension and Ab/Ad is Abduction/Adduction movements.

DIP is distal interphalangeal.

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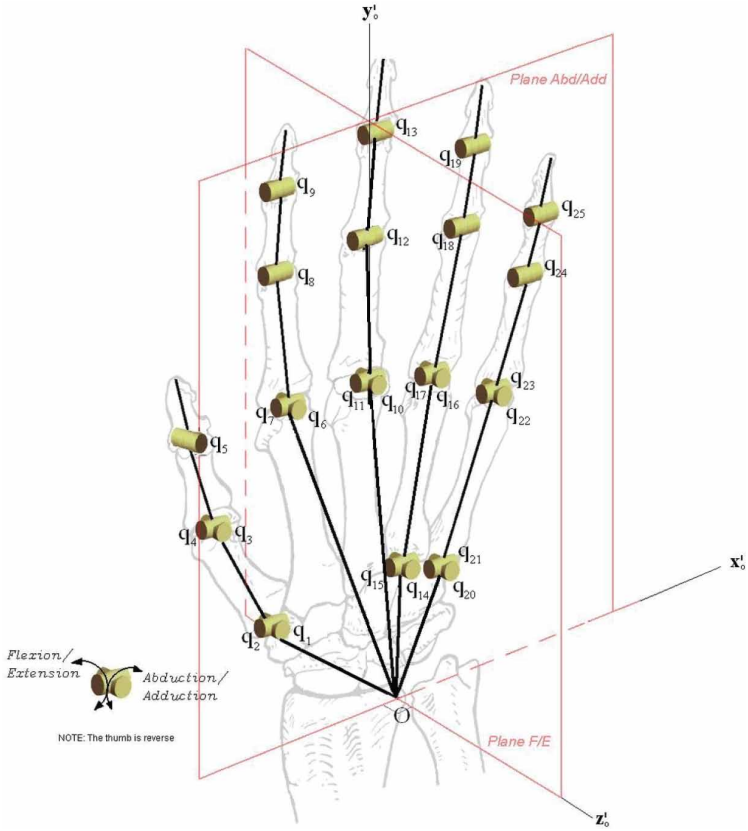
Figure 4. Hand with 25 DOF. Rear view right hand.



The implementation of a virtual model of 25 DOF allows a very realistic simulation of the hand. The procedure for passing the readings from the 18 glove sensors to the 25 DOF model (hand only) will be the same for each joint. This procedure is based on linear interpolation, since there are some DOFs that depend on the readings of one or more sensors and takes into account the maximum and minimum reading of the movement of each sensor and the maximum and minimum of the range of motion of each joint of the hand.

Once the assessment of the joint balance of each union and its subsequent conversion to the hand model with the 25 DOF was made, its implementation in the virtual environment of Blender -free code program- was carried out.

Simulation

Our approach for each of the patients has been using the model shown in figure 5. In this model in addition to the 25 DOF of the hand were added 4 more DOF, two for the wrist, in order to simulate the F/E of the same and the other for Ab/Ad. About the other two DOFs remaining, one is for the F/E of the elbow and the other is for supination/ pronation of the arm. In this work we have only focused on the study of the arm, not counting the shoulder, since we have considered more DOF focused on object grabbing. The future simulation of the trunk up to the hand is not ruled out.

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Table 1. Movements of the joints that each sensor picks depending on where it is located

Sensor	Movement	Joint	Finger
1	F/E	Metacarpal trapezius	Thumb
2	F/E	Metacarpophalangeal (MCP)	Thumb
3	F/E	Interphalangeal (IP)	Thumb
4	Ab/Ad	Metacarpal trapezius	Thumb
5	F/E	Metacarpophalangeal	Index
6	F/E	Proximal Interphalangeal (PIP)	Index
7	F/E	Metacarpophalangeal	Middle
8	F/E	Proximal Interphalangeal	Middle
9	Ab/Ad	Between two fingers	Index/middle
10	F/E	Metacarpophalangeal	Ring
11	F/E	Proximal Interphalangeal	Ring
12	Ab/Ad	Between two fingers	Index/middle
13	F/E	Metacarpophalangeal	Small
14	F/E	Proximal Interphalangeal	Small
15	Ab/Ad	Between two fingers	Ring/small
16	Arch	Metacarpal	Middle/ring/small
17	F/E	Carp cubital radius	Wrist
18	Ab/Ad	Carp cubital radius	Wrist

Table 2. Range of movements for the joints of the fingers; H is hyperextension (in degrees)

Joint \ Finger	Index	Middle	Ring	Small
MCP (E/F)	0/80	0/80	0/80	0/80
MCP (Ab/Ad)	13/42	8/35	14/20	19/33
PIP (F/E)	0/100	0/100	0/100	0/100
DIP (F/E)	10H/90	10H/100	20H/100	30H/100

The mathematical formulation applied to the model was previously published in (Peña-Pitarch et al., 2014) and it is as follows. The position vector is defined by $p(q^i)$ which with respect to the local coordinate system will be:

$$\begin{bmatrix} p\left(q^{i}\right) \\ 1 \end{bmatrix} = {}^{0}A_{1}{}^{1}A_{2}\cdots{}^{n-1}A_{n}\begin{bmatrix} 0 \\ 0 \\ 0 \\ 1 \end{bmatrix} \quad (1)$$

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Table 3. Minimum and maximum values given by each CyberGlove II® glove sensor

Sensor	Minimum	Maximum
1	55	180
2	105	160
3	40	215
4	120	131
5	105	135
6	56	206
7	20	130
8	50	186
9	15	155
10	10	162
11	36	202
12	1	146
13	15	208
14	43	216
15	50	168
16	40	245
17	85	160
18	36	202

where $q^i = [q_1 \ldots q_n]^T$, i = I, II, III, IV, V, VI, VII, where I is the thumb, II is the index, III is the middle, IV the annular and V the pinkie, VI is for the wrist and VII for the arm. Where n is the total number of DOF, in this case it is 29.

To move it to a global coordinate system located on the shoulder, the position vector is now:

$$\begin{bmatrix} w\left(q^i\right) \\ 1 \end{bmatrix} = \left[{}^0 H_i\right] \begin{bmatrix} p\left(q^i\right) \\ 1 \end{bmatrix} \tag{2}$$

Figure 6 shows a screenshot of Blender, where on the left side we can see the code implemented with Python and allows to simulate each patient once the data obtained by the glove has been converted to the described model of 29 DOF, where the two of the elbows have been approximated by means of a goniometer.

Figure 5. Left arm implemented in Blender with 29 DOF

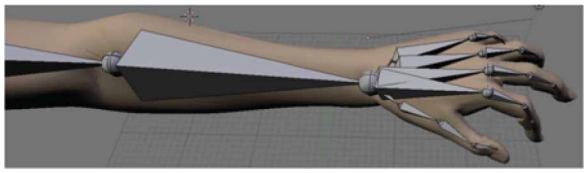

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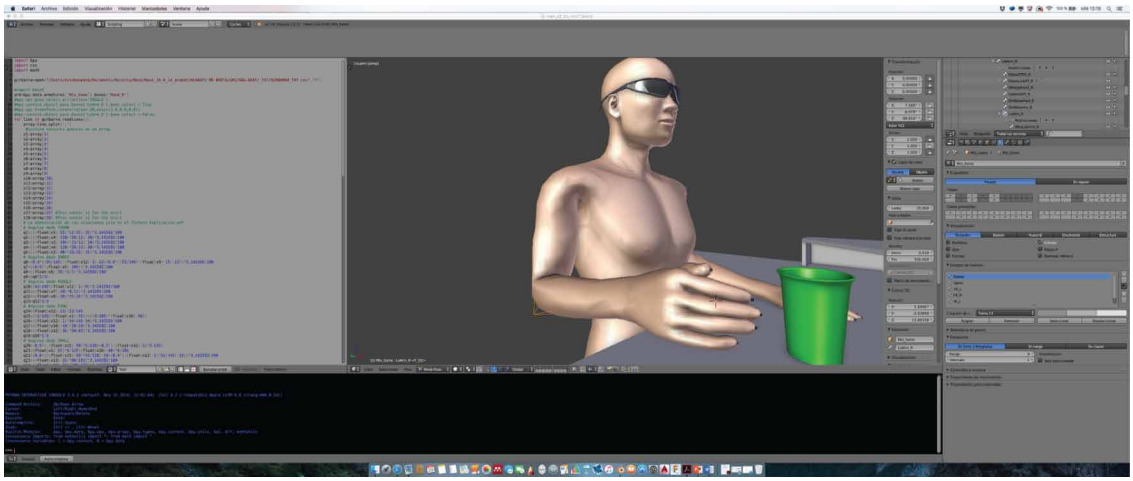
Figure 6. Screenshot of a moment of the simulation of a patient



RESULTS

The prognostic capacity of each of the joints in the functional recovery at 6 months according to the ARAT was evaluated both for the motion without gravity and for the movement against gravity when performing F/E of the fingers as well as the gain of movement experienced by each of these joints at 6 months' post-stroke. The joints corresponding to the metacarpo-phalangic and interphalangeal joints of all the fingers were evaluated.

Joints q_7, q_8, q_9 - Index Finger (F/E)

The mean q_7 joint and during the six-month follow-up the ARAT group ≥ 10 experienced a gain of 65 degrees in the F/E movement range without severity. At three months, the gain of movement was 26 degrees higher in the ARAT group ≥ 10 than in the ARAT group < 10. However, at six months the ARAT ≥ 10 group experienced a gain of 41 degrees in the same movement but against gravity. As for the joint q_8 the gain was 21 degrees without gravity and between 19 to 39 degrees in the movement against gravity, for the group ARAT ≥ 10. The joint q_9, the same group obtained a gain of 14 degrees and against gravity a gain of between 13 and 26 degrees.

Joints q_{11}, q_{12}, q_{13} - Middle Finger (F/E)

Always referring to the same group (ARAT ≥ 10), in the joint q_{11} a gain of 22 degrees was obtained in the motion without gravity and between 14 and 17. The joint q_{12} without gravity experienced 21 degrees of gain and between 19 and 30 degrees in motion against gravity. Similarly, q_{13} gained 14 degrees and between 13 and 20 degrees with the same movement.

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Joints q_{17}, q_{18}, q_{19} - Finger Ring (F/E)

Similarly, the q_{17} joint experienced a gain of 18 degrees without gravity and between 15 and 24 degrees against gravity. The joints q_{18} and q_{19}, had gains of 22 and 15 degrees, respectively, and between 15 and 31 degrees.

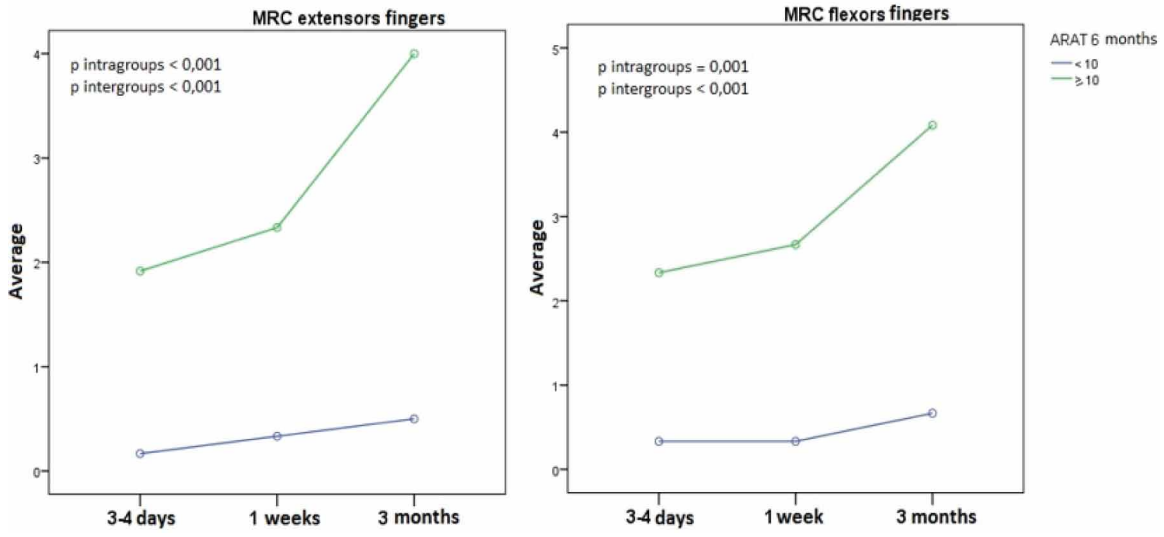
Joints q_{23}, q_{24}, q_{25} - Pinky Finger (F/E)

Likewise, the joint q_{23} experienced a gain of 19 degrees without gravity and between 12 and 24 degrees against gravity. The joints q_{24} and q_{25}, had gains of 28 and 18 degrees respectively and between 13 and 35 degrees.

Functional Status of the UE According to ARAT 6 Months Post Stroke

Figure 7 shows the evolution of the muscular balance, measured with MRC, of the extensors and flexors of the fingers in two groups of patients. Patients with ARAT < 10 in average scored below one, in the evaluation of the extensors and flexors of the fingers with the MRC in all the follow-up visits. In contrast, patients with ARAT >= 10 group, in the 3-4 days, presented average score between 1-2 for the extensors finger muscles, and between 2-3 for the flexor muscles of the fingers. Differences were observed significantly in the evolution of MRC between visits (intragroup) and between the two groups of patients according to the ARAT (intergroup).

Figure 7. Evolution of the MRC of the flexors and flexors of the fingers and of the hand according to ARAT at 6 months of the stroke



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Regarding the assessment of the NIHSS category of UE motor function, in Figure 8 it can be observed that in the ARAT < 10 group, 100% of patients in the 3-4 days and week evaluations they no presented movement or if they presented movement do not overcome gravity. However, in the ARAT group >= 10, 41.6% of patients had a movement that did not overcome the severity at 3-4 days and a week by 25%. Significant differences were observed in the evolution of the NIHSS UE engine between visits (intragroup) and between the two groups of patients according to ARAT (intergroup).

Figure 8. Evolution of NIHSS motor of the UE according to ARAT at 6 months of the stroke

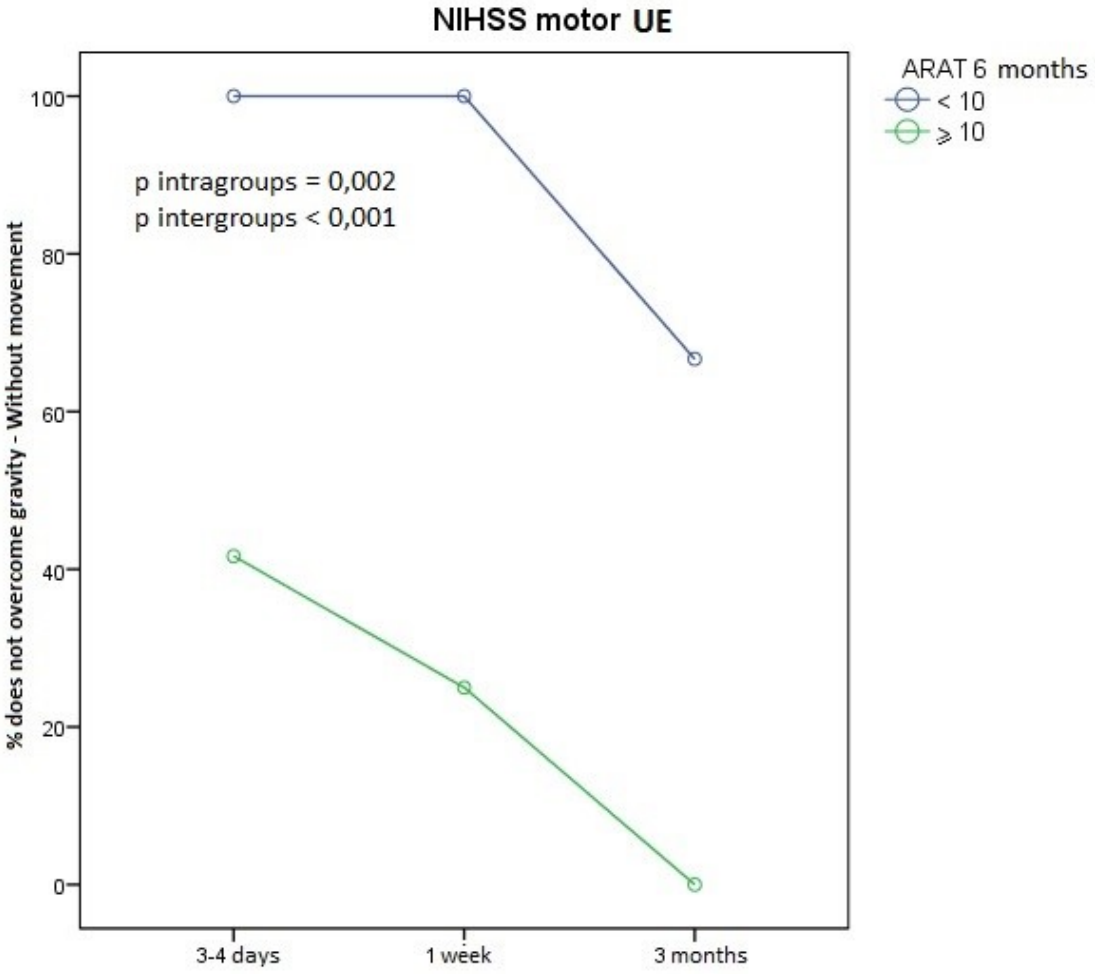

Figure 9 details the evolution FM of an average of the UE according to the ARAT groups. In the group ARAT <10, there were no changes in the average in the first two follow-ups of the 3-4 days and a week (4.8; SD = 2.0). Weekly, ARAT group patients >=10 had a higher average (38.33; SD = 20.8) than in the 3-4 days follow-up (31.8; SD = 22.3). Significant differences were observed in the evolution of FM-UE between visits (intragroup) and between the two groups of patients according to ARAT (intergroup).

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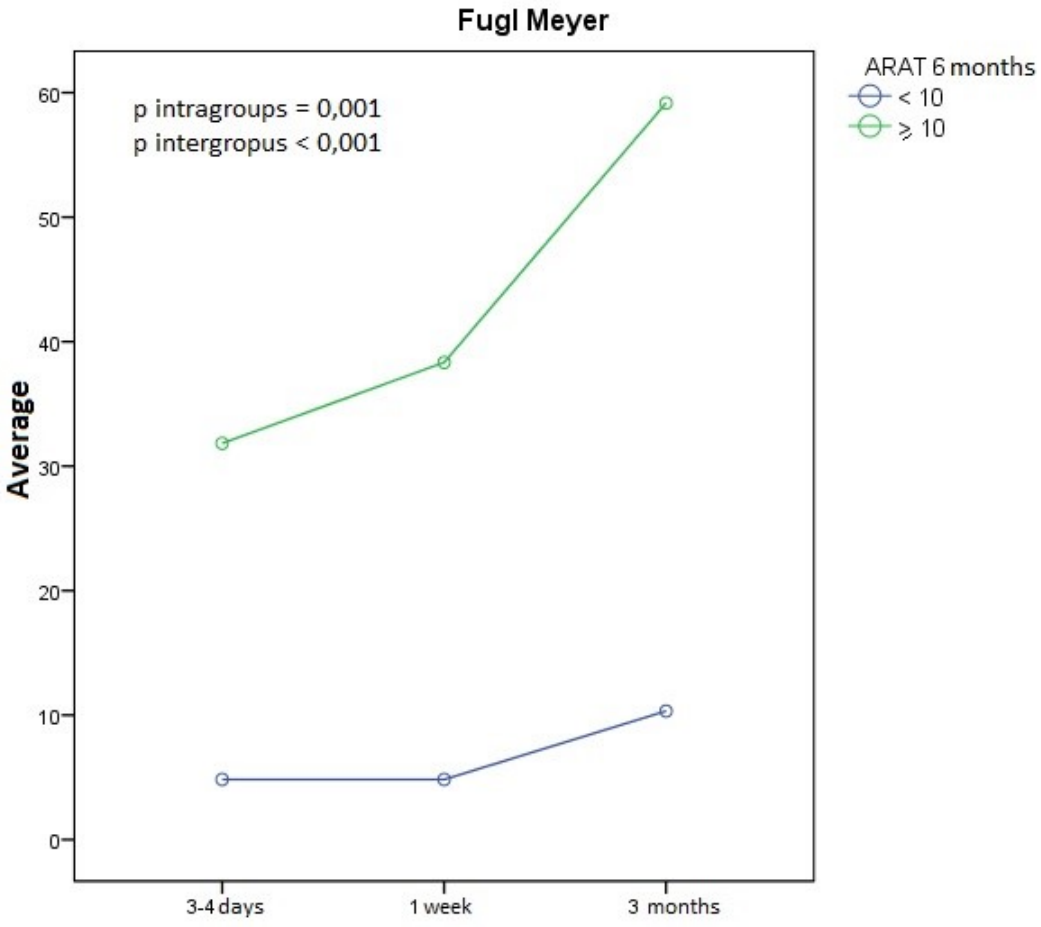
Figure 9. Evolution of Fugl-Meyer of the UE according to ARAT at 6 months of the stroke



ARAT Bivariate Analysis Table 6 Months (Clinical and Functional Characteristics at 3-4 Days Associated With ARAT)

See Table 4.

DISCUSSION

The measurement of the flexion and extension movement of the finger joints is a part of the basic exploration of many clinicians in their daily explorations. This measurement can be done quickly, simply and next to the patient's bed. The instrumentation of the measurement of the amplitude of the active range of motion has allowed us to obtain a more accurate data of the active movement of each joint and to implement it in the virtual environment as well as to simulate this movement for each patient.

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Table 4. ARAT bivariate analysis 6 months

Assessment 3-4 Days	ARAT <10 N=6	ARAT ≥10 N=12	p-Value
Deep sensitivity No altered Altered	 2 (14,3%) 4 (100,0%)	 12 (85,7%) 0 (0,0%)	0,005[b]
Urinary incontinence No Yes	 3 (20,0%) 3 (100%)	 12 (80,0%) 0 (0,0%)	0,025[b]
Fecal incontinence No Yes	 4 (26,7%) 2 (66,7%)	 11 (73,3%) 1 (33.3%)	0,245[b]
Hemineglect No Yes	 2 (14,3%) 4 (100%)	 12 (85,7%) 0 (0,0%)	0,005
Muscular tone Normal Flaccidity	 0 (0,0%) 6 (54,5%)	 7 (100%) 5 (45,5%)	0,038[b]
NIHSS			
NIHSS	14,8 (DE=4,8)	6,4 (DE=3,3)	0,005[a]
NIHSS sensitivity Normal Hypoaesthesia	 1 (20,0%) 5 (38,5%)	 4 (80,0%) 6 (61,5%)	0,615[b]
NIHSS motor UE Normal Claudicate Notovercome gravity Motionless	 0 (0,0%) 0 (0,0%) 1 (20,0%) 5 (83,3%)	 3 (100,0%) 4 (100%) 4 (80,0%) 1 (66,7%)	0,013
NIHSS orientation Responds two orders Responds one order Not perform any	 3 (23,1%) 1 (33,3%) 2 (100%)	 10 (76,9%) 2 (66,7%) 0 (0,0%)	0,123
NIHSS orders Performs two tasks Performs one task	 3 (20,0%) 3 (100%)	 12 (80%) 0 (0,0%)	0,025[b]
NIHSS conjugated gaze Normal movement Partial paralysis	 3 (20,0%) 3 (100%)	 12 (80,0%) 0 (0,0%)	0,025[b]
NIHSS Visual fields No defects Partial hemianopsia Full hemianopsia	 2 (16,7%) 1 (50,0%) 3 (75,0%)	 10 (83,3%) 1 (50,0%) 1 (25,0)	0,082
NIHSS Extension-inattention Without modifications Alteration a modality Severe hematution	 2 (15,4%) 4 (100%) 0 (0,0%)	 11 (84,6%) 0 (0,0%) 1 (100%)	0,004
No mechanical pain	6 (33,3%)	12 (66,7%)	-
No neuropathic pain	6 (33,3%)	12 (66,7%)	-
Finger extensors 0-2 3-5	 6 (42,9%) 0 (0,0%)	 8 (57,1%) 4 (100%)	0,245[b]

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Table 4. Continued

Assessment 3-4 Days	ARAT <10 N=6	ARAT ≥10 N=12	p-Value
Flexors fingers 0-2 3-5	 6 (50,0%) 0 (0,0%)	 6 (50,0%) 6 (100%)	0,054[b]
Wrist extensions 0-2 3-5	 6 (42,9%) 0 (0,0%)	 8 (57,1%) 4 (100%)	0,245[b]
Flexors wrist 0-2 3-5	 6 (50,0%) 0 (0,0%)	 6 (50,0%) 6 (100%)	0,054[b]
Elbow extensors 0-2 3-5	 6 (50,0%) 0 (0,0%)	 6(50,0%) 6 (100%)	0,054[b]
Flexors elbow 0-2 3-5	 6 (54,5%) 0 (0,0%)	 5 (45,5%) 7 (100%)	0,038[b]
Abduction shoulder 0-2 3-5	 6 (54,5%) 0 (0,0%)	 5 (45,5%) 7 (100%)	0,038[b]
Flexors shoulder 0-2 3-5	 6 (50,0%) 0 (0,0%)	 6 (50,0%) 6 (100%)	0,054[b]
Fugl Meyer UE	4,8 (DE=2,0)	31,8 (DE=22,3)	0,003[a]
Barthel index	7,5(DE=3,5)	27,5(DE=10,6)	0,001[b]
Rankin scale 0-2 3-5	 0 (0,0%) 6 (37,5%)	 2 (100%) 10 (62,5%)	0,529[b]

[a]U Mann-Whitney;[b]Fisher exact prove;[c]p-value bilateral Monte Carlo.

When analyzing the range of motion (difference between minimum and maximum F/E) of each joint, significant differences were observed at 3 months between the two ARAT groups in the interphalangeal joints of the four fingers, and in the metacarpal joints -phalangeal of the ring finger and pinky in both positions, without and against gravity. Nevertheless, these data do not provide much information because at 3 months is considered that many patients have recovered most of the functionality, and it is not an early assessment that allows us to define individualized programs of rehabilitation treatment. Only in the evaluation of the initial week, there are significant changes in the proximal and distal interphalangeal joints of the index and the annular of the hand in the movement against gravity. Of these two fingers, the interphalangeal joints with more joint gain are those of the ring finger. The gain was 22 degrees with respect to 19 in the proximal interphalangeal joint, and 15 with respect to 13 degrees in the distal interphalangeal joint of the ring finger with respect to the index finger.

Thus, in the analysis of the range of motion between the two ARAT groups, the joints with the greatest capacity predicted at the week are the proximal and distal interphalangeal of the index finger and the annular one in the position against gravity, and of these two the ring finger.

The active range of flexion of each finger of the hand, flexion of the back and elbow, pronation and supination of the elbow, and flexion and extension of the wrist were examined in (Beebe et al. 2009). These authors observed that the active flexion of the middle finger and the presence of abduction in

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the lower back evaluated in the first 3 weeks post stroke had better predictive capacity at three months of the stroke than the rest of the fingers and joints of UE. In contrast, in another study, it was the active extension of the index and middle fingers against severity at 3 weeks of stroke, which were strongly predictive of recovery at 13 weeks post stroke (Lang et al. 2006). Mirbagheri et al. (2008) identified the active range of motion and maximal voluntary contraction of elbow flexion and extension movements at 4 weeks of stroke as predictors of UE motor recovery.

Table 4 shows the evolution of the clinical and functional characteristics of the patients according to the ARAT and for each one of the evaluations that were performed.

The group of patients with ARAT ≥ 10 had a mean NIHSS score of 6.4 (SD = 3.3), whereas the group of patients with an ARAT < 10 had a mean of 14.8 (SD = 4.8) in the 3-4 days' assessment. At 3-4 days, in the ARAT group < 10 the patients had a mean FM-UE of 4.8 (SD = 2.2), and in the ARAT group ≥ 10, a mean of 31.8 (SD = 22.3). In the Barthel index, the mean was 7.5 (SD = 3.5) in the ARAT group < 10 and 27.5 (SD = 10) in the ARAT group> 10.

Each patient in the ARAT group≥ 10 presented alteration of the deep sensitivity, but had no urinary incontinence or hemi-neglect. All patients in the ARAT group <10 had an ERM ≥ 3 in all follow-ups that were made (see Table 4).

The movement of the fingers of the hand is important to acquire the skill and for the manipulation of objects that determine the proper functionality of the ES. The hand has multiple functions; the most important are touch, which is a sensitive function and grip, which is a motor function. To carry out these functions, the hand adopts different positions according to the type of grip it has to do. In all these positions involve more or less fingers, but in general, the little finger intervenes when it is necessary to grasp objects of greater weight and volume. All fingers are important for manipulation and grasping, but it is possible that the one that does not so much determine the functionality of UE is the little finger because, it is only used when objects are heavy and bulky.

The results of this study highlight the predictive capacity for the recovery of UE function at 6 months after stroke.

CONCLUSION

The biomechanical evaluation of the fingers and their simulation in a virtual environment may facilitate the stratification of the patients in groups at risk according to the prognosis of the recovery of the paresis UE. This fact would help health professionals to make a more individual planning of neuro-rehabilitating treatment of patients who have suffered a stroke. Adequate patient selection would increase the efficiency of rehabilitation services.

The data obtained with the Cyber-Globe II® instrumentation glove are useful for designing technical aids or orthoses that help to promote independence in the activities of the daily life of the patients who need it. These data have been adapted to the virtual model with 29 DOF, which has allowed the simulation of each patient, giving an approximation of the abilities and limitations in their ADL.

The virtual simulation of the arm and hand in patients with stroke gives a new objective tool to physicians that allows simulating the evolution of deficits in some patients. The relevance of this work for patients affected by these deficits is that in the first visit to the doctor after the stroke it is possible to know through the simulation the evolution of their functional recovery. Another relevance is that the arm and hand model has been implemented with parametric lengths and can be extrapolated to other

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affected patients with the same deficits. Finally, ergonomists can be given data on hand movements and help design new products for people with reduced mobility due to a partial recovery after having followed the rehabilitation program.

ACKNOWLEDGMENT

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Chapter 41
Social Context:
Visualisation of Cooperation – Evidence-Based Medicine in Neurorehabilitation

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ABSTRACT

Evidence-based medicine (EBM) and Evidence-based practice (EBP) are sets of standards and procedures created to search, verify, and select up-to-date findings implemented by medical staff as a basis for decision-making process in a daily clinical practice. Despite efforts of scientists and clinicians, neurorehabiltiation is regarded as a difficult area for EBM/EBP practices due to huge diversity of cases, clinical pictures, interventions, and scientific methodologies. More advanced tasks, including application of brain-computer interfaces and neuroprosteheses, show the need for a new approach from medical practitioners. This chapter presents challenges, barriers, and solutions in the aforementioned area based on the personal experiences of the authors. Visualisation tools provide cognitive support for social context, cooperation patterns, and data interpretation. Taking into consideration that social issues may extend the visibility of the results and allow for easier dissemination of the results, the aim was to show how visualisation helps identify cooperation networks and disseminate research results.

INTRODUCTION

Evidence Based Medicine (EBM) and Evidence Based Practice (EBP) are sets of standards and procedures created to search, verify and select up-to-date findings implemented by medical staff as a basis for decision-making process in a daily clinical practice. Cause of emergence of EBM has been significant

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increasing of data flow (e.g. easier access to electronical databases of medical articles). There become hard to distinguish reliable and unreliable medical evidences. As a result - there was hard to develop medical knowledge of the staff. The priority become selection and elimination unreliable findings at the beginning. It was noticed, that rehabilitation methods should be as reliable as other methods in clinical use. Concept Evidence Based Medicine licked into shape Evidence Based Practice (Bridges et al. 2007; Dean-Baar & Pakieser-Reed 2004).

The following chapter presents challenges, barriers, and solutions in the aforementioned area based on the personal experiences of the authors. Chapter begins from familiarizing of fundamentals of EBM/EBP, including also debate with opponents. Paper contains also outcomes of the own research, their useful visualizations, and results of practical implementation of EBM/EBP based on experience and findings in Poland and abroad. Vizualization tools provide cognitive support for pattern recognition and data interpretation toward usable information and knowledge (Osińska & Bala 2015, Osińska 2011). Our aim was to show how visualisation helps identify co-operation networks and disseminate research results.

BACKROUND: EVIDENCE BASED MEDICINE IN NEUROREHABILITATION – STATE OF THE ART

Neurological diseases are popular in main population and constitute one of the main cause of disability in adult people. Interdisciplinary rehabilitation teams deal with neurologically disabled patients applying the newest methods, drugs, and approaches to rehabilitation process (Członkowska & Sarzyńska-Długosz 2002). Rehabilitation should start as early as possible (Hömberg 2010). Integrative neurorehabilitation science based on dedicated rehabilitation research focused on neurorehabilitation is necessary (Kwakkel 2009; Gillen 2010). Therapeutic procedures should be evidence-based and modified to find patient-tailored solutions. General rules derived from neuroscience confirm their usefulness in designing new therapeutic techniques in neurorehabilitation. (Hömberg 2010).

Searching and reading the research literature seem be essential activities for enhancing the use of research and optimizing the quality of current clinical practice in neurorehabiltiation (figure 1). From the other hand neurorehabilitation is regarded very hard area for EBM/EBP practices, especially due to huge diversity of cases, their clinical pictures, interventions, and scientific methodologies. Thus neurorehabilitation may be perceived clinical area with lacking evidences (Grimmer-Somers et al. 2007; Iles & Davidson 2006).

Enormous growth of knowledge in the neurosciences may cause significant progress in neurorehabilitation. EBM/EBP is a complex process that can be facilitated by the use of the Knowledge to Action Process model. It provides a sequence of phases for researchers and clinicians to follow in order to optimize knowledge translation (KT) across various fields of practice. Thus our ultimate aim is creating effective KT interventions to increase clinicians' knowledge and use of EBM/EBP among for clinicians, health care managers, and researchers (figure 2). Clinical application of the new tool/method, approach requires research on its:

- Reliability (interrater reliability, intrarater-reliability, test-retest reliability, etc.), i.e. measurement error associated with an instrument,
- Validity, i.e. extent to which an instrument measures itself in the absence of the "gold standard" (including compartmental studies with other existing clinical scores and scales),

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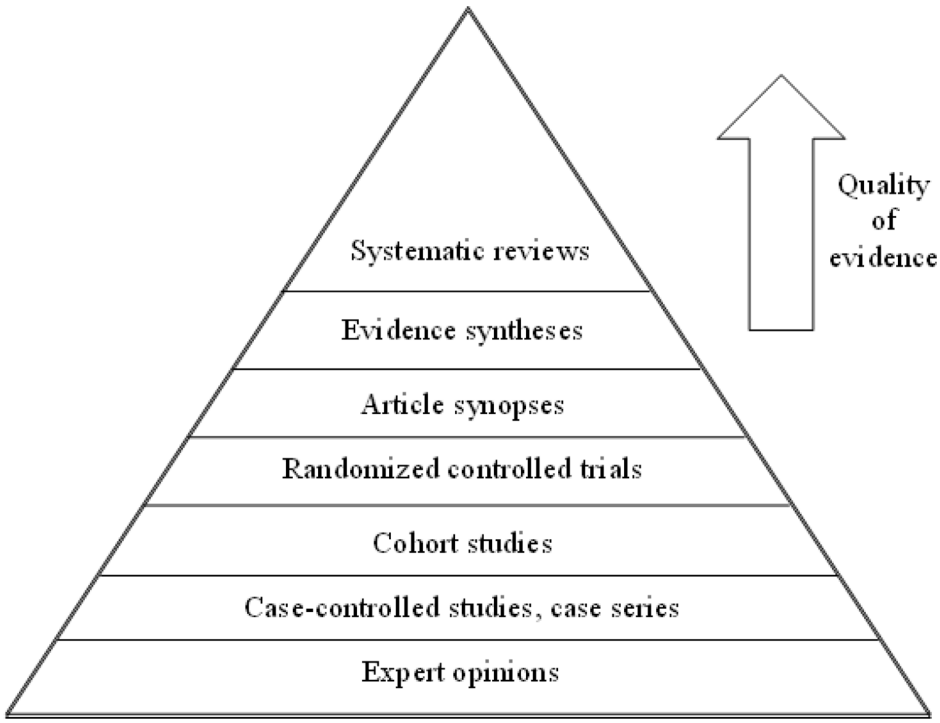
- Responsiveness, i.e. minimal degree of change that is clinically significant (including *floor effect* and *ceiling effect*),
- Acceptability to patients and assessors (Prokopowicz et al. 2017; Jette et al. 2003; Stevenson et al. 2004; Palfreyman et al. 2003).

Figure 1. Hierarchy of evidences according to EBM/EBP paradigm



Despite many challenges in the implementation of evidence in neurorehabilitation the increasing use of EBM/EBP concepts and an early KT from the neurosciences into everyday clinical neurorehabilitation practice contribute to therapeutic advances, providing further occupations for enhancing results of neurorehabilitation (Ramírez-Vélez et al. 2015; Teasell 2012; Pereira et al. 2012; Hömberg 2010; Petzold et al. 2010; Sackett et al. 1996; Rosenberg & Donald 1995).

Scientists and clinicians should be aware general situation concerning publications in rehabilitation and physical therapy. Widely discussed review by Shadgan et al. showed 100 top-cited English language articles from 30 rehabilitation dedicated journals published between 1959 and 2002. Average citations per article was 200, ranging from 131 to 1109. The most common fields of the study were neurorehabilitation (41%), disability (19%), and biomechanics (18%). The most common article type was original article (84%), prospective (76%) case series studies (67%) on humans, what more 67% articles was published in the USA (Shadgan et al. 2010). Partial key may be also characteristics of bibliometric indicators and analysis of associated information. Review by Franchignoni et al. showed scientific productivity of 24 randomly selected leading European authors of publications in the area of physical medicine and reahabilitation (PM&R). Median values of their bibliometric parameters were not high: number of pub-

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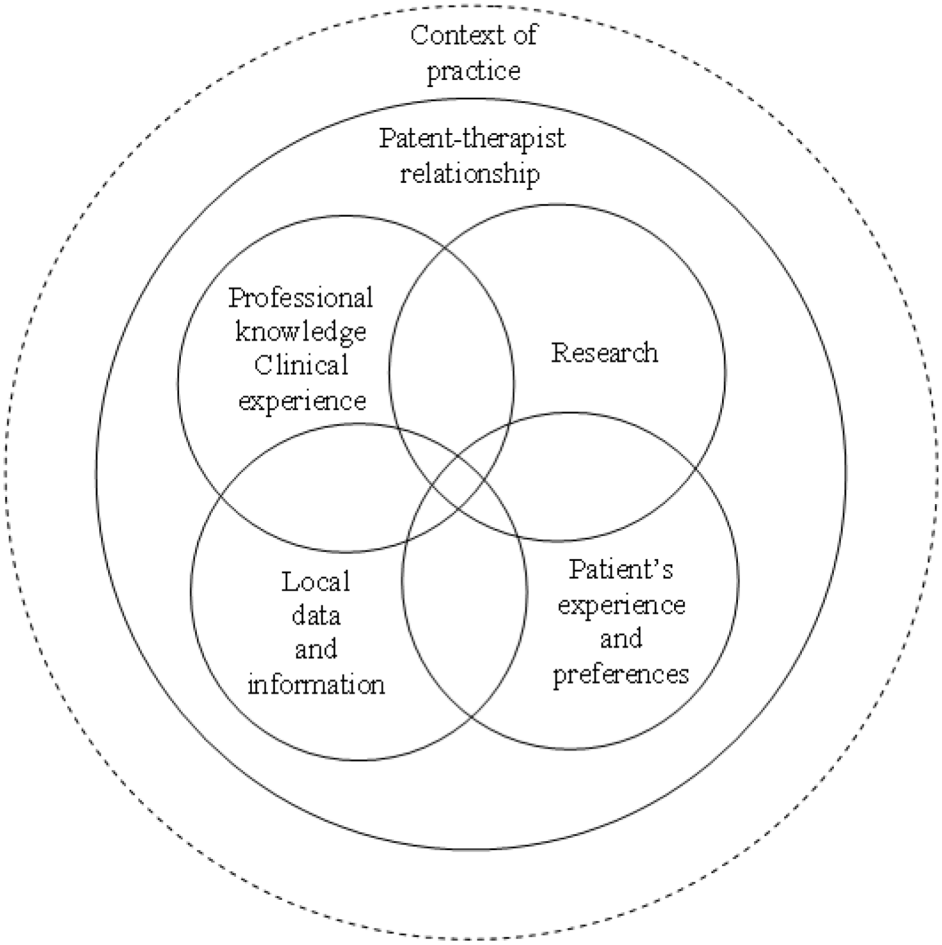
Figure 2. Sources of evidence for patient-centred evidence-based practice (Rycroft-Molone et al. 2003)



lication: 31 (Web od Science - WoS), 46 (Publish or Perish - PoP), number of citations: respectively 171 and 317, Hirsch index: respectively 6.5 and 8.5 (Franchignoni et al. 2011). Deeper assessment may show causes of such situation. Gender gap within peer-reviewed publication productivity in physical therapy were reported by Kaufman & Chewan: 0.51-0.58 fewer articles per year for women than for men was observed (Kaufman & Chewan 2011). Study by Ahmed et al. assessed top cited (($\geq$50, WoS) articles concerning disability published between 1980 and 2015. Collaborative studies enjoy wider citation, what more articles with 11 to 20 pages were the most often cited (Ahmed 2016). True may be an assumption that collaboration increases influence of publication, thus co-author network may be important factor.

EVIDENCE BASED MEDICINE IN NEUROREHABILITATION - BARRIERS

Scientists and clinicians can try subjectively, not always directly, assess the effectiveness of EBM/EBP implementation in neurorehabiltiation .There may be defined three primary areas of limitations to physical therapists' implementation of EBM/EBP

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- **Organizational Barriers:** Support and resources,
- **Practitioner Barriers:** Education, attitudes and beliefs, interest and perceived role, and self-efficacy,
- **Technical Barriers:** Quick development of innovative solutions requiring randomized controlled trials covering their efficacy, long-term effects observations, and clinical guidelines (Brandt & Bertram 2016; Sidiakina et al. 2015).

The most valuable clinical trials face problems of recruitment, retention, treatment fidelity, outcome measure selection, and control intervention selection. A problem may constitute even such basic factor as within-group homogeneity which contributes to successful conduct of a clinical trial.

Lack of education, negative perceptions about research and physical therapists' role in EBM/EBP, and low self-efficacy to perform EBM/EBP activities represent barriers to implementing them into neurorehabilitation that can be addressed through continuing education. Organizational provision of access to Web-based resources is likely insufficient to enhance research use by clinicians: despite Internet access at work for 80% of respondents, only 8% were given protected work time to search and appraise the literature (Salbach et al. 2010; Salbach et al. 2009; Salbach et al. 2007).

The evidence base on neurorehabilitation is often limited and clear definitions are lacking. The observed spread in opinion may reflect the absence of clear guidelines and knowledge in the particular area and need for further research (Lynch et al. 2017; Sjöholm et al. 2011). But EBM/EBP paradigm is not obvious: despite lack of clear agreement only 19% stroke care professionals required a large randomized controlled trial or a systematic review to be convinced of early mobilization after stroke benefits (Sjöholm et al. 2011). From the other hand awareness of an ongoing research trials among professionals may lead to changes in opinions before the efficacy of the experimental intervention is known (Lynch et al. 2017).

General tendency may be unfavorable. Recent review by Jesus showed discrepancy between number of clinical trials and systematic reviews in rehabilitation. Number of published yearly clinical trials increased, while number of systematic reviews did not change since early 1990s. What important neurologic conditions (particularly cerebrovascular) were the most addressed by aforementioned publications (Jesus 2016).

SOCIAL CONTEXT OF PUBLICATION IN MEDICAL AND ALLIED HEALTH SCIENCES

The social context must respond to the transformation in society due to global changes: environmental, cultural, technological, etc. Digital change may shorten distance between research and publication, but easier way may result in thousands of scientific publications a day. Current research should be more effectively disseminated and showed impact on state-of the-art to play a significant role in the global scientific discussion and development. Long lifespan and chances of survival have only the best of them. Aforementioned approach is linked with the model of science development chosen to follow. Popular scientists want to maintain their position, but more and more younger scientists want share similar achievements and lifestyle. The social analysis cannot remain marginal to global change concerning research. Despite pitfalls and mistakes, we need to find a path toward a more secure and sustainable development of science in the future. Some phenomenon within current system cannot be understood only by measuring traditional bibliometric parameters. Purely technical details may diminish the main

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issue, uneven and inadequate elsewhere. Qualitative and quantitative studies need for novel methods and tools. Pressure on science to be relevant may fall heavily. Priorities and mainstreams may differ across the region. Traditional scientific paradigms and approaches may be increasingly distrusted and questioned. Interdisciplinary approaches with the capacity to investigate changes may help solve them. Thus current social analysis should be interconnected with a multitude of other point of view to the same question. No doubt interdisciplinary programmes and policymaking should be related to sound, independent research.

In the past the single-author paper was the common habit, but over the past decades, the average number of authors on scientific articles has drastically increased (Borry et al. 2006). Contemporary scientific success may be significantly influenced by cooperation and competition thus research collaboration occurs more frequently now than in the past. Levsky et al showed that number of authors per medical article increased from 4.66 to 5.73 between 1995 and 2005 (Levsky et al. 2007). But multiauthored publications have also disadvantages, e.g. in some disciplines authors publishing more often as first authors have fewer publications in the short period of time than authors publishing more often as last authors (Wardil & Hauert 2015). This may show variety of possible strategies applied by scientists/authors and evolution of cooperation in multi-authored publications. From the other hand rule that number of publications and citations is a principal factor for scientific career advancement may lead to natural selection of poorer science. Poor research design and data analysis is probably quicker and simpler. Rewarding full understanding instead of rewarding knowledge is hard but possible, e.g thanks to computational analysis of data sets showing potential correlations and gaps within current theories (Smaldino & McElreath 2016). Study by Slone (Slone 2016) showed that despite over half of the papers published in the American Journal of Roentgenology (AJR) have five or more coauthors, the first two authors made almost all of work in almost all researched papers. Honorary authorship is still discussed (Bonekamp et al. 2012, Eisenberg et al. 2014). Aforementioned trends are still challenges for the editors of journals. Moreover there is expected gender revolution: during the last 3 decades, the proportion of women authoring manuscripts in the 3 major general dermatology journals increased from 12% to 48% (Feramisco et al. 2009). There are proposed alternative indicators for progress in the field of publication: e.g. number of publications listed in the particular classification of the top publication in the particular medical discipline during recent years/decades (Bas et al. 2011). From the other hand study by Abu-Dawas et al. showed that despite an increase in quantitative research productivity of Gulf countries over the last 3 years, no increase in quality of research publications was noted based on the mean reports of mean journal IF (Abu-Dawas et al. 2015).

EVIDENCE BASED MEDICINE IN NEUROREHABILITATION:SOLUTIONS

We need to begin from identification of characteristics that are associated with writing, searching or reading the research literature among physical therapists involved in neurorehabilitation. Results may point modifiable practitioner characteristics, including self-efficacy for implementing EBM/EBP and participation in research, appear to be key determinants of EBM/EBP. Own studies will focus on aforementioned factors.

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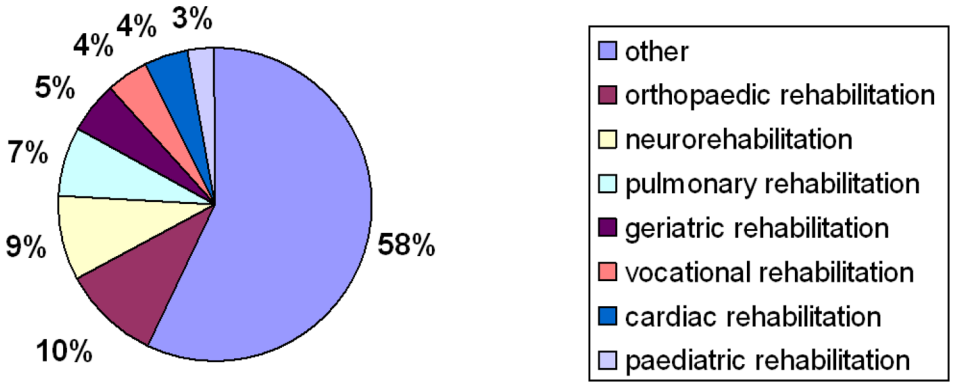
Own Studies

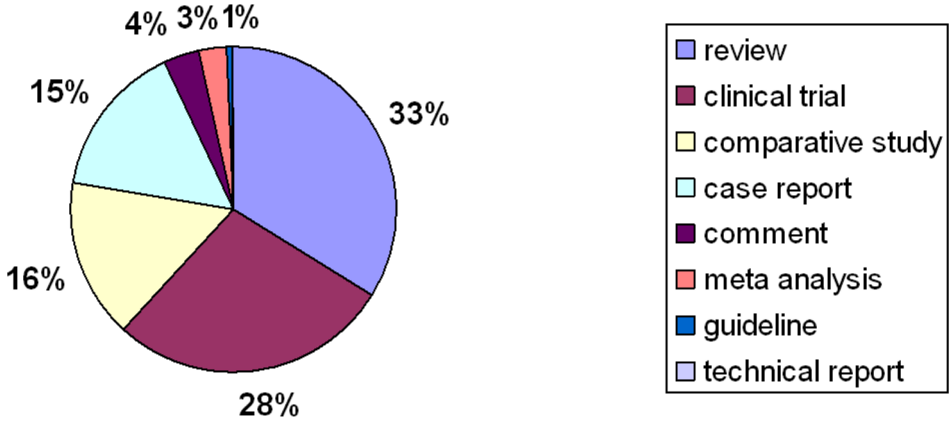
Publication analysis may help find collaborators, identify main trends and find your own scientific way/field. Our own study will show if previous studies concerning scarce evidence in neurorehabilitation were right. It is worth noting and comprehend current status in this field. First of all 45% top cited rehabilitation journals strictly covers field of neurorehabilitation or any subfield (e.g. stroke rehabilitation)[1], all of them publish articles in English only. Six main bibliographic databases was searched. The most of articles concern orthopedic rehabilitation, next neurorehabilitation and pulmonary rehabilitation (figure 3).

Figure 3. The percentage proportion of covered topics by publications analyzed within six main bibliographic databases



Article type influences the strength of evidence. The most common are reviews, then clinical trials and comparative studies (figure 4).

Figure 4. The percentage proportion of types of articles concerning neurorehabilitation analyzed within six main bibliographic databases



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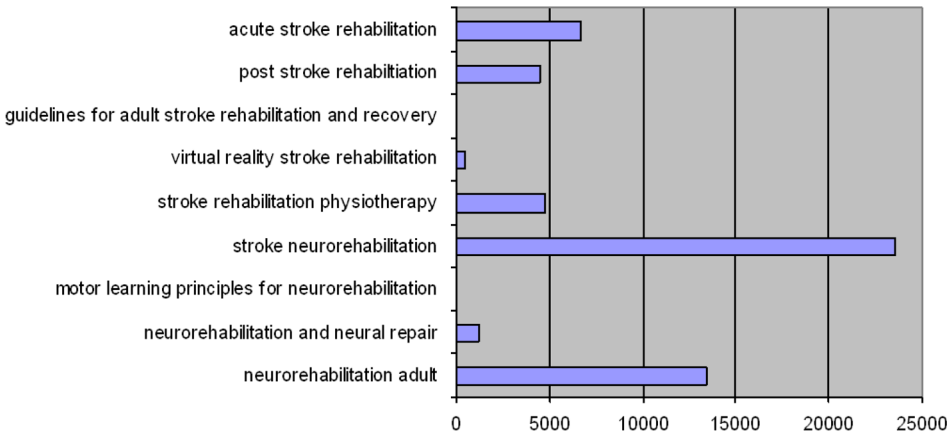
Demands for evidences may miss needs. Where are there needs located? Figure 5 shows the most common searches within neurorehabilitation publication versus number of publications. The most frequent topic is stroke neurorehabilitation.

Figure 5. The most common searches within neurorehabilitation publication versus number of publications



The most common are articles concerning adult patients. The most popular age of patients are:

- **Adults Aged 65+ Years:** 8132 publications,
- **Adults Aged 19-44 Years:** 7509 publications,
- **Children (Birth-18 Years):** 2696 publications (while infants: birth-23 months: only 446 publications).

Compartmental study of co-author networks of four European specialists in neuroscience or neurorehabilitation show figures 6-9. Used data sets were gathered by Harzing's Publish or Perish ver. 5.28 (bibtex files) (Harzing, 2016) analyzed using Science of Science (Sci2) Tool (Sci2 Team, 2009; Börner & Polley 2014). Information on the similarity/distance/co-author weights is used to calculate node positions and distances. Similar nodes are proximal. More publications and more citations were associated with number of nodes and structure and density of connections with co-authors. Four GUESS layouts were selected: a) traditional, b) circular, c) GEM (Generalized Expectation Maximalization, Gupta & Chen 2010, Einicke 2012), d) MDS (Multidimensional Scaling, Cox & Cox 2001). Layout menu and BinPack use allows to "pack" the nodes more closely in space. Node degree shows the number of each individual's co-authors. MDS layout shows graph where node-node distances are defined by the connecting edge weight (co-occurrence frequencies). GEM shows projects more frequently acknowledged together in publications.

Reader should obtain from the graphs orientation concerning number of co-authors and frequency of co-operation. It seems even top level of publications is achievable for specialists in neurorehabilitation. But no doubt such achievements are rare and remarkable. Figures 6-9 provide increased information about the structure and direction of co-operation within research being done. Further enhanced analysis may increase aforementioned information to past successes (the most cited researchers, affiliations, col-

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laborations, and topics/areas of research) and future chances (frequently cited but rarely studied issues, occupations for future collaboration, etc.). Enormous number, diversity and complexity of diseases and injuries in neurorehabilitation makes particularly important that specialists in neurorehabilitation and neuroscience research, and scientists in the biomedical field in general (including biocybernetics and biomedical engineers) should pay particular attention to collaborate through resource sharing, exchange of ideas and knowledge dissemination, as far as information acquisition and analysis. No doubt scientists belonging to different institutions (countries, research areas) should be encouraged to collaborate. Focusing studies on diverse key issues accompanied by reasonable interdisciplinary suggestions, polices, and evidences may help to effectively diagnose, prevent, treat, rehabilitate and care (Huang & Huang 2006, Strotmann et al. 2009, Wu & Duan 2015, Morris &Yen 2004, Leydesdorff 2007).

Figure 6. Neuroscience publications co-author network of worldwide recognized expert in neuroscience, 980 papers, h=90, 30021 citations. Layouts: a) traditional, b) circular, c) GEM, d) MDS.

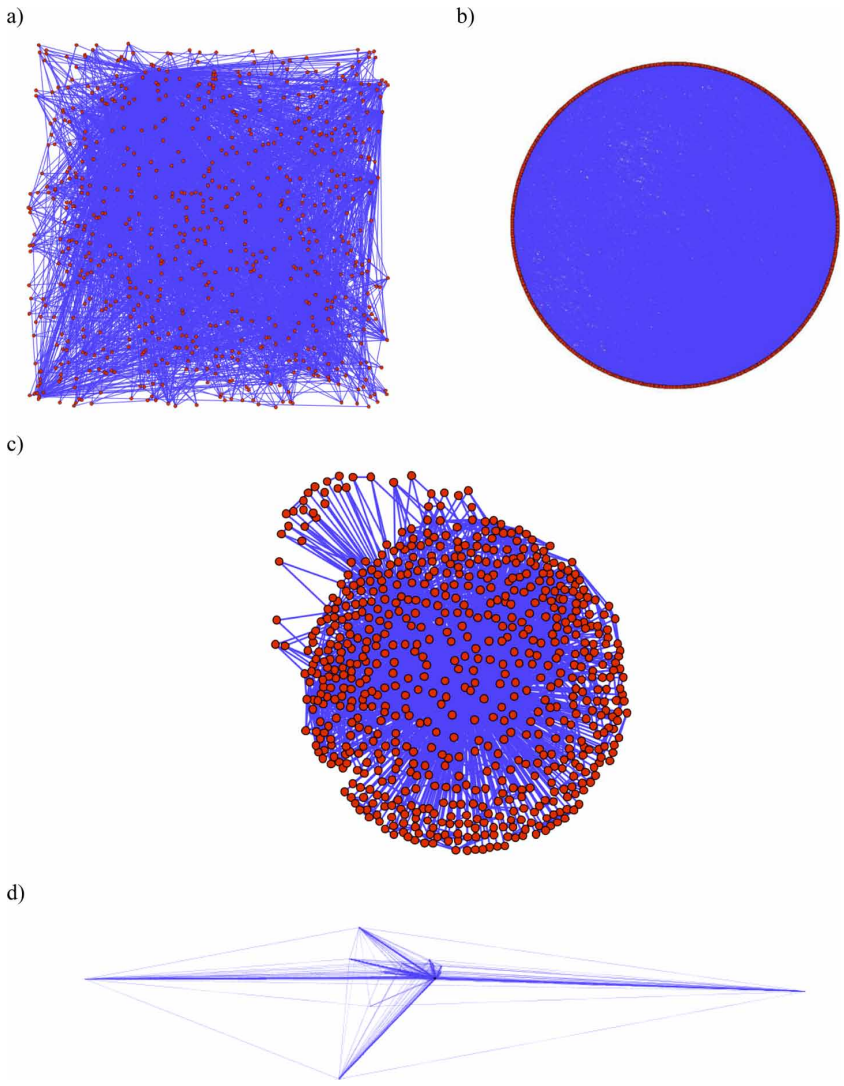

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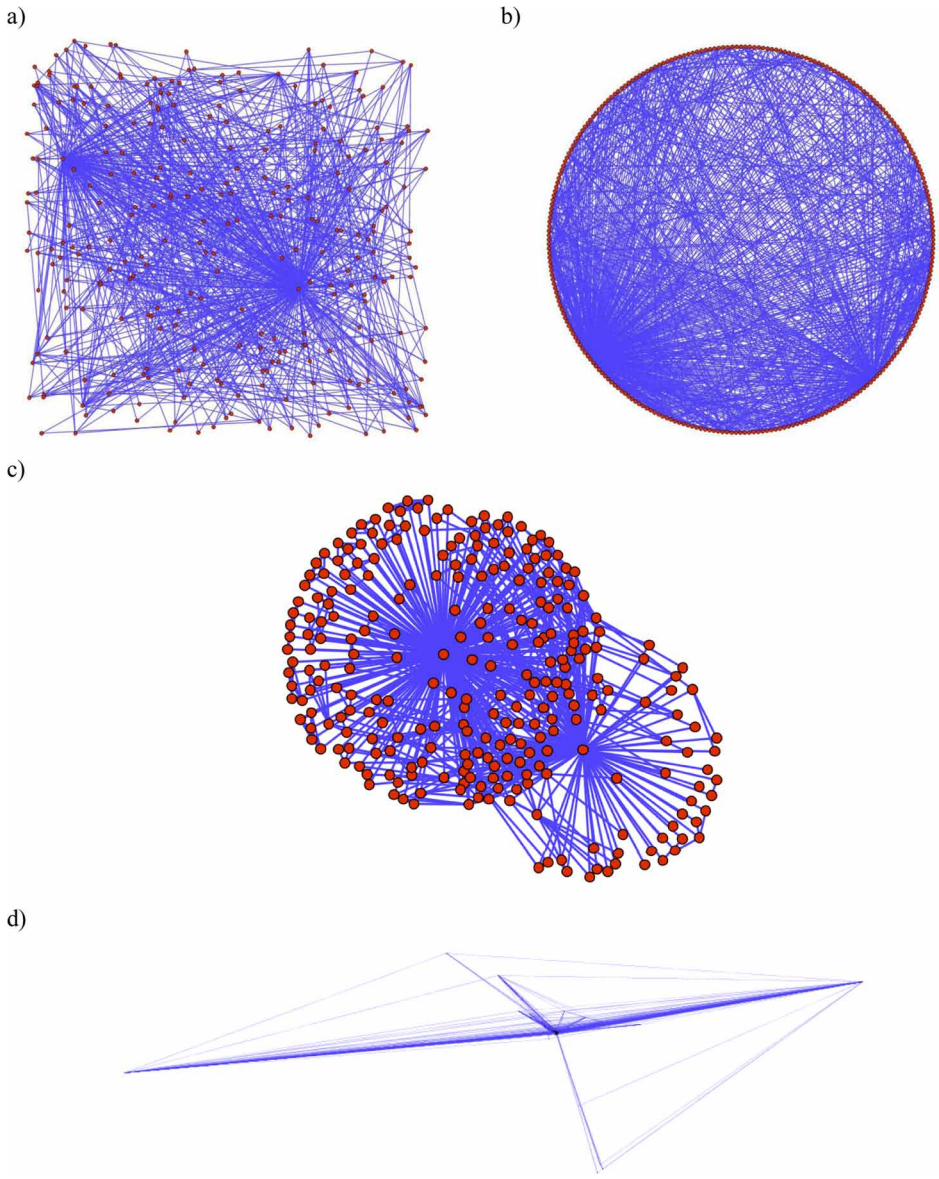
Figure 7. Neuroscience publications co-author network of worldwide recognized expert in neuroscience, 352 papers, h=71, 26928 citations. Layouts: a) traditional, b) circular, c) GEM, d) MDS.



DISCUSSION

Wider dissemination and increased visibility of evidences in neurorehabilitation need for interdisciplinary studies and denser network of co-authors. Despite unquestionable quality of studies social issues remain very important. It may provide strengthening position of the EBM-based neurorehabilitation.

Individualization of therapy in neurorehabilitation creates severe limitations of scientific and clinical research. Even such relatively basic factors as hard to assess similar knowledge and experience of the therapists or environment and of exercises may influence results of the study. Various societal and cultural

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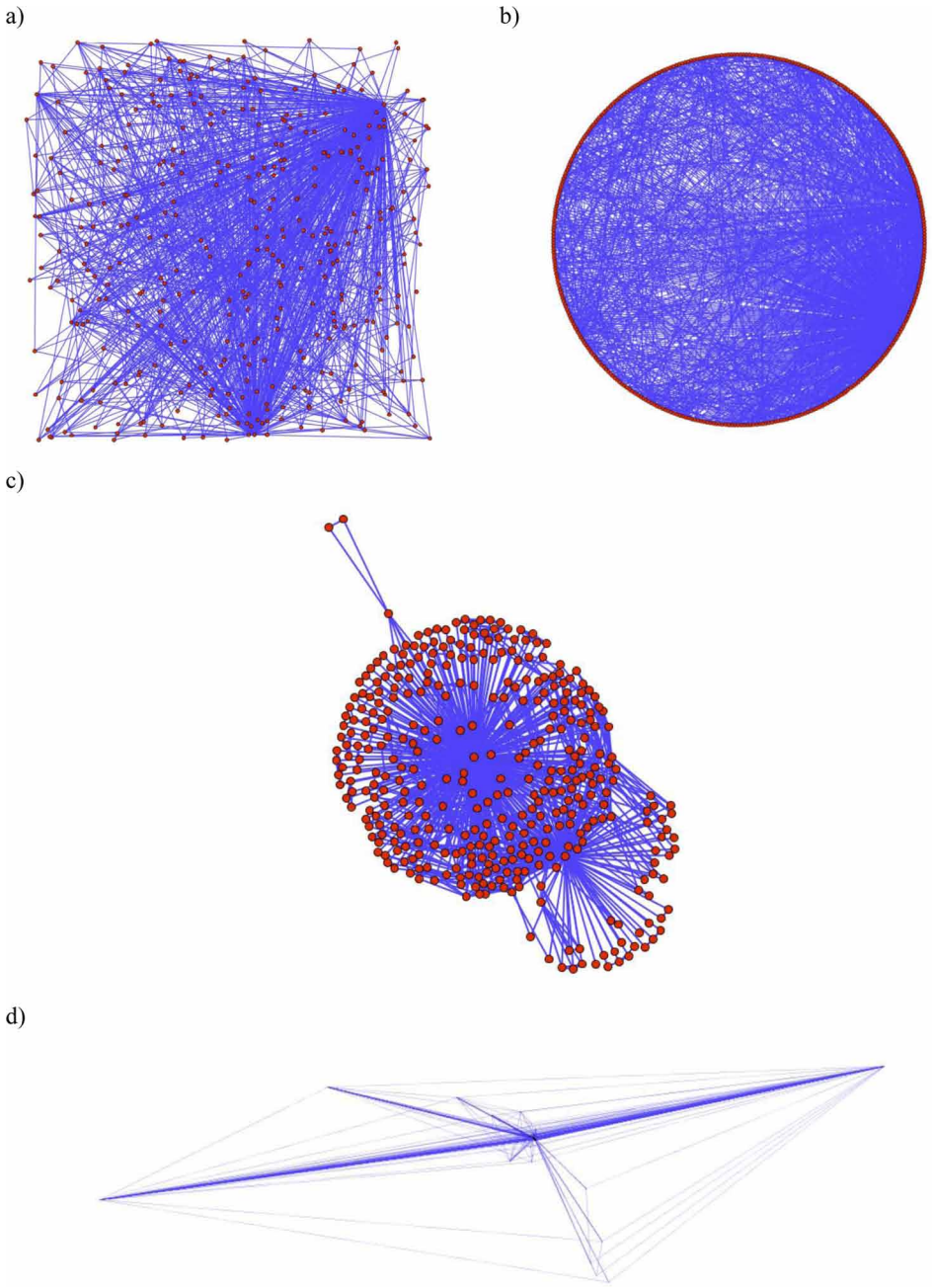
Figure 8. Neurorehabilitation publications co-author network of European scientists, authority in neurorehabilitation, 391 papers, h=69, 20130 citations. Layouts: a) traditional, b) circular, c) GEM, d) MDS.



needs of the patients may create diverse context of the treatment (Doucet 2013). Increasing number of RCTs may lead to misunderstanding: review by McIntyre et al. showed that number of RCTs in stroke rehabilitation have increased over the past forty years with an associated increase in methodological quality, but not sample size (McIntyre et al. 2014). Moreover careful analysis of publications may cause

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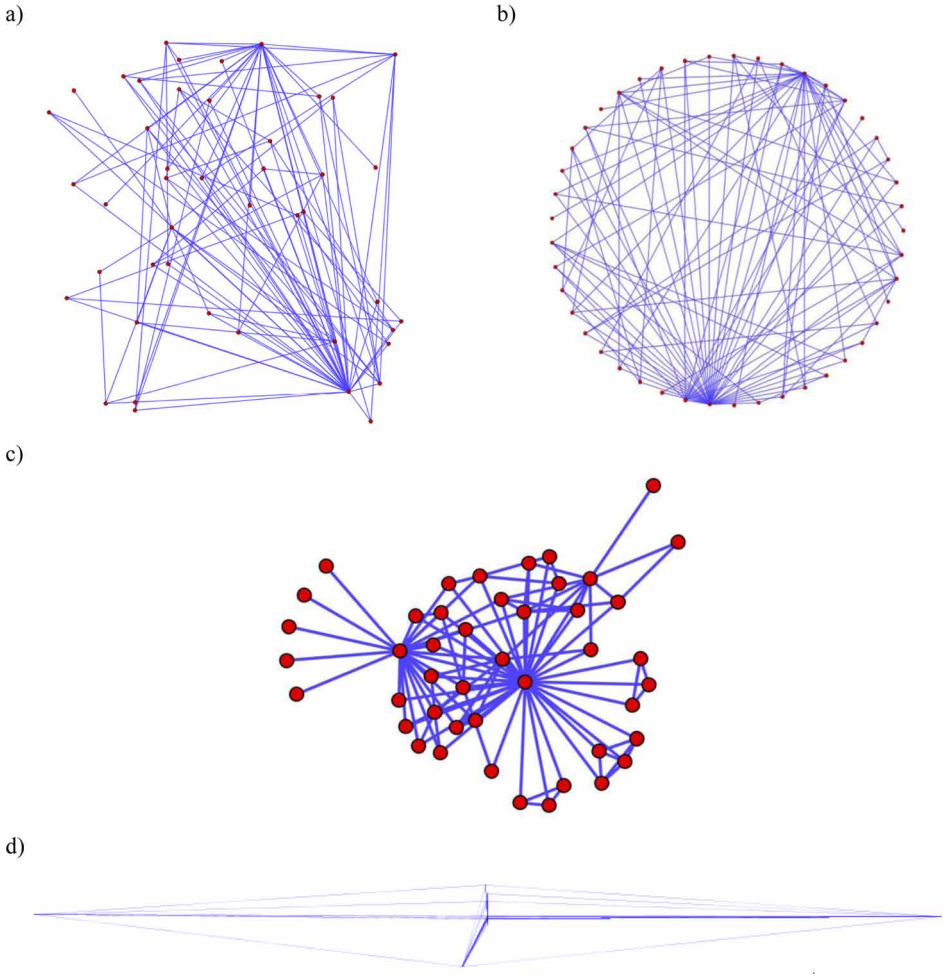
Figure 9. Neurorehabilitation publications co-author network of Polish scientists, specialist in neurorehabilitation, 216 papers, h=10, 564 citations. Layouts: a) traditional, b) circular, c) GEM, d) MDS.



confusion or malfunction: recommendations may be separated for target variables and time after accident thus huge specific knowledge and experience is needed to incorporate them into the particular neurorehabilitation programme. E.g. Dohle et al. showed that in the area of functional restoration of gait in post-stroke survivors:

- Many factors, including pathophysiological insights into functional restoration of stance and gait after stroke should be taken into consideration,
- Gait velocity may be improved by intensive gait training, including incorporation of rehabilitation robots,
- Gait distance can be improved by aerobic endurance exercises (with a cardiovascular effect) in a functional context,
- Balance may be improved by intensive functional gait training.

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- Functionally relevant training program may incorporate additional stimulation techniques (Dohle et al. 2016).

EBM/EBP did not answer all our questions (Tilson et al. 2008; Timio & Antiseri 2000; Turner & Whitfield 1997). Action observation treatment (AOT), derived from neurophysiology, constitutes novel but not explored approach in neurorehabilitation where patients observe an action and then execute it in context (Buccino 2014). Such reducing the evidence-practice gaps requires active management strategies (Walker et al. 2013).

DIRECTIONS FOR FUTURE RESEARCH

Professor Henry Markram established following challenges for neuroscience:

- Big teams alble to solve the big problems,
- Interlinked sets of data providing a complete picture of single areas of the brain at their different levels of organization,
- Efficient predictive tools,
- Hardware and software powerful to simulate the brain,
- New ways of classifying and simulating brain disease, leading to better diagnosis and more effective drug discovery,
- Brain-inspired technologies, with potentially huge benefits for industry and for society,
- Public awareness and support for neuroscience, associated research and possible benefits (Markram 2013).

Similar challenges for neurorehabilitation were established by Harris and Winstein:

- Primary and secondary prevention, including secondary prevention of lifestyle-related diseases and participation,
- Simple, environmentally relevant predictive measures,
- Cooperation of clinicians and researchers to provide deeper understanding processes such as exercise-induced brain plasticity effects via neuroimaging,
- Interdisciplinary cooperation on advances in mindful health and patient-centered clinical practice (Harris & Winstein 2017).

Neurorehabilitation focus on decreasing impairment and improving function toward higher health-related quality of life. Clinical evidence for most neurorehabilitative treatments is still sparse. Interventions (both conventional and modern)) are usually optimized toward needs of specific target groups of patients. The best direction of further research seems be better understanding of the neuroscience of self-healing and stimulated recovery coupled with outcomes from small-scale and well-focused clinical trials (Luft 2012).

Low number of the clinical trials to testing efficacy and effectiveness of therapeutic interventions within neurorehabiltiation constitutes huge problem. Our ultimate goal is to increase effectiveness of neurorehabilitation. There is need for three-fold development of existing approaches:

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- Development and validation of instruments quantitatively and qualitatively measuring functional outcomes,
- Dissemination of research that supports particular methods,
- Disseminate negative outcomes confirming lack of efficacy.

Academic-clinical alliances, objective assessment of evaluation and intervention methods, education of practitioners, and evidence-driven everyday clinical practice would be the best solution for current problems (Doucet 2013).

Visualization technology should be used to track scientists from various branches in neurorehabilitation research, and look for possible associations and occupations to co-operate with the most fruitful scientists. Topic-related visualization should be used to acquire more valuable information, identify the most popular issues, and promote rapid development of rare research areas. Exploring the knowledge domain of publications thanks to crossmaps of different entity pairs, should be complemented by identification of front timelines and base reference cluster timelines (Khosrow-Pour et al. 2016, Byrne et al. 2015, Rosiek & Leksowski 2016).

Unification of tools and methods in not always possible. Scientists and clinicians should be aware of differences between studies. It is worth a mention, that tool or method without evidence-based efficacy (or which did not show superiority) is not always non-effective (due to e.g. methodological problems) – scientists need to find them and provide doubtless evidences (Liepert 2012; Pereira et al. 2012).

Neurorehabilitation constitutes unique challenge due to the complexity of human nervous system (associated physiological and pathological motor and cognitive processes/responses), variability of interventions and wealth of clinical/research staff interaction. Variety of kinds and levels of impairment is remarkable as far as their causes: usually most patients have had a stroke, but other traumatic brain injuries, spinal cord injuries, severe poisonings, metabolic diseases, damaged nerves, etc. Thus translation of evidence to clinical practice and the improvement of patient outcomes and qualify of life requires close partnerships of scientists, clinicians, and administrators (Behrman et al. 2013). Three international solutions were described so far by Walker et al.:

- Development of an evidence-based consensus document combined with qualitative and quantitative methods (England),
- Research program covering synthesis of evidence, creation of user friendly information, and development of multimodal knowledge transfer strategies (Canada),
- Multistep process covering audit, feedback, identification of barriers, and tailored education (Australia) (Walker et al. 2013).

Proposed approach to vizualization of social co-author networks in neurorehabilitation is still at the beginning of its development. There is need for development of the most efficient tools, simple and practical in everyday use. Thus compartmental studies will be useful in the future. There is lack of one predominant approach to vizualization of the aforementioned data sets, thus careful tests and dedicated software modernization may be necessary, even as third party visualization tools supported by existing software, e.g. PoP 5.

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CONCLUSION

There is a discrepancy between scientific research, current knowledge, and need of clinical practitioners. Positive attitude to EBM/EBP in neurorehabiltiation and interest of medical staff in learning about or improving the skills are necessary to adopt EBM/EBP in their clinical practice. More guidelines, RCTs, and research concerning long-term results of the particular neurorehabilitation programmes (approaches, tools, etc.) would be very valuable. New goals associated with patient-tailored therapy need new and more precise diagnostic tools, which can be the main challenge for scientists and clinicians from the aforementioned areas. Taking into consideration social issues thanks to application of visualization tools may extend visibility of results and allow for easier dissemination of results.

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KEY TERMS AND DEFINITIONS

Evidence-Based Medicine (EBM): Approach of practicing medicine with the goal to improve and evaluate patient care. Requires the judicious integration of best research evidence with the patient's values to make decisions about medical care (i.e., make proper diagnosis, devise best testing plan, choose best treatment and methods of disease prevention, and develop guidelines for large groups of patients with the same disease).

Evidence-Based Practice (EBP): Way of providing healthcare guided by a thoughtful integration of the best available scientific knowledge with clinical expertise. It allows the practitioner to critically assess research data, clinical guidelines, and other information resources in order to correctly identify the clinical problem, apply the most high-quality intervention, and re-evaluate the outcome for future improvement.

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Neurological Rehabilitation: Physician-supervised programs designed to rehabilitate people with diseases, trauma, or disorders of the nervous system.

ENDNOTE

[1] https://scholar.google.com/citations?view_op=top_venues&hl=en&vq=med_rehabilitationtherapy

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Chapter 42
Exploring Virtual Reality for the Assessment and Rehabilitation of Executive Functions

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ABSTRACT

This article describes how a neuropsychological assessment and rehabilitation are typically carried out using paper-and-pencil tools. However, these protocols cannot effectively evaluate the subject's performance of daily activities. More recently, the increasing accessibility of new and powerful technology has presented new possibilities. Virtual reality is one of the most promising tools with the increasing ecologicity in the neuropsychological field. The availability of new portable instruments has increased the accessibility and usability of this technology. Using this frame, the changes that have occurred over time in the neuropsychological practice up to the most recent VR-based tools have been explored. In particular, the focus will be on executive functions as the most sensitive cognitive domain within the

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ecological validity of the tools. In accordance with the literature, the authors show the potential for the use of virtual reality in the assessment and rehabilitation of executive functions, highlighting the advantages, limitations, and potential future challenges.

INTRODUCTION

The aim of neuropsychological assessment has extensively changed over time. Before the neuroimaging, neuropsychological assessment was conducted for defining which brain area could have been damaged after cerebral lesions and was an extension of the neurological examination Benton (1984). After the diffusion of the neuroimaging techniques (for example, TAC), it has been possible to better determine the brain area damaged and the neuropsychological assessment aims to evaluate cognitive functioning in order to develop a personalized rehabilitation program (Ruff, 2003). Unfortunately, at the beginning, the change of purpose has not translated into a change of tools. The second step of the improvement of the neuropsychological assessment begins with the introduction of the computer-based tools. These tests use a computer interface, like computer or tablet, to administer and correct tests. Usually the test is the computer-version of the classical paper and pencil test. It is rare to find a new test developed specifically for this modern technology. On one side, the advantages of computer-based test are several: more accurate time data, easy administration, automatic data recording, increased standardization of administration. On the other side, the principal problems about the use of these tools are that the normative data cannot be simply applied to computerized version and, generally, don't give an additional useful information for the clinician (Parsey & Schmitter-Edgecombe, 2013; Parsons, 2015). In the light of what said before a great challenge for neuropsychology has been to find new way to better measure, understand, and predict daily life abilities. Indeed, one of the most relevant issues with respect to neuropsychological assessment in the laboratory is the lack of the validity of the protocols, those results in limitations for generalization of the investigated abilities in daily life situations. In the recent decades, neuropsychology, cognitive psychology and cognitive neuroscience have been worked together to understand the complexity of cognitive processes, the functional neuroanatomy underpinning those cognitive domains, and the implications of cognitive impairments in neurological patients for models of normal cognitive functioning.

Virtual Reality (VR) is a new technology that could help to improve neuropsychology assessment (Bohil, Alicea, & Biocca, 2011; Riva & Gaggioli, 2009; Rose, Brooks, & Rizzo, 2005) Technically speaking VR is composed by 3D environment, a user can interact with the environment thanks to different input or output computer devices (visual, auditory or haptic). Virtual environments could represent many everyday life scenarios and are programmed to record precise measurements of the individual's performance in a controlled situation. (Brooks & Rose, 2003). Thanks to these devices, the user can interact with the environment as if it were the real world.

In neuropsychology, VR is used to offer a new human-computer interaction paradigm in which patients are active participants within realistic virtual environments and not only a passive viewer (Riva, Mantovani, & Gaggioli, 2004).

In the literature are many jobs that demonstrate the important characteristics of VR. You in an article form 2005 (You et al., 2005) used fMRI to prove that virtual environments activate the same parts of brain of the real environments. The high ecological validity of the virtual reality training was demon-

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strated by proving that that the skills learned in a virtual environment can be reported in a real situation (Brooks & Rose, 2003).

VR offers several requirements for improving neuropsychological assessment: controlled and secure settings, multimodal and multiple stimulation, feedback about answers, (Bohil et al., 2011; Riva et al., 2004; Schultheis & Rizzo, 2001). It is also possible to control and manipulate the tasks within reasoned, ecologically valid and engaging environments using Virtual Environments (G. Riva & Gaggioli, 2009). The high level of engagement derives from a process call "transformation of flow", that is the ability of a subjects to use an optimal (flow) experience to discover and use psychological resources as sources of involvement (Riva, Castelnuovo, & Mantovani, 2006).

It is also important understand the limit of the use of VR system in the clinical settings.

First, VR requires high costs both for hardware and software creations and not all the hospitals are able to invest in new technology. Even maintain the equipment and have and adequate technical support is expensive.

Developing new functional task in some new virtual environments requires a close cooperation between clinicians and technicians and it is not always possible or easy. By designing intuitive VR applications and providing adequate training, developers may also help medical personnel in using these tools independently. It is hard to find a setting and an adequate number of patients for testing a clinical VR application.

Because of these reason in the community of clinicians and researchers there is low availability of standardized protocols that can be shared (Pedroli, Serino, Cipresso, Pallavicini, & Riva, 2015; Riva, 2009; Tsirlin, Dupierrix, Chokron, Coquillart, & Ohlmann, 2009).

In the literature there are a lot of example of applications of VR for several neuropsychological impairments: memory (Jebara, Orriols, Zaoui, Berthoz, & Piolino, 2014; Spreij, Visser-Meily, van Heugten, & Nijboer, 2014), unilateral spatial neglect (Fasotti & van Kessel, 2013; Mainetti, Sedda, Ronchetti, Bottini, & Borghese, 2013; Navarro, Lloréns, Noé, Ferri, & Alcañiz, 2013; Pallavicini et al., 2015), dementia (Allain et al., 2014; Cipresso et al., 2014; Serino, Morganti, Di Stefano, & Riva, 2015; Serino, Pedroli, et al., 2017), and dyslexia (Pedroli et al., 2017).

Considering what has been said so far below will be presented possible applications of VR in a neuropsychological clinical practice, focusing on executive functions.

As Fleming and colleagues (Fleming et al., 2016) argue in their perspective article, a paradigm shift is needed to increase the impact of E-Therapy mental health. This change will be feasible by increasing the focus on user-centered approaches, the emphasis on engagement, and the collaboration in program development, testing, and data sharing.

EXECUTIVE FUNCTIONS BEFORE VIRTUAL REALITY

The executive functions are one of the most investigate neuropsychological domains and their complexity makes it an excellent candidate for the VR applications.

The executive functions allow us to continuously orienting cognitive resources to effectively respond both to environmental and internal demands.

Specifically, the executive functions including a large number of cognitive processes and behavioral competencies like: problem-solving, planning, sequencing, the ability to sustain attention, resistance to interference, utilization of feedback, multitasking, cognitive flexibility, and the ability to deal with

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novelty (Burgess, Veitch, de Lacy Costello, & Shallice, 2000; Chan, Shum, Toulopoulou, & Chen, 2008; Grafman & Litvan, 1999)

Several neurological impairments that involve the frontal cortex or some related structure can lead to an impairment of executive functions, the "Dysexecutive Syndrome" (Bechara, Damasio, Damasio, & Anderson, 1994; Robertson, Manly, Andrade, Baddeley, & Yiend, 1997; Snyder, Miyake, & Hankin, 2015).

The assessment of executive functions has been generally performed for clinical use in the hospital and clinician usually use paper-and pencil test or laboratory tasks and an increasing number of tests have been developed for the assessment of different kind of patients (Chan et al., 2008).

For example, the assessment protocol may include single task for single cognitive process like Wisconsin Card Sorting Test for ability to shift cognitive strategies in response to environmental changes (Anderson, Damasio, Jones, & Tranel, 1991; Caffarra, Vezzadini, Dieci, Zonato, & Venneri, 2004) or the Tower of London for problem solving (Allamanno, Della Sala, Laiacona, Pasetti, & Spinnler, 1987; Shallice, 1982). In the protocol can also be batteries for the assessments of executive functions like Frontal Assessment Battery (FAB) (Appollonio et al., 2005; Dubois, Slachevsky, Litvan, & Pillon, 2000).

Interestingly many patients with Dysexecutive Syndrome shown normal scores on traditional neuropsychological tests and, at the same time, they complain important difficulties in daily life activities (Shallice & Burgess, 1991).

This problem may result from the lack of ecological validity of the tests, this is a critical issue of the classical assessment of executive functions (Chan et al., 2008).

The traditional assessment does not capture the complexity of executive functions in a real environment. An ecological assessment may evaluate if individuals are able actually respond to external and/or internal demands provided from the task.

An ecological evaluation is also important to understand the neuropsychological profile and to plan a personalized rehabilitation for the patients.

These considerations should direct the clinician and researchers to develop some more ecological tasks for executive functions assessment. Some tasks have already been developed with these features: the Behavioral Assessment Of The Dysexecutive Syndrome (BADS) (Perfetti et al., 2010; Wilson, Krabbendam, & Kalff, 1997) and the Multiple Errands Test (MET) ((Alderman, Burgess, Knight, & Henman, 2003; Shallice & Burgess, 1991).

More specifically, BADS (Perfetti et al., 2010; Wilson et al., 1997) is a laboratory-based tasks that includes tasks that investigate abilities involved in everyday life: temporal judgement, rule shift cards, action program, key search, Zoo map, modified six and a dysexecutive questionnaire. The questionnaire is formed by 20 questions that investigate several domains like emotional or personality changes, motivational changes, behavioral changes and cognitive changes.

Instead, the MET (Nick Alderman et al., 2003; Shallice & Burgess, 1991) is a functional test specifically developed for high functioning patients because takes place in a real shopping mall or in a hospital environment. Particularly, the original version was also modified into two way: the simple version (Nick Alderman et al., 2003) and the hospital one (Knight, Alderman, & Burgess, 2002).

In the simplified version patients have to make three main tasks: buying six items (e.g., small brown loaf), finding and remember four items of information (e.g., the closing time of the library on Saturday) and meeting the clinician at a designated point. In addition, the patients have to stating the time 20 minutes after beginning the test. During the test patients have to follow several rules, such as for instance "Do not speak to the person observing you unless this is part of the exercise."

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This procedure can be defined as "open" or "ill-structured" (Goel, Grafman, Tajik, Gana, & Danto, 1997) because there are many things that patients could do, both for the right or wrong outcomes.

For this reason, the clinician follows the patients during the task, both to control it and to score errors like task failure (e.g., failed to purchase keying) or rule breaking (e.g., shouted question to shop staff). The MET has good ecological validity (Burgess et al., 2006) and requires the implementation of several executive functions: plan the actions, list the steps necessary, describe and check the goals and compare the outcome with the desired aim.

Despite the many virtues, the test also presents limitations: the participants have to have a good motor skill to go to a real shop, the protocol is time consuming, for both the patient and therapist and all the procedure could be particularly challenging for a patient with medium or severe cognitive impairment. Moreover, the real environment is not a controlled and secure setting, and it is not possible to maintain an experimental control over the presentation and the recording of the stimulus.

EXECUTIVE FUNCTIONS AND VIRTUAL REALITY

The Multiple Errands Test

In order to overcome these limitations several groups saw VR like a possible solution.

Initially, Rand and colleagues have developed one version of the Virtual Multiple Errands Test (VMall) in a functional virtual setting, a large supermarket that was programmed via GestureTek's IREX video capture virtual reality system. The VMall is a task for post-stroke patients that allows making different shopping tasks without leaving the hospital. (Rand, Katz, Kizony, Shahar, & Weiss, 2005; Debbie Rand, Katz, & Weiss, 2007; Debbie Rand, Rukan, Weiss, & Katz, 2009).

Riva and his team developed and tested a virtual version of the Multiple Errands Test (VMET) (Raspelli et al., 2012). The VMET consists of a Blender-based application that allow active exploration of a virtual supermarket where participants are requested to select products on shelves. Moreover, the participant is able to navigate in the supermarket using an up-down joypad arrows and to collect products by pressing a button placed on the right side of the joypad, after having selected them with the viewfinder.

The virtual supermarket contains products grouped into the main grocery categories (beverages, breakfast foods, garden products, hygiene products, fruits and vegetables, frozen foods, and animal products) indicate at the top of each section with a signboard (see Figure 1).

The procedure has been adapted by Shallice and Burgess (Alderman et al., 2003; Shallice & Burgess, 1991).

Before the task, patients make a training session in another supermarket in order to understand how joypad works and how to move in the environment.

After the training session, the examiner shows the shop where the test takes place and describe all the sections.

Then the clinician gives a shopping list, a supermarket's map, some information about the supermarket (opening and closing time, products in sales, etc.), a pen, and a wristwatch to the participants. In addition, the clinician illustrates the rules and the instructions to ensure they are fully understood. When he finished the explanation makes starting the stopwatch.

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Figure 1. The Supermarket

The four main tasks of the test are: find and buy the six items on the list, ask information about one item to the examiner, write what products you bought after five minutes from start and answer a series of questions after finishing the task using the given materials.

The rules are as follows:

- You have to execute all the proposed tasks, but you can run them in any order
- You cannot go in a place unless this is a part of a task
- You cannot pass through the same passage more than once
- You cannot buy more than two items per categories (look at the chart)
- Take as few time as possible to complete this exercise however without hurry
- Do not talk to the researcher unless this is a part of the task
- Go to your "shopping cart" after 5 minutes from the beginning of the task and make a list of all the products that you bought

During the test, the examiner cannot talk with participant, not even to answer to the questions. When the participant said, "I finished" the clinician stops the time. During the task, the examiner records all participant's behaviors in the virtual supermarket. The errors were divided as following, as suggest Shallice and Burgess (Shallice & Burgess, 1991):

- Task failure, namely a task not completed satisfactorily
- Inefficiencies and strategies, where a more effective strategy could have been applied to accomplish the task

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- Rule Breaks, where a specific rule listed in the instructions has been violated
- Interpretation failures, where the requirements of a particular task are not misunderstood

This technology could create problems in the elderly patients who are not familiar with computers, and Chan and colleagues (Chan et al., 2008) say that should be carefully used in clinical setting.

To get on top of this issue Pedroli and colleagues (Pedroli, Cipresso, Serino, Riva, & Albani, 2013) analyzed the usability of the VMET in a sample of 21 healthy participants and 3 Parkinson's disease (PD) patients.

They administered The System Usability Scale (SUS) to assess the usability. This test is a "quick and easy to use" measure developed by Brooke (Brooke, 1996). For Brooke usability is "the subjective perception of interaction with a system."

Results showed that Healthy participants had perceived a good usability for the VMET. On the other side, for the patients is crucial an intensive training phase before the test.

These encouraging results led us to consider the VMET as a useful tool to evaluate executive deficits in every sample, even with elderly subjects with motor impairment.

To better understand the psychometric properties of VMET many studies with several samples were done.

The reliability of the VMET was evaluated using two different experiments: in the first one, two independent researchers analyzed 11 videos in which 11 healthy subjects were tested; in the second one, 7 researchers scored 2 videos of 2 healthy subjects running the VMET. The results showed that the test have a good reliability (Cipresso, Serino, et al., 2013).

In addition, the VMET has been validated in different clinical populations that may show signs of a dysexecutive syndrome or some impairment in executive functions.

The first study of a clinical sample was done by Raspelli and colleagues (Raspelli et al., 2012). They have analyzed three groups (9 post-stroke participants, 10 healthy young participants, and 10 healthy older participants) in order to demonstrate the ecological validity and initial construct validity of the VMET. All the groups were tested with VMET and a neuropsychological battery that focuses mainly on executive functions.

The results showed a correlation between some variables of VMET and some traditional executive functions neuropsychological tests. Moreover, the performances obtained at the VMET showed a distinction between clinical and control group and between the two age control groups.

These outcomes offer preliminary evidence of the ecological and construct validity of the VMET. Successively, La Paglia and colleagues (La Paglia, La Cascia, Rizzo, Riva, & La Barbera, 2012) assess, with VMET, 10 patients suffering from obsessive-compulsive disorder (OCD) and 10 controls. They used the VMET to evaluate the executive functions in daily life and a neuropsychological battery to test the executive functions in laboratory. The results show that OCD patients use much time than normal subjects to complete the task; probably this extra time is used to planning. Furthermore, patients showed more problems in following rules and sustaining attention than healthy subjects. Results show that there is a significant correlation between VMET and the executive functions tests i the OCD patients, this correlation underlines the good ecological validity anf the feasibility of the VMET in this sample.

In the 2013 Cipresso and colleagues (Cipresso, La Paglia, et al., 2013) analyzed a similar sample (OCD patients) to investigate deficits of volition during the assessment with VMET.

The sample include 30 participants: 15 OCD patients and 15 controls. The subjects were monitored during task execution and the relative interferences.

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OCD patients showed a specifically pattern of deficits, as defined in the following classification:

1. Break in time (i.e.: go to the shopping chart after 5 min)
2. Break in choice (i.e.: buy two products instead of just one)
3. Break in social rules (i.e.: go into a specific place and to ask the examiner what to buy")

One of the main field of application for the VMET is the assessing of the executive functions in Parkinson's disease (PD).

As we shall see below, the cognitive disorders in this condition may overshadow compared to other neurological disorders, probably because the motor symptoms are prevalent.

It is important the early Identification of executive deficits in PD because it could facilitate the identification of patients at risk of dementia. Having an early diagnosis could give the chance to develop early rehabilitation in order to avoid a quick cognitive decline.

The cognitive impairment in PD affects a variety of cognitive domains that received a relevant clinical attention: executive functions, visuospatial abilities, memory and language (Foltynie, Brayne, Robbins, & Barker, 2004; Kehagia, Barker, & Robbins, 2010; Muslimović, Post, Speelman, & Schmand, 2005; Williams-Gray et al., 2009). As Verleden and colleagues underlined (Verleden, Vingerhoets, & Santens, 2006) the cognitive impairments in PD patients can be extremely various, both for cognitive profile and the for onset and rate of progression.

Despite the heterogeneity of the cognitive profile the core of the cognitive impairment of PD patients is composed by the executive functions (Ceravolo, Pagni, Tognoni, & Bonuccelli, 2012; McKinlay, Grace, Dalrymple-Alford, & Roger, 2010). The impairment in the executive functions in PD patients is a little different to those seen in patients with a frontal lobe damage because involve a dysfunction of the frontostriatal neural circuitry (Rogers et al., 1998; Rowe et al., 2002).

The cognitive impairment has a negative impact on quality of life of both patient and caregiver, as well as the health-economic side (Aarsland, Larsen, Karlsen, Lim, & Tandberg, 1999; Aarsland, Larsen, Tandberg, & Laake, 2000; Schrag, Jahanshahi, & Quinn, 2000).

Early detection and rehabilitation of executive dysfunctions is crucial in the management of PD both for the cognitive and motor aspects. Is very important evaluate the cognitive component of the disease in order to reduce disability using a fully personalized rehabilitation program

Because of these problems, we argue that the VMET could be a useful test for the assessment of executive deficits in PD patients.

Therefore, the focus is to identify patients before they develop dementia through a specific assessment in order to prevent o decelerate the cognitive decline. All this process is very important because a relevant number of PD patients developed dementia (Aarsland, Andersen, Larsen, & Lolk, 2003; Bosboom, Stoffers, & Wolters, 2004; Dubois et al., 2007; Hely, Reid, Adena, Halliday, & Morris, 2008).

Several longitudinal studies prove that a deficit in the executive functions could be a precursor of a future dementia (Azuma, Cruz, Bayles, Tomoeda, & Montgomery, 2003; Janvin, Aarsland, & Larsen, 2005). Based on this information a new term was developed "mild cognitive impairment in PD"

In this perspective, it has been recently proposed to use the term "mild cognitive impairment in PD" (Litvan et al., 2012). Although the term "mild cognitive impairment" applied to PD is controversial (Tröster, 2008), it is more frequently used and more widely accepted than alternative terms.

Mild cognitive impairment in PD may be a useful clinically concept to de-fine a cognitive decline that is not normal for age, but it is essentially associated with normal functional activities. Several

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studies demonstrated that mild cognitive impairment predicts the development of dementia, which can occur in up to 80% of PD patients over the long term (Azuma et al., 2003; Janvin, Larsen, Aarsland, & Hugdahl, 2006).

Evaluation of early executive deficits in PD could facilitate the identification of patients at risk to develop dementia and may give the chance to develop early neurorehabilitation interventions.

In such context, we argue that the VMET may significantly improve the traditional assessment of executive functions in patients suffering from mild cognitive impairment due to PD.

Thanks to the VMET, it will be possible to evaluate:

- The real functional status of mild cognitive impairment due to PD, as manifested in terms of executive dysfunctions, that had not been fully acknowledged in everyday life scenarios;
- The ability of patients with mild cognitive impairment due to PD in formulating, storing and checking all the goals and sub-goals in order to effectively respond to environmental demands in ecological situations.

Albani and colleagues (Albani et al., 2011) investigate the correlation between decision-making and alteration of sleep structure in 12 PD patients with and 14 controls. These alterations regard early-middle stages of Parkinson's disease and may lead to daytime drowsiness, loss of attention and concentration, feeling of tiredness. All patients have undergone polysomnography, compete neuropsychological assessment and VMET. Five PD patients showed sleep abnormalities and significant differences in the VMET performance compared to other patients with normal sleep and controls.

Few years later Cipresso and colleagues (Cipresso et al., 2014) analyzed the performance of three groups (15 PD patients with mild cognitive impairment, 15 PD patients with normal cognition and 15 healthy subjects) using a complete neuropsychological battery and the VMET. The aim of the study was to understand which instruments best discriminates between these three groups and investigate which components of executive functions are the most damaged. Significant differences in the VMET score were found between PD patients with normal cognition and control patients. Specifically, PD patients made more errors in the tasks of the VMET and showed a poorer ability to use effective strategies to complete the tasks. No difference was found in the classical neuropsychological tests. This is an important result because show that VMET result seems to be more sensitive in the early detection of executive deficits in PD patients and offers initial evidence that an ecologically evaluation of executive functions is more effective than classic paper and pencil tests.

This positive result encourages us to consider the VMET as a useful tool to evaluate executive deficits even in the early stage of Parkinson's disease. In this stage of disease, the cognitive disorders are not as evident, and their diagnosis tends to be delayed. Identification of early executive deficits in PD could facilitate the identification of patients at risk to develop dementia and could give the chance to develop early neurorehabilitation interventions.

Alternative VR-Tools

In the 2016 an international group (Oliveira et al., 2016) present an ecological task of cognitive assessment for older adults in VR (ECO-VR). In the article, the author shows the development, feasibility, content validity, and preliminary evidence of construct validity of the tool. The tasks were prepared based on theoretical and clinical backgrounds. Twenty-nine non-expert judges considered the virtual

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visual stimuli and three-dimensional scenarios. In addition, five expert judges proceeded with content analysis and, at the end, developing a more appropriate instruction. Finally, six older persons participated in three pilot studies and thirty older persons participated in the preliminary study to identify construct validity evidence. The ECO-VR demonstrated feasibility for cognitive assessment in older adults, as well as content and construct validity evidences.

Dahdah and colleagues create a VR version of Stroop test (Dahdah et al., 2017) to determine whether immersive VR treatment interventions improve executive dysfunction in patients with brain injury. Authors selected 15 patients with brain injury and administered several tests, both virtual and paper and pencil. At the end of the training participants demonstrated an improvement in several parameters of different tests (VR and Automated Neuropsychological Assessment Metrics) and the authors concluded conclude by stating that an immersive VR intervention is effective in improving executive functions and information processing speed in brain-injured patients during the subacute period.

In the same year Davidson (Davison, Deeprose, & Terbeck, 2017) investigated a new immersive virtual reality (IVR) tool for the assessment of executive function in healthy younger and older adults. They analyzed 40 subjects with Stroop colour–word test, the trail-making test (TMT) and three IVR tasks (a seating arrangement task, an item location task and a virtual parking simulator). Significant correlations were found between performance on traditional neuropsychological measures and IVR measures. In addition, IVR measures were the most important contributors in predicting age-related cognitive decline. Younger adults demonstrated higher levels of performance compared to older subjects.

Another tool for the assessment of executive functions abilities in individuals with lesions in the prefrontal cortex was presented by Denmark and colleagues (Denmark et al., 2017).

The authors used the Jansari assessment of Executive Functions (JEF) with nineteen individuals with frontal lobe lesions and 19 matched controls. In addition, they have administered classical measures of neuropsychological functioning and questionnaire measures of everyday activity, anxiety and depression. There was a significant difference between groups on the overall JEF© score and on five of the eight individual constructs but there were no differences between groups on the non-VR EF individual measures apart from Trail Making A. The results demonstrate the potential and the importance of ecologically valid VR measures in detecting impairments in EF in individuals with frontal lobe lesions.

Parsons and colleague (Parsons & Barnett, 2017), in their study, compared a Virtual Apartment Stroop Task with paper-and-pencil and computerized Stroop modalities in older adults and young adults. The authors want to analyze how inhibitory control changes with aging. Three primary results have been found: (a) the classic "Stroop pattern" was observed in the Virtual Apartment Stroop Task; (b) the Virtual Apartment "Stroop scores" were consistent with significant differences found between the two groups on the other tasks; and (c) older subjects performed significantly worse on the Virtual Apartment Stroop Task than the other group. Authors suggest that the Virtual Apartment Stroop Task are able to distinguish between prepotent response inhibition and resistance to distractor inhibition in aging adults.

Another VR-based intervention was developed by Vieira and colleagues (Vieira, Melo, Machado, & Gabriel, 2018) in order to analyses the effect of a six-month home-based phase III cardiac rehabilitation (CR) specific exercise program. The training was performed in both VR and conventional environment and was designed to improve executive function, quality of life and depression, anxiety and stress. A randomized controlled trial was conducted with subjects divided in three groups: two intervention groups (VR vs. non-VR) and a control group. Several cognitive domains were analyzed in three different moments (baseline, 3 and 6 months): the ability to switch information, working memory, selective attention, conflict resolution ability, quality of life, depression, anxiety and stress. Descriptive and inferential

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statistical measures were used, with significance level set at .05. The analysis revealed that virtual reality format had improved selective attention and conflict resolution ability, revealing the potential for the improvement of executive function in cardiac patients.

According to all these previous results, it is clear that VR tools are more sensitive and more adequate that the classic paper and pencil protocols. Obviously, a future study is needed to deepen knowledge and to make these tools suitable for clinical practice.

CONCLUSION

The instruments presented are just examples of an innovative approach to clinical practice in neuropsychology. To improve the neuropsychological assessment and rehabilitation the innovative technologies are in first line. Specifically, VR is one of the best candidate to replace the classical paper and pencil method. Thanks to its multiple advantages VR allow to the clinician to observe the behavior of patients in a setting like the real one but more safe and customized. To manage the variables of an ecological task allows a better understanding of deficits and potential of the patients. In addition to the portable technology various other tools for immersive virtual reality are being develop. These devices could be very useful for neuropsychology because of the possibility of acting in a virtual environment like in the real one.

The two most important devices are VR wearable visors and the Cave Automatic Virtual Environment (CAVE). The first one is developed for virtual reality systems and video games. This tool uses tracking technology and can create a stereoscopic 3D view. The 3D view cold be obtaining thanks to depth, scale and parallax by presenting unique and parallel images for each eye and using a 3-axis gyroscope, accelerometer and magnetometer to process data.

In alternative to VR, a new way to present ecological stimuli using an immersive tool are 360° environments (immersive photographs or videos) delivered via smartphones or wearable visors. Thanks to this technology, participants could be immersing into a real environment from a first-person perspective. The use of 360° videos require to subjects to sequential focusing on different pieces of the environment and multiple elements at various times. These specific characteristics required the ability to make a sequential planning of visual search (Serino, Baglio et al., 2017).

Roberton and colleague (Robertson, Hermann, Mynick, Kravitz, & Kanwisher, 2016) demonstrate that, to facilitating subsequent perceptual judgments, individual scene views prime associated representations of the panoramic environment. This dynamic relationship between memory and perception plays a key role in weaving the fabric of continuous visual experience and could be an important mechanism for the cognitive assessment and rehabilitations. Accordingly, Serino and colleagues (Serino, Baglio et al., 2017) used this technology to assess executive functions Parkinson's disease; the results indicated the proposed tool (PIT 360°) are able to distinguish between patients with PD and healthy controls.

The CAVE is a room where stereoscopic projectors project on the walls, floors and, ceiling a 3D virtual environment in high-resolution. These characteristics allow an increase in the sense of presence. In the CAVE the head-trackers and hand-trackers are using to allow natural movements to interact with the virtual environment. CAVE is used mostly for design and fashion applications, but recently there have been some clinical applications, principally for the treatment of phobias and emotional disorders (Bouchard et al., 2013; Meyerbröker, Morina, Kerkhof, & Emmelkamp, 2010).

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The hope is that these great technological improvements lead to an increase in the development of new tools and new protocols. The goal is to improve practice neuropsychological to allow her to break away from the classic test.

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Chapter 43
Virtual and Augmented Reality Mirrors for Mental Health Treatment:
Analysis and Future Directions

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ABSTRACT

Virtual and Augmented Reality are technologies widely used in a variety of areas, including the medical sector. On the other hand, regular mirrors have been traditionally used as tools to aid in mental health treatment for a variety of diseases and disorders. Although it is possible to build Virtual and Augmented Reality experiences based on mirror metaphors, there are very few contributions of this kind in the medical sector. In this chapter, the great benefits that regular mirrors have brought for mental health treatment are addressed. In addition, a review on the state of the art in mirror-based Virtual and Augmented Reality applications is given, highlighting the potential benefits that these enhanced mirrors could bring for the mental health treatment.

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INTRODUCTION

A regular mirror can be defined as a special kind of object usually flat and made of polished metal or reflective glass that is capable of reflecting light in such a way that it provides a faithful representation of the objects reflected on it. Mirrors have a natural attraction for human beings since they allow people to see themselves in a third-person view, which is not the one we usually have of our own body, and have been referred to provide uncanny experiences (Rochat & Zahavi, 2011).

Although the daily use of mirrors is commonly associated with cosmetics and superficial activities, they have been used in medical therapy for a long time in order to treat several medical conditions, many of them related to mental health. Pain relief (such as in phantom limb pain (Desmond, O'neill, De Paor, McDarby, & MacLachlan, 2006)), rehabilitation (such as motor rehabilitation or the treatment of patients with cerebral palsy), psychological disorders (such as body dysmorphic disorder or anorexia nervosa) and neurological disorders (such as asomatognosia or mirror agnosia) are some of the areas where Mirror Therapy (MT) has been used in the past, to name a few.

One characteristic of regular mirrors is that they are constrained to reflect a real image of the environment where they are located (although some optical distortion can be applied using curved mirrors) and are thus limited by the physical space and vision angle that the specific set-up offers. Therefore, their potential uses are rather restricted to a set of certain conditions. However, the use of Information Technologies (IT), such as Virtual Reality (VR) or Augmented Reality (AR) can radically change the way mirrors are used in medical therapy, extending their use to other medical problems such as phobias, autism spectrum disorders (ASD) or even neurodegenerative diseases. VR and AR can be presented with many different set-ups, using different display devices and exploiting different interaction paradigms and metaphors. One of these paradigms is the mirror metaphor, by which a VR or AR system is designed to behave like a mirror, regardless of whether it is implemented using an actual mirror or not.

This chapter has three major goals. The first one is to clearly define and classify the different mirror-based IT solutions that are based on either VR or AR. As these enhanced mirrors are relatively new, the literature offers different terminologies for similar proposals, which can be confusing. The chapter will try to clarify the different options and methods that can supply mirror-like images using IT solutions. The second goal is to review the works that already exploit the use of VR and AR mirrors for mental health treatment, reviewing the state of the art. Since the technology is relatively new and the research area of this particular review is restricted to mental health applications, the number of works is relatively small. Nevertheless, they are enough to demonstrate the benefits of this technology and show its potential. Last, but not least, the chapter aims to discuss the possible benefits of these technologies for the treatment of other mental health illnesses, disorders, syndromes, problems and conditions, which are currently not explored with IT solutions. The chapter will try to identify opportunities, strengths, weaknesses and future research lines, so that readers and practitioners get a clearer picture about these devices.

This chapter is organized as follows. In a first place, a short review is given regarding to the use of regular mirrors in mental therapy. In this regard, several illnesses and mental disorders are addressed. Afterwards, the use and potential of VR and AR in mental therapy is discussed. First, the VR and AR mirror metaphors are given, and then a review on the state of the art is provided. The review also covers a few applications of enhanced mirrors to other (mind-related) medical fields, since the number of applications of this technology for mental health is still small. Finally, some conclusions and further directions are outlined.

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THE USE OF REGULAR MIRRORS IN MENTAL THERAPY

Regular mirrors have been traditionally used in a variety of medical therapy applications for a long time, which is referred as Mirror Therapy (MT). In this sense, mirrors have been mainly used in pain relief, rehabilitation, in the treatment of anxiety disorders or in the treatment of phantom limb pain (PLP), among others. Several works have dealt with the use of MT for PLP (Chimes, Bernstein, Cortazzo, & Huber, 2009) and it has been proven to be effective (Chan et al., 2007) in the treatment of this condition, although the amount of pain relief obtained is controversial. MT for PLP and other conditions causing limb impairment is used in patients with unilateral limb impairment (such as unilateral amputation). It consists in the use of a mirror so that the motion of the healthy limb is reflected and creates the illusion that the opposite (impaired or amputated) limb is present or healthy and moves appropriately.

MT in rehabilitation includes the treatment of patients with recovery from hemiparesis (Altschuler et al., 1999; Dohle et al., 2009; Stevens & Stoykov, 2003), cerebral palsy (Feltham, Ledebt, Deconinck, & Savelsbergh, 2010) and motor rehabilitation after a stroke (Rossiter, Borrelli, Borchert, Bradbury, & Ward, 2015; Thieme, Mehrholz, Pohl, Behrens, & Dohle, 2012, 2013), to name a few. For instance, in Harmsen, Bussmann, Selles, Hurkmans, and Ribbers, (2015) 37 participants in chronic stage after a stroke were instructed to perform an upper-arm reaching task as fast and as fluently as possible. In Colomer, Noe, and Rodríguez, (2016) 31 post-stroke chronic subjects with severely impaired upper limb function were evaluated. In Park, Chang, Kim, and Kim, (2015) a group of chronic stroke patients were tested to perform a comparison based in paretic upper-extremity function and hand coordination abilities. In Vural, Yuzer, Ozcan, Ozbudak, and Ozgirgin, (2016) the participants were 30 patients with first-time stroke and simultaneous complex regional pain syndrome type 1 of the upper extremity at the dystrophic stage. The huge amount of research in this topic is an indicator of the benefits that MT brings for patients needing rehabilitation.

Other uses of MT include the treatment of anxiety disorders, such as anorexia nervosa (Key et al., 2002) or body dysmorphic disorder (Windheim, Veale, & Anson, 2011), and other rarer conditions such as mirror agnosia, mirrored-self misidentification or asomatognosia (Connors & Coltheart, 2011; Fotopoulou et al., 2011; Paysant, Beis, Le Chapelain, & André, 2004). For instance, in Probst, (2015) patients with eating disorders, where the body image is a problem, were evaluated. The relationship between mirror exposure and body satisfaction has been widely studied. According to the literature, it has been proved that mirror exposure increases satisfaction in patients with normal weight eating disorder (Hildebrandt, Loeb, Troupe, & Delinsky, 2012), anorexia nervosa (Key et al., 2002), obese adolescents (Jansen et al., 2008), normal weight and overweight in binge eaters (Hilbert, Tuschen-Caffier, & Vögele, 2002) or in body unsatisfied students (Luethcke, McDaniel, & Becker, 2011). For instance, in Jansen et al., (2016) a study is presented that shows that the exposure to one's body using a mirror increases body satisfaction in body-dissatisfied young women. They proved it in two experiment conditions: focusing on attractive body parts and focusing on unattractive body parts. In both cases, mirror exposure led to increasing body satisfaction.

Another study about MT is the one presented in Deconinck et al., (2015), where a review on the effect of mirror visual feedback (MVF) on the brain is presented. This study concludes that MVF can exert a strong influence on the motor network, mainly through increased cognitive penetration in action control.

As it can be seen from the many examples given above, the use of regular mirrors has been proved beneficial for the treatment of a variety of medical conditions and disorders. It can be added that Mirror Therapy has been used for a long time with little economic impact, as mirrors are inexpensive devices.

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The question now is if new technologies, such as VR and AR could bring additional benefits to Mirror Therapy, while keeping a simple setup and without increasing costs.

USE AND POTENTIAL OF VR AND AR MIRRORS IN MENTAL THERAPY

Whereas the application of MT with regular mirrors for mental health treatment is limited to some particular applications due to the small amount of set-ups that can be considered, the combination of mirrors and Information Technologies (IT) provides the possibility of using MT for mental health treatment in many different ways and applications. Unlike a real mirror, which is constrained to its optical and physical properties, the image in a mirror-like IT-based application can be augmented by means of virtual objects (AR mirrors) or can be substituted by a virtual depiction (VR mirrors). Therefore, the possibilities are almost unlimited.

VR and AR Interaction Paradigms and the Mirror Metaphor

The concept of VR was born around 1930. Already in 1929, E. Link created the Link Trainer, which is considered the first flight simulator, being completely electromechanical. During the same years, the science fiction writer S. G. Weinbaum writes a story (Pygmalion's Spectacles) that contains the idea of a pair of goggles that makes users experience a synthetic world through holograms, smell, taste and touch. He further describes uncanny experiences for those wearing the goggles, aligned with the modern concept of VR. Some years later, M. Heilig developed the Sensorama (patented in 1962), which resembled a kind of arcade-style theatre cabinet. That technology allowed a user seeing stereoscopic films enhanced with seat motion, vibration, stereo sound, wind, and aromas, which were triggered during the films (Heilig, 1962). Since then, many works have arisen that use VR as platforms that support a variety of fields, such as learning and training (Gavish et al., 2015; Gimeno, Fernández, Morillo, Coma, & Pérez, 2007; Pan, Cheok, Yang, Zhu, & Shi, 2006), entertainment (Díaz, Boj, & Portalés, 2016; Vargas González, Kapalo, Koh, & LaViola, 2017), driving and flight simulation (Casas, Coma, Portalés, & Fernández, 2016; Cox et al., 2010; Tudor, Carey, & Dubey, 2015), digital cultural heritage (Gaitatzes, Christopoulos, & Roussou, 2001; Portalés, Alonso-Monasterio, & Viñals, 2017; Richards-Rissetto et al., 2014), and scientific or medical visualizations (Cruz-Neira et al., 1993; Chirico et al., 2016; Moro, Stromberga, & Stirling, 2017), to name just a few.

Overall, VR can be defined as the technology by which one or several individuals experience the sensation of belonging to an alternative reality, which is not the one they are actually living in (outside the VR world). This alternative reality is generated by a computer or by a network of computers and it is important that the participants of this simulated experience accept this virtual synthetic world as a suitable deception of the real world. In this sense, it can be argued that VR is all about perception. For this reason, VR applications need to incorporate visual, aural, gravito-inertial, haptic, tactile, or even olfactive and gustatory perceptual cues (Anthes, García-Hernández, Wiedemann, & Kranzlmüller, 2016) in order to induce a feeling of immersion in the virtual world. However, as a complete recreation of the real world is usually impossible, it is often acceptable that the feeling of immersion and the perception of belonging to this new virtual world be only partial. Some of the characteristics of VR that makes it valuable as a medical tool are (Casas Yrurzum, 2014; Perpiñá, Botella, & Baños, 2003):

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- The recreated VR experience is a 'safe environment', since none of the issues can harm patients.
- The fact that, within VR, 'protected' contexts are generated, makes it more feasible to persuade the patient to take the step and enter into action.
- Within VR, it is possible to graduate the situation, progressing from simple to complex settings.
- As events can be synthetically recreated, it is not necessary to wait for those events to take place in the real world.

On the other hand, AR is a technology by which a view of the real world (or even the world itself) is augmented using synthetic images that are superimposed or projected over this image of the real world. However, AR systems need to provide some other features to be considered as true AR applications. The definition currently accepted is that AR systems are those that simultaneously (Azuma, 1997): i) combine virtual and real objects; ii) are completely interactive in real time and iii) are registered in 3D. The interaction and 3D registration are essential features of an AR application since they allow a seamless blending of virtual and augmented objects. AR applications should provide virtual objects that fit in the real world regardless of the position from which the user observes them. AR is a fairly popular technology because it provides a number of advantages that other technologies cannot offer (Bimber & Raskar, 2005):

- *The ability to enhance/augment reality*. By using this technology, physical entities can be enhanced with additional elements, such as images, sounds, virtual models, etc. that are not present in the real scene.
- *Seamless interaction between virtual and real objects*. Interfaces are said to have seams (Ishii, Kobayashi, & Arita, 1994) if there is a functional, temporal, spatial or cognitive element that forces the user to change the way in which he/she interacts with the interface. When using properly designed AR applications, interaction is performed in a natural seamless way, since users can visualize and interact with virtual elements as if they belong to the real environment.
- *It supports a tangible interface*. In AR applications, there is a very intimate relationship between virtual objects and the physical world. Physical objects can be augmented through virtual elements, allowing the overlap of these elements dynamically. These objects can be accessible to all users (public use) or may be individualized for each user (private use), so that particular interactions can be defined for different users. Similarly, physical objects can be used to manipulate virtual elements in an intuitive manner.
- *The presence of spatial cues for face-to-face and remote collaboration*. Augmented Reality allows that the elements generated *in silico* (by a computer) be spatially distributed according to the physical environment.

Perhaps because of these benefits and the increasing capabilities of computers, AR is being widely used in a variety of scenarios such as medical treatment and rehabilitation (Casas, Herrera, Coma, & Fernández, 2012; Tang, Kwoh, Teo, Sing, & Ling, 1998), learning and training (Dunleavy & Dede, 2014; Wu, Lee, Chang, & Liang, 2013), engineering and construction (Boyer, 2009; Gimeno, Morillo, Casas, & Fernández, 2011), entertainment (Díaz et al., 2016), culture heritage (Galatis, Gavalas, Kasapakis, Pantziou, & Zaroliagis, 2016; Gimeno, Portalés, Coma, Fernández, & Martínez, 2017), etc.

The use of mirror metaphors in VR and AR systems leads to VR Mirrors (VRM) and AR Mirrors (ARM). A VRM can be defined as a VR application that displays a virtual depiction of the user's own

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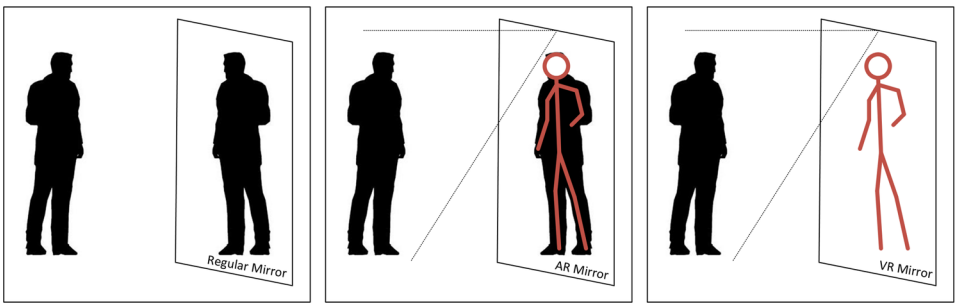
image on a display device as if that device was a mirror. The virtual depiction can be based on previous photographs of the user or it can be an avatar acting as the person being "reflected" on the VRM, for instance. The fact that the virtual world replicates and communicates with the real world is something that makes VRMs be slightly different from most of the rest of VR applications, where the goal is to extract the user from the real world and teleport them to a different virtual world where there is no communication whatsoever with the real world. VRM are not typically built with actual mirrors, but with computer-based immersive displays that render a mirror-like image of the user.

Augmented Reality Mirrors (ARM) are AR applications in which a real mirror-like real-time image of the user is augmented by means of virtual objects registered in 3D and properly blended with the image of the real environment (Giner Martínez & Portalés Ricart, 2005; Portalés, Gimeno, Casas, Olanda, & Martínez, 2016). The image of the user can be captured by means of a video camera (video-based ARM, e.g. (Giner Martínez & Portalés Ricart, 2005)) or can be produced by a real mirror on which virtual objects are projected (optical-based ARM, e.g. (Alhamid, Eid, & El Saddik, 2012)). Video-based ARMs are more commonly used than optical-based ARMs, because optical setups usually require the use of semi-transparent mirror displays (to create virtual objects with a rear projection) where the blending of virtual and real objects could be difficult, whereas the setup of a video-based ARM typically requires a simple camera and occlusion problems are easier to handle. Education, entertainment and retail are the areas of application where ARMs are more frequently used, although medical therapy has also been explored.

In Figure 1, the mirror metaphors in VR and AR are depicted, in comparison to regular mirrors. As it can be seen, while in an ARM the user sees its own image merged with virtual objects, in a VRM the visual reference to the real environment disappears. Therefore, strictly speaking, face-to-face interaction of users is only possible with the ARM metaphor, although a VRM can eventually simulate that effect. Some works use different terms to refer to VRM or ARM, such as *magic mirror* (Bork et al., 2017; Kim, Lee, & Kim, 2004), *magic face* (Javornik, Rogers, Gander, & Moutinho, 2017), *mixed-reality (MR) mirror* (Sato, Kitahara, & Ohta, 2009) or *real-time mirror* (Gonzalez-Franco, Perez-Marcos, Spanlang, & Slater, 2010). The terms *virtual mirror* or *immersive mirror* are also sometimes used for either VRM or ARM, creating some additional confusion. For this reason, it is important to clarify and define these terms.

Figure 1. The mirror metaphors in VR and AR: regular mirror, AR mirror and VR mirror



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VR and AR Mirrors in Medical and Mental Therapy

Medicine has been traditionally, and still is, one prominent application area of VR and AR. As computers have gradually invaded our societies with smarter and more computationally efficient devices, the application of IT solutions to medical procedures has become increasingly common. Examples of IT applications in medicine include computer vision and imaging (Doi, 2007), robotics (Taylor & Stoianovici, 2003), database and information systems (Müller, Michoux, Bandon, & Geissbuhler, 2004), and also VR (Krijn, Emmelkamp, Olafsson, & Biemond, 2004; Malloy & Milling, 2010; Rose, Brooks, & Rizzo, 2005) and AR (Chicchi Giglioli, Pallavicini, Pedroli, Serino, & Riva, 2015; Kilgus et al., 2015; Thomas, 2016), to name a few. On the other hand, VRMs and ARMs are typically used in applications for cosmetics, clothing and optical retail, since they provide a way for customers to see how products would look like if they wore them. These *virtual try-on* applications have become very popular for entertainment, commercial or even cultural applications (Javornik et al., 2017), but can be used also for medical purposes. For instance, AR has been used in the field of plastic surgery to depict the results before the intervention of the patient (Ilusio, 2016). This application can be considered as an ARM, since the potential patient is able to see how a particular breast augmentation surgery would result, simply looking at an augmented mirror. Nevertheless, the use of ARMs and VRMs can be extended to other medical areas of application, such as medical treatment for mental disorders, where only a few cases have been reported by the research community up to date, such as Perpiñá et al., (2003), where the VRM paradigm is employed to treat eating disorders (anorexia nervosa and bulimia nervosa) or Mölbert et al., (2018) where a VR mirror scenario is used to analyze desired body weights in patients with anorexia nervosa. Although enhanced mirrors (not only VRMs but also ARMs) could provide a very important role for treating eating disorders, in which the mirror image is usually problematic for patients, there is a clear lack of research in the use of mirrors with IT technologies for these applications.

Since the first X-Ray images were taken back in 1896, a great deal of effort was driven to create devices that allowed physicians to see inside the human body. After Computer Tomography was invented in the 1970s, and MRI became available in the 1980s (Sielhorst, Feuerstein, & Navab, 2008), research for innovative medical imaging procedures focused on the development of VR and AR tools that allowed physicians to obtain more information about the patient's body. In this regard, VR technology can be relevant to reconstruct the human body for educational and training purposes. On the other hand, other research focused on the X-Ray paradigm to obtain see-through images of the body in real time, without having to perform surgical incisions (or making small ones) in the patient's body. In this sense, AR is especially important in microsurgery where minimum invasive techniques are required (being spine and brain surgery the main reference in microsurgery). The smaller the incision the less the surgeon is able to actually see. Thus, the use of AR is fully justified in order to enhance the view of the surgeon. Examples of these ideas can be seen in Birkfellner et al., (2002); Fuchs et al., (1998); Marescaux, Rubino, Arenas, Mutter, and Soler, (2004). A short review can be looked up in Shuhaiber, (2004).

Regarding to VR in the medical sector, many works can be found. For instance, in Connelly et al., (2010) a pneumatic glove was developed for hand rehabilitative training after stroke, that can be used to train grasp-and-release movements either with real objects or with virtual objects. In Hoffman et al., (2011) VR was used as a non-pharmacologic analgesic for some medical procedures (VR used as distraction). In Rizzo, Hartholt, Grimani, Leeds, and Liewer, (2014) a flexible VR system was created that offers significantly enhanced prolonged exposure treatment possibilities to be used as therapy in post-traumatic stress disorders. In Gromala, Tong, Choo, Karamnejad, and Shaw, (2015) a system was

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developed that includes biofeedback sensors and a virtual environment, which can be used as a form of meditation in order to reduce stress. However, very few examples can be found that use the VRM metaphor in the medical sector, and usually they are not referred as such and/or cannot be considered as pure VRMs, but the described setup indicates that they use some kind of mirror metaphor. For instance, in Johnsen et al., (2005) a projector-based life-sized system was developed that allows medical students to experience the interaction between a patient and a medical doctor – though the student is not represented by an avatar, the setup is similar to a VRM and there is tracking of the student's head and hand movements. On the other hand, in Sucar et al., (2014) a VR-based platform for upper limb rehabilitation was presented. This work uses the rehabilitation exercises as actions within computer games – in this case, only the upper limb is represented in the VRM. Similarly, in Lozano et al., (2005) a VRM is employed for mental practice in post-stroke rehabilitation, where the mirror is also representing the arm and hand which are being rehabilitated, whereas Roosink et al., (2015) uses a virtual mirror to help in physical rehabilitation tasks. A different set-up is the one presented in Liao et al., (2015) where a Wii Fit device is used to improve obstacle-crossing performance and dynamic balance in patients with Parkinson's disease. This setup cannot be considered as a pure VRM, although it somehow acts like a mirror since the Wii Fit tracks the motion of the patient's center of mass, and this motion is then mirrored and shown with a virtual avatar.

Another interesting work is the research presented in Waltemate, Gall, Roth, Botsch, and Latoschik, (2018) where a VRM is utilized to study emotional responses and body ownership with respect to different avatars representing the body of several persons. Although this application is not currently used for the treatment of any particular mental health condition, it could be used in patients with visual agnosia, or for the study of the psychological and psychophysical factors in therapies relying on embodied virtual interfaces. VRMs can also be utilized to analyze or identify racial biases (Groom, Bailenson, & Nass, 2009). It is interesting that racial biases extend beyond digital spaces and these findings could be used to address racial identity problems and racial prejudices with VR applications.

Similarly to VR, there is a variety of AR applications in the medical sector, some built for the treatment of disorders such as phobias (Botella, Bretón-López, Quero, Baños, & García-Palacios, 2010; C. M. Botella et al., 2005; Juan et al., 2005) or cognitive problems (Richard, Billaudeau, Richard, & Gaudin, 2007). AR is being used also for the treatment of PLP, as in Carrino et al., (2014), for cerebral palsy rehabilitation (Correa, Ficheman, do Nascimento, & De Deus Lopes, 2009) or for the treatment of motor impairment (Alamri, Jongeun, & El Saddik, 2010). In summary, the capability of adding virtual objects to the real life environment seems to be a very useful tool for the treatment of a big variety of day-to-day difficulties related to the mind.

Immersive VR (IVR) applications represent another area where VR can be successfully applied in medicine, like in Mathur, (2015); and Won et al., (2017). IVR has many uses in the medical sector, and can be used as a pain distractor (burn wound cleaning, cancer, dental work, etc.) or as an educational tool for children (Bailey & Bailenson, 2018), to name a few. However, the powerful nature of IVR experiences may also pose some risks and should be utilized with caution in children (Won et al., 2017).

IVR can be used as well for the treatment of different specific mental conditions and disorders. For instance, IVR with a Head-Mounted-Display (HMD) has been repeatedly used for the treatment of PLP (Ambron, Miller, Kuchenbecker, Buxbaum, & Coslett, 2018; Bach et al., 2010; Henriksen et al., 2016; Murray et al., 2007; Rodriguez, Aruanno, Bordegoni, Rossini, & Molteni, 2017; Zanfir, Georgescu, Turturica, Eczedi, & Mironiuc, 2017). Although further studies are necessary, it seems that IVR can be effective in the treatment of PLP for some patients (Murray et al., 2009) or at least encourages patient's

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motivation leading to a potential analgesic effect (Osumi et al., 2017). A deeper study of the effectiveness of these approaches can be found in Herrador Colmenero et al., (2017).

These systems can be considered partial VRM applications, because they are based on the Mirror Therapy. Although the view of the patient is not a third-person view and therefore they do not see a complete mirror image of themselves, the VR application tracks the motion of the healthy limb and (virtually) mirrors these movements to the other limb, creating a mirror effect that enhances the traditional mirror-box therapy used for the treatment of PLP.

Eating disorders can also benefit from immersive VR mirrors (IVRM), such as the experiments described in Riva, Bacchetta, Baruffi, and Molinari, (2001) where virtual mirrors were utilized in patients with bulimia and anorexia nervosa.

There are also immersive ARM applications for the treatment of PLP, like Ortiz-Catalan, Sander, Kristoffersen, Håkansson, and Brånemark, (2014), where a video input is used to track a fiducial marker placed on the amputated arm and several electrodes provide myoelectric signals corresponding to some common movements. This particular application can be used for bilateral amputees since it does not mirror the other limb. However, it can display a mirror image of the patient and, therefore, it can be considered as a true ARM application.

Although some ARM works can be found in other related medical fields, such as anatomy education (Blum, Kleeberger, Bichlmeier, & Navab, 2012; Bork et al., 2017; Kugelmann et al., 2018), it is harder to find ARM systems for medical therapy use, such as Mouraux et al., (2017), where an augmented mirror is used to treat neuropathic pain. There are also some related works, such as Bach et al., (2010); Desmond, O'Neill, Paor, McDarby, & MacLachlan, (2006); Regenbrecht, Franz, McGregor, Dixon, and Hoermann, (2011); and Trojan et al., (2014), although they are partial ARM systems based on adaptations of the Mirror Therapy. They make use of the mirror paradigm but in a first-person fashion instead of allowing the users to see a complete reflected image of themselves. Also, the VirHab system introduced by Feintuch, Tuchner, Lorber-Haddad, Meiner, and Shiri, (2009), targeted at treating pain and impairment of upper extremities, is based on video processing rather than providing a 3D registration of virtual and real objects. An example in which a true ARM is used for medical therapy is the work presented in Lozano-Quilis et al., (2014); and Lozano-Quilis et al., (2013), where a Kinect-based ARM is used in patients with multiple sclerosis. This is one of the very few examples of the use of enhanced mirrors with neurodegenerative diseases, an area where enhanced mirrors are still not commonly used.

One of the most interesting contributions in which the use of both VRM and ARM technologies is combined for mental health therapy can be found in the Pictogram Room (Casas et al., 2012; Herrera, Jordan, & Gimeno, 2006; Orange, 2012). This system was designed to aid children with ASD to advance in basic aspects of the communication (such as joint attention), to improve knowledge about their corporal scheme and to achieve imitation skills. These critical skills can be addressed in an entertaining way, so that children with ASD can learn while playing (see Figure 2). In order to build the mirror methapor in both VR and AR, a back projection screen is present in front of users. The movement of the users is tracked with a Kinect (for both VRM and ARM setups), as well as the image of the real environment (only for the ARM setup). The Pictogram Room is nowadays installed in multiple schools and centres, being a successful case study. In fact, autism disorders are one of the few areas where enhanced mirrors (either VRM or ARM) have been repeatedly proposed for mental health. Several research works can be found in this regard (Bai, 2012; Bai, Blackwell, & Coulouris, 2013; Bhatt, De Leon, & Al-Jumaily, 2014; Chen, Lee, & Lin, 2015). These systems exploit the advantages that augmented or virtual objects can offer to autistic people, which have difficulties with imagination, communication, imitation and self-body

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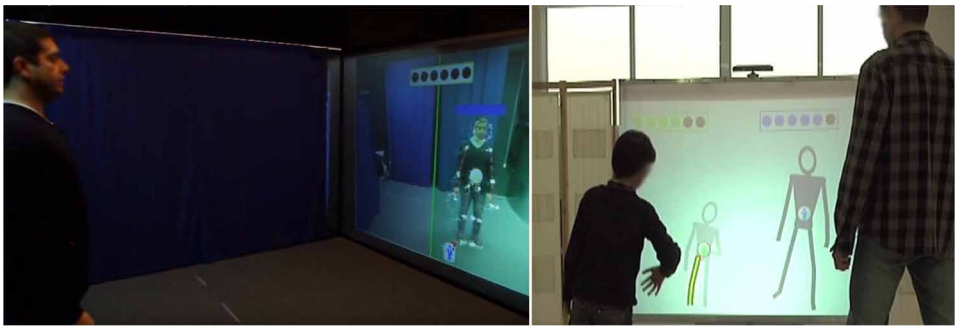
recognition. Even the Diminished Reality (DR) paradigm in combination with the mirror metaphor - it could be called Diminished Reality Mirror (DRM) - has been explored (Yantaç, Çorlu, Fjeld, & Kunz, 2015). DR is useful for eliminating, rather than augmenting, elements of the real world that could be distractive for some patients, such as people with autism.

One of the main benefits of the use of VRM/ARM for people with ASD is in the improvement of self-recognition (Escribano, Herrera, Jordan, & Gimeno, 2010) and in the development of their body outline. People with autism and intellectual disabilities tend to show a lack of sense of self-recognition (Ferrari & Matthews, 1983). One of the most used experimental procedures to study the development of self-awareness in young children has been the use of mirrors and the "test of the mark" (Amsterdam, 1972). In this procedure, the child's nose is marked with some kind of mark and using a mirror it is possible to check if the child touches more times his/her own nose than the one in the mirror; in that case it is considered that they have self-recognition. Using VRM and ARM setups it is possible to develop activities to help users acquire these self-identification skills. In addition, with the incorporation of some kind of picture with the body outline in a virtual mirror (controlled and synchronized with the motion of the user in front of it), patients could improve the recognition of his/her body and the understanding and identification of each part of it. Another important aspect where VRMs and ARMs offer significant potential benefits is in the differentiation of oneself with respect to others, in which people with ASD show many difficulties. Using a virtual representation of the patient in the mirror, and integrating elements to facilitate the distinction of each user in the scene, it is possible to develop in the patient the awareness of himself/herself with respect to others. In addition, ARM technologies allow us to easily analyze the salience of the cause-effect reactions of patients with respect to environment changes (such as light intensity, sounds, colors, textures, a blur of the scene, etc.) without having to wait for them to happen.

Figure 2. Dealing with autism with the ARM developed in Casas et al., (2012), where: in the left image the ARM setup is shown; in the right image, the VRM setup is shown.



As seen from the literature review shown above, very few examples exist where the VR and/or AR mirror metaphor is used in mental health therapy. However, successful examples exist, such as the Pictogram Room. In these setups, little has to be invested in hardware technology. Basically, a projector, a screen and a Kinect is enough for both setups. However, building AR and VR experiences is not always trivial, and usually an IT expert is required to deal with modelling, building the virtual environment and implementing the interaction. This fact might be the main reason that makes the use of VRM and ARM in mental therapy more complex than the use of regular mirrors. Therefore, the question is whether the

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benefits that VR and AR technologies might bring for the medical sector do compensate for the bigger efforts needed to build them.

CONCLUSION AND FUTURE DIRECTIONS

In this chapter, the topic of VR and AR mirrors is studied as an emerging but little explored solution to deal with mental health treatment. As it has been shown through the paper, there is an extensive literature related to the use of regular mirrors in medicine, though when referred to VR and AR mirrors the examples are just a few. From these examples, the Pictogram Room stands out as an application where both mirror metaphors are used (VRM and ARM) to successfully aid children with ASD. In fact, autism-related disorders are one of the few mental-health-related areas in which enhanced mirrors have been repeatedly proposed. Phantom limb pain has been also repeatedly treated with immersive VRM applications; although these latter applications are not complete mirrors but partial interactive mirrors, these systems represent the continuation of the Mirror Therapy through the use of IT technology.

As the VRM and ARM metaphors can bring enhanced experiences to regular mirrors, the authors argue that the combination of mirrors or mirror-like perspectives with the use of the VR and AR paradigms can bring a completely new set of applications and therapies, and can enhance and improve the traditional uses of medical therapy. However, because of the very few examples found in the literature, the authors believe that the potential of VRM and ARM systems for medical therapy is not being fully exploited, probably because not all the medical therapies require a mirror image, and simpler VR or AR systems are sufficient in most cases where IT solutions are employed, or maybe because the shortcomings of current technology prevent to achieve better results. Regarding to costs, the hardware technology needed to build VRMs or ARMs is not cumbersome. However, the need of an IT expert to build the experiences can increase costs. In this sense, one has to value the potential benefits that AR and VR might bring compared to regular mirrors, and decide if it is worth investing on that.

Besides, ARM and VRM can radically change the way mirrors are used in medical therapy, extending their use to other medical problems where Mirror Therapy is still not commonly used, such as phobias, eating disorders, or even neurodegenerative diseases. For instance, an ARM application could be used to depict an entire image of oneself but with other virtual elements that cause phobias, such as insects or animals – this purpose has been explored in AR, but not with the use of a mirror metaphor. In this case, an application could be built where the doctor could choose between different virtual elements (spiders, snakes, rats, etc.), select the number of elements (one, tens, hundreds, etc.), select the kind of followed path (around the user, on its head, on its hands, etc.), select the time, the speed, etc.

Another potential use would be to treat eating disorders. In this sense, the image of the patient could be easily distorted (enlarged, widen, etc.), only processing the video feed of a camera. In this way, an application could be built where doctors could choose the degree of distortion, and interactively modify it according to the patient's feedback. In this particular case, the IT application is extremely simple and it would be as having hundreds of regular mirrors embedded in a single application, so the cost/benefit ratio would be optimal compared to regular mirrors. More sophisticated applications with ARMs or VRMs (such as in Perpiñá et al., (2003) could be also built. A possible set-up could include an avatar with the face of the patient, which could gain or lose weight. In this case, the doctor could choose to show the avatar with a specific weight (50 Kg, 100 Kg, etc.).

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Another possible use for mental therapy would be to reinforce the personality of patients by providing an enhanced image of themselves. The influence that a change of the perceived oneself image might bring in oneself behavior in AR experiences has been reported through artistic pieces (Giner Martínez & Portalés Ricart, 2005; Portalés Ricart, 2009), but not yet in the medical sector. For instance, with VR and/or AR technology one can be a superhero, a famous actor, a composer, etc. Even, a change in gender (for the treatment of gender dysphoria) and/or race (for racial identity disorders) can be explored. In the case of the VRM paradigm, a complete avatar would replace the user's body, whereas in an ARM the patients' body would be complimented with virtual elements that transform them in a new person. Therefore, imagine an application were the doctor could choose between different persons to infer in the way patients perceive themselves and thus modify certain aspects of their behavior.

On the other hand, it has to be pointed out that an additional reason on why these systems are not fully exploited might be that the medical community is not fully aware of the last advances in AR and VR, the benefits that they might bring, and the possibility to build a mirror metaphor within them. Therefore, it is in the aim of this chapter to serve as a catalyzer to boost new applications in this field.

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KEY TERMS AND DEFINITIONS

Augmented Reality Mirror: An Augmented Reality application that follows the mirror metaphor, allowing users to see an image of themselves enhanced with virtual information.

Face-To-Face Interaction: Regarding to ARMs, to have direct visual contact with the own depicted face on the mirror-like surface.

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Image Blending: Mixing two images. The output image is a combination of the corresponding pixel values of the input images.

Regular Mirror: A surface that reflects light. Regular mirrors have been traditionally used in medical therapy.

Seamless Interaction: Interaction free of functional, temporal, spatial or cognitive elements that force users to change the way in which they interact with the interface.

Uncanny: something that is so remarkable that it is beyond what is natural.

Virtual Reality Mirror: A Virtual Reality application that follows the mirror metaphor, allowing users to see an avatar of themselves.

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Chapter 44
Workforce Development and E-Competency in Mental Health Services

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ABSTRACT

Online chat and email are two of the most popular ways of providing e-mental health. Online chat is synchronous communication in a virtual chat room where client and counselor meet at the same time. In contrast, email is referred to as asynchronous because it can be accessed without the synchronous presence of client and counselor. There has been a rapid increase in the demand for chat and email over recent years and much of the demand has been met by services that have traditionally provided helplines or crisis support. This chapter provides an overview of the key issues associated with the delivery of e-mental health services and workforce development. This includes an examination of the range of options for providing e-mental health and key issues to consider when working online. The chapter concludes with a brief exploration of issues associated with client suitability for e-mental health via chat and email.

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INTRODUCTION

E-mental health (or e-therapy) involves the provision of mental health services via computer mediated communication. E-mental health via chat and email provides many benefits to clients, as well as to the mental health worker. For the client, they provide easy access to expertise without the need to travel or attend appointments. There are no technical barriers in that no special software is required to send or receive messages. These options are increasingly popular with clients because of the increased flexibility they provide. Services around the world are reporting increased numbers of clients accessing help by chat or email. Although online counseling has been available for more than 10 years for a range of mental health conditions, including depression, anxiety, and addictive behaviors, there is limited information to guide mental health services in the development and delivery of chat and email.

The aim of this chapter is to provide an overview of the key issues associated with the delivery of e-mental health services and workforce development. This includes an examination of the range of options for providing e-mental health from single session work through to follow-up and after care, as well as identification of the potential pathways into online services. The chapter then describes key issues to consider when working online, including a discussion on how to develop good working relationships in the absence of verbal and non-verbal cues. The chapter concludes with a brief exploration of issues associated with client suitability for e-mental health via chat and email.

Background

E-mental health can be accessed anonymously to ask about a mental health concern that a person might find embarrassing. It appears especially attractive where there are barriers to help-seeking due to associated stigma. It can be an effective treatment approach in its own right or can be used to build confidence in help-seeking and counseling or therapy. Indeed, e-mental health can provide a means for the client to become familiar with the service or service system, and can provide an easy place to start before moving to telephone or face-to-face options if needed or wanted (Car & Sheikh, 2004). For the novice or new help-seeker, e-mental health is less confronting than face-to-face or phone counseling, in that it allows the person to control how quickly they engage with the content (i.e., how quickly they write) and how much information is made known to the clinician (i.e., the client can delete content that they have written prior to sending the text information) (King et al., 2006). Moreover, there is a great deal of research indicating that writing has a therapeutic effect (Pennebaker, 1997). E-mental health allows clients to re-read their sessions as well as reflect on responses by the clinician. Having access to a hard copy transcript of the session may also prevent memory bias or forgetting (Gilat & Shahar, 2007).

Email, which is the most common of all online activities generally, is an integral part of our daily lives. Email is asynchronous in that it can be used to communicate with individuals or groups regardless of where they are located, or the time of day. Email has been a part of our lives for the last 15 to 20 years since internet service providers first began allocating email addresses as a component of service connection. Every day, billions of emails are sent and received around the world. Most of us send and receive emails for professional and personal reasons.

In addition to professional and personal communication, email is used for consulting and counseling and to provide support to clients of mental health services. As the most frequently used electronic modality in mental health (Chester & Glass, 2006), it can be used to provide administrative information, such as appointment reminders, as well as initial screening or assessment, information on services, and

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referral through to low-intensity interventions. Compared with other regularly used technologies, such as text messaging for appointment reminders, email is used to provide a broader range of interventions. A systematic review of 24 studies involving email communications in primary healthcare settings found that medical and medication information was the most common topic discussed, followed by updates on medical conditions to patients (Ye, Rust, Fry-Johnson, & Strothers, 2010).

In the mental health field, chat and email have been used to provide low-intensity interventions including counseling, information and support, as well as a whole host of other novel programs. In addition to delivery of treatment, chat and email can be provided as an adjunct to telephone or face-to-face treatment. Chat and email can also be an easy way to provide post-care follow-up. Research into this area has to date focused on the following.

- Personalised feedback on self-assessments (Te Poel, Bolman, Reubsaet, & de Vries, 2009).
- Single session question and answers (Nieuwboer, Fukkink, & Hermanns, 2014).
- Prompt to access resources as part of a prevention program (Cremers et al., 2014).
- Delivery of psycho-education and self-help messages (Morgan, Jorm, & Mackinnon, 2012).
- Tailored one-way information (Abroms, Gill, Windsor, & Simons-Morton, 2009).
- Unstructured support or advice (Finn & Barak, 2010).
- Single session consultations (Nieuwboer et al., 2014).
- Guidance for self-directed programs (Cuijpers, Donker, van Straten, Li, & Andersson, 2010).
- Relapse prevention, such as providing support at critical times (e.g., quit date) (Lenert, Muñoz, Perez, & Bansod, 2004).

Synchronous chat (also called text chat, instant messaging or IM) is available through multiple platforms such as Facebook and Skype. Chat more closely replicates the traditional face-to-face environment than email, as it involves a back and forward conversation between at least two people at the same time and in the same virtual space. Chat based counseling has been offered since the 1990s, and is often delivered as a stand-alone intervention similar to helpline interventions (Urbis, Keys, & Young, 2003). Similar to helpline interventions, chat can be provided anonymously and as a single-session intervention or multiple sessions by appointment. A recent systematic review of chat based interventions found that chat was effective in reducing client-reported distress and perceived burden, as well as improving well-being and global functioning for a range of issues, including depression, work place issues, and anxiety (Dowling & Rickwood, 2013).

How Online Services Are Provided

There are two ways generally in which clients access an email or chat program. These are through the "contact us" tab or via a specific entry point for email or chat, such as a "sign up here" or "send an email here" tab. The "contact us" tab usually requires the provision of an email address, name, and issue or concern that may or may not be selected from a drop down list. This method of access is delivered to administrative or reception personnel and the email is then forwarded to a clinician. In contrast, when signing up for email or chat via an organized program, clients are usually presented with a series of terms and conditions which must be agreed to before accessing counseling or support (Urbis et al., 2003).

Terms and conditions specific to electronic communication may include client use of email, such as not forwarding communication to another party or using materials derived from the session in a way that

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was not intended. The benefit of this approach is that screening and/or assessment can be built into the registration, and the registration details can be presented at the start of the session to the mental health worker. In addition, terms and conditions can guide client expectations in regards to the duration of the program, frequency of the exchange, and responsiveness of the clinician (i.e., when a response can be expected) (Roy & Gillett, 2008). Clients should be advised whether they will be allocated a clinician (which is common with email exchange) or whether they can access any available clinician. Where the client is allocated a clinician, contingency planning should be in place when the clinician is on leave or out of the office (Cartwright, Gibbon, McDermott, & Bor, 2005).

An issue to be considered in service provision is speed of clinician response. Services that are synchronous may be offered with or without an appointment but this can mean wait times of up to an hour. It also means that people can get help when they really need it (i.e., in the evening when they are thinking about the problem). In contrast, email can be responded to at any time of the day or night, and response times are usually within 24 hours (Urbis et al., 2003). These response times depend on the organizational capacity to respond, which is dependent on the amount of funding (and staff) available. Given the nature of working with people with mental health conditions, there is a risk that emails may contain indicators or harm to self or others. This means the content of emails should be monitored, even if they are not responded to until a later time or date.

Help-seeking email content received through administrative pathways is not unusual. Receiving a clinical contact via administration, however, means that the client has not undertaken screening or agreed to the organization's terms and conditions of service use. Even when clients have disclosed important information, it is a good idea to gently help them complete the registration pathway.

E-COMPETENCY

Developing competency in an online environment requires the same communication skills as face-to-face or telephone counseling, but there are at least five differences that need to be considered. These include:

1. Developing therapeutic alliance in an online space.
2. The use of language, abbreviations, and emoticons.
3. Client and clinician multi-tasking.
4. The use of email templates, especially for the first response.
5. Integrating screening and self-help into chat and email.

Practice Element 1: Developing a Therapeutic Relationship Online

Empathy, warmth trust, liking, and congruence play a pivotal role in the development of a therapeutic relationship (Lambert & Barley, 2001). In online environments, being warm and empathic are arguably more challenging because counselors and clients cannot see each other smile, hear emotion in each other's voices or send or receive positive non-verbal cues. Perhaps surprisingly, recent research suggests that not only can the helping relationship be developed when interacting online, but that it can be developed in such a way that it is rated similarly to face-to-face settings (Sucala et al., 2012). This is important because the therapeutic relationship has been shown to predict client outcomes (Lambert & Barley, 2001), and

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feelings of warmth and liking towards a clinician are reasons that people recommend online services to others (Rodda, Lubman, Dowling, Bough, & Jackson, 2013).

There are both disadvantages and advantages of online environments in the development of a therapeutic relationship. Clients (and clinicians) can forget to attend a session because they physically do not have to go to an office. The absence of travel can make e-mental health accessible to people who are in rural or remote areas, are time poor, do not wish to travel, or lack requisite transport to access services. While travel becomes less of an issue, some clients may find that the need to type to express and convey emotions can be difficult especially in times of distress. However, the lack of physical presence can mean greater spontaneity and less self-censorship (King et al., 2006). This is different to other settings, in that the client can delete or add to their disclosure before pressing "send" and more easily control exactly what is disclosed. Clients can also read and review their sessions and consider the interaction and advice provided within online sessions at a later date.

For the clinician, the characteristics of the online environment can make the development of a positive helping relationship challenging. Online sessions start with fewer pleasantries and clients tend to develop a sense of trust and rapport earlier on in the session (i.e., right from the start) (Urbis et al., 2003). This process, which is the opposite to the normal order of counseling, is possibly due to the client being in a familiar environment (e.g., their home), or at a time that they are ready to talk (e.g., emails can be written at any time of the day or night). Furthermore, clients engage and disclose serious issues more quickly online.

This disinhibition effect, which is characterised by reduced self-censorship, likely occurs because of the lack of physical presence between client and counselor, and the feeling of being anonymous (Suler, 2004). This effect places clients in a position of greater power in that they have more control over the message and flow of information (Bambling, King, Reid, & Wegner, 2008). They also have more control over the time spent in the session and the amount of reflection in which they engage. In email or chat based counseling, clients can discontinue by clicking on the close screen button, which makes terminating a session much easier than physically walking out of a face-to-face counseling session. Sometimes sessions end prematurely because it has proceeded slower or faster than the client is comfortable. This situation can mean clinicians feel frustrated, guilty, disappointed or annoyed. The content of sessions should be reviewed in supervision and include review of the events leading up to the end of the session.

When working with chat, clinicians are likely to be speaking to a younger cohort, and people who might not otherwise engage in a clinical intervention. This can be challenging, especially when the client types quickly. Line by line communication is the way people, particularly young people, deliver their thoughts in this environment. This provides an opportunity for the clinician to allow the client to take control and contribute the greatest amount of content and gives the clinician space to think about their responses. Clients writing one line at a time may appear that they are pausing for a response, but it can be difficult for the clinician to identify when the client has stopped talking. The clinician really needs to listen to identify the best time to contribute (e.g., when there is a natural pause). Being able to scroll back and review the interaction is also a good tool for the clinician as this can provide useful content for reflecting back to the client.

In the online environment, the challenge for the clinician is to provide a sense of social presence (or telepresence). Social presence is the moment-by moment awareness of the other person (Tu & McIsaac, 2002). In face-to-face or video settings, the sense of social presence is strongest because the person is physically present. In telephone or online communication, however, the social presence is more difficult to establish. Being engaged and present to the other person requires a different set of skills than face-

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to-face settings. One of the most common criticisms of clinicians working online is the sense that they emulate a computer, by using drop-down pre-prepared responses, speaking to multiple clients at once, or generally not paying attention (Bambling et al., 2008).

Social presence can be enhanced by adapting writing style, punctuation, emotional expression, tempo, and flow. Practical options for creating social presence suggested for counselors during online communication are outlined below.

- Use simple language, and avoid misunderstandings by explaining things simply.
- Stay engaged in the session. This means avoiding long periods of silence. If reflecting or considering your response, use trailer dots to indicate pause or thinking, or say that you are thinking and need a moment. Long periods of silence are often viewed by clients as disengagement and may lead to them ending the session abruptly.
- Write frequently and often to indicate encouragement and engagement.
- Move at the same pace as the client and avoid rushing forward to give advice or provide solutions to problems that have not been fully articulated.
- Overtly express emotions. This can be through the use of capitals (I feel HAPPY for you), punctuation (you showed such strength!!!!) or emoticons (☺).
- Swearing is generally not permitted according to the terms and conditions of most services and should be avoided.
- Be ready to jump into the session and be where the client is from the start. Research suggests online clients are ready to take action but need help in developing their skills and confidence (Rodda, Lubman, Iyer, Gao, & Dowling, 2015).
- Describe your own thoughts, emotions, or physicality [big smile on my face]. Alternatively, use emotional bracketing, which involves placing feelings in square brackets to convey concern or warmth [feeling happy for you] (Murphy & Mitchell, 1998).
- Ask directly about distress or other emotions the client might be experiencing. Readiness rulers can aid this process. For example, "On a scale of 1 to 10, 1 being not distressed at all and 10 being very distressed, where would you be right now?"
- Ask questions that move the client forward and are relevant to their current readiness. For example, asking about the past when the client has asked for help developing strategies for change may not be helpful.
- Change pace to make a point through the use of shorter sentences or reflections. Avoid getting into a question and answer session.

To manage space, it can be tempting to ask multiple questions at once. While this information gathering technique is perhaps efficient, it interrupts the flow of the conversation and means that the clinician then has to provide reflections or feedback to multiple responses received concurrently. Clients respond best to one question at a time (Bambling et al., 2008). Indeed, one study found that young people found it frustrating when the session became out of sync due to the clinician asking a follow-up question before waiting for a response to the first question (Haberstroh, Duffey, Evans, Gee, & Trepal, 2007). This imposes another challenge in terms of giving the client the space to reflect while also retaining social presence.

Client non-responsiveness can occur during a chat session and may be a consequence of technology problems, interruptions, or client distress. It is helpful to have a policy on how long to wait for the client and also appropriate wording to let them know that you are still there. Non-responsiveness can also occur

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in email communication. This could be due to a whole range of issues related to client attrition that are relevant to any kind of intervention, such as sufficient treatment having been received, the client being focused on other priorities, or the treatment moving too fast. It might be, however, that the email has been delivered to a spam mailbox or has been missed. In any case, contacting the client to offer support and providing details of how to re-engage when they are ready or willing to continue is recommended.

Practice Element 2: Language, Abbreviation and Emoticons

Working in an online environment requires the clinician to be aware of language rules specific to text-based interactions. Online communication is guided by an explicit list of rules (sometimes referred to as net etiquette). These rules are related to language characterised by abbreviations, phonetic spelling, and low use of rules related to grammar. Mobile phone text messaging and social media sites such as Twitter that impose character limits (<120 characters) mean abbreviations and acronyms have developed for common phrases (e.g., HTH means hope this or that helps). These have been applied for faster communication in terms of typing speed, while also using as few words as possible to communicate the message.

Text speak can be a challenge for the clinician in terms of the language of their response. Client sentences may be brief and may not follow traditional conversation rules. For example, traditional conversations involve turn taking, where one person says something and the other responds. This goes back and forward until the theme is extinguished and another is started. In e-mental health, clients will often type a statement and present it to the clinician in the chat window (usually by pushing the enter key). This statement will be quickly followed by another statement without waiting for a response from the clinician. This can be challenging for the clinician to know when to respond, and it can be difficult to get into the flow of the conversation. An option is to allow the client to take the lead by letting them use the space therapeutically by writing out their concerns. The role of the clinician in this situation is to ask very good questions that help clients solve their own problems. This is congruent with counseling approaches such as Egan's Skilled Helper Model (Egan, 2009), which place clients as the experts on their own problems.

In face-to-face settings, non-verbal posturing, such as facial expressions and body movements, are associated with rapport (Trout & Rosenfeld, 1980). In online settings, spelling and abbreviations are part of the non-verbal vernacular. Facial expressions can be expressed as emoticons (e.g., faces created from colons and parentheses ☺). The text-based facial expressions are as important when communicating online to reflect, mirror, and convey emotion (Derks, Bos, & Von Grumbkow, 2007). Neuroscience research has found that the brain responds in the same way as seeing an actual face when we look at emoticons (Churches, Nicholls, Thiessen, Kohler, & Keage, 2014).

Multiple qualitative studies have reported the use of formal language and even the clinician's speed of typing can impact on feelings or warmth and connection between the client and clinician (Gibson & Cartwright, 2014; King et al., 2006). A study of text messages sent and received from the New Zealand agency Youthline reported young people preferred texting over talking because it was more private ("Cn I jus txt cos I don wanna b heard"), and because it was an easier way to communicate when distressed ("I cnt talk wen I cry") (Haxell, 2015). How the clinician responds is influenced by their service provider's clinical guidelines and their own personal style and preferences. For example, a typical Youthline response was "Hi there, sounds like things r bit rough 4 u right now. Since there r thngs ur wanting 2 get clearer about, u culd call us free @0800Youthline NZ to tlk" (Haxell, 2015). This response mirrors the client's language in terms of abbreviation, spelling, and punctuation.

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Practice Element 3: Client and Clinician Multi-Tasking

Chat based environments are susceptible to multi-tasking. This is because chat based sessions do not generally occur in the clinician's office, but can occur in any place where there is internet access (e.g., on a bus, at work or in private spaces such as at home or in bed). Research suggests young people are heavy multi-taskers in the same medium (swapping between windows and programs), as well as switching between media (like watching television while using a computer or mobile device) (Prensky, 2001). This means that during an e-mental health session, the client might be watching television, browsing other websites, going to the toilet or getting a drink, on the phone, texting, or consuming alcohol, drugs, or engaged in gambling activity.

There are two ways clinicians can determine if the client is multi-tasking. The first is to ask directly (e.g., "Is there something else happening for you at the moment?"). This, however, could negatively impact on the client's sense of comfort as they always engage in multiple activities when they are online. The second is to notice change in session speed or tempo. Multi-tasking becomes apparent in the session when the pace or speed of the client's responses change (Bambling et al., 2008). There might be long gaps or a period of inactivity that is punctuated by multiple responses or questions directed back to the clinician as a means of filling the space. Clinicians may not notice the change in tempo (or their own change in tempo) when they multi-task. Some online services, especially those offering services provided by volunteers, require clinicians to respond to multiple clients at the same time. Clinicians also consult with colleagues, surf the net, or multi-task themselves while in an online session. In addition, the move towards open plan environments means clinicians are often not in a closed room but in a similar shared space as the client.

Research suggests that when attention is split between multiple activities, the cognitive load increases. Multi-tasking while using a computer can therefore be related to reduced efficiency and increased distractedness (Ophir, Nass, & Wagner, 2009). This means that when counseling in this environment, it may be helpful to reaffirm conversations by providing attachments or handouts following the session, or encouraging clients to print or save their transcripts. Another option is to set up expectations prior to the session by providing videos or information on how to get the most out of an online session. This should include being physically located in a safe quiet space.

Practice Element 4: Email Template for the First Response

Email provides mental health workers with multiple benefits in terms of session preparation and responsiveness. Clinicians can also benefit by having additional time to construct responses and consult with peers or supervisors. In addition, there is time to locate other resources and information before responding. However, some clinicians are wary of having a written record of their therapeutic exchange. This is because each email correspondence is a permanent record of the conversation that could be examined outside of the context in which the conversation occurred (e.g., subpoenaed by a court or examined by a third party).

Email provides the option to increase or decrease client contact as required. The client can access more care when needed (e.g., when at risk for relapse), and easily step down from more intensive treatment (e.g., face-to-face therapy). In general, email counseling is shorter-term than face-to-face counseling, with around five sessions provided per client (Chester & Glass, 2006). There is very limited research in

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this area, but some studies suggest that around 20% of sessions are provided as a single email (session), and around 20% as more than 10 emails (Finn & Barak, 2010).

The asynchronous nature of email means that materials can be prepared prior to the session. A way to do this is through the use of structured templates. Templates can be developed and then tailored for the individual (Abroms et al., 2009), and other resources can be appended to the communication (e.g., referral or homework sheets). Templates are more efficient than starting a response with a blank page every time a new client presents. They can be prepared in advance and this can mean a faster response time. Templates can also be developed in response to common presenting issues (e.g., crisis response, counseling, or information).

Structured emails developed from a template require around 15 minutes for the clinician to prepare, but can range up to 60 minutes depending on the amount of personalization (Abroms et al., 2009). This is a significant time saving for the clinician. A review of services using unstructured emails suggests the average email takes around 20 minutes to compose, with around 10% of emails taking more than 30 minutes to write. A risk of structured emails is that they may appear less personal. This can be overcome through tailoring which means adapting content to reflect individual needs and their use of language (e.g., formal or informal).

Structured emails are especially helpful for the first client response. There are a number of important components of the initial email including what, how often, how long, and what no response means. An ideal way to structure emails is with a beginning, middle, and end.

Beginning of the email.

- The beginning of the email should identify yourself by name, your organization, and your role. It should then explicitly congratulate and reinforce help seeking and normalize the approach indicating that reaching out can be both challenging but exciting.
- To reduce the chance of misunderstanding, it is helpful to restate the client's words from their initial email. In the absence of minimal encouragers (e.g., nodding and utterances that encourage continued disclosure), this can also indicate that you are listening and have heard what has been said.

Middle of the email.

- The middle part of the email should integrate the results of any screening into the response. This could be feedback on the level of severity of the problem, readiness to change, or treatment goals. This really depends on the types of screening tools offered during the registration process.
- At this time, it is tempting to ask a lot of questions. Usually the first email from the client will be brief and this leaves the clinician with many more questions than there are answers. It is helpful to focus on the data that is available (i.e., screening) and the content of the client's email.
- A strengths based approach can be used in terms of highlighting the client's identified strengths rather than weaknesses. For example, responding to the first email with a request for information on how the problem developed may move the client backwards rather than forwards.
- A benefit of templates is that key questions which are important can be decided both at an agency and individual level in advance. Given that there is so little room for questions, it is important to only ask those that you think are important to respond to and move your client forward.

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End of the email.

- At the end of the email, it is helpful to offer hope and reflect that the majority of people do improve after they access your service. It is helpful to revisit the terms and conditions and check on suitability and treatment preferences. For example, clinicians can say "there are many ways to get help and I am wondering if email is your preferred option?".
- It is then helpful to provide an overview of the service and set up expectations. This might include the length of the program (often six weeks), how many emails might be exchanged each week (perhaps 1-2), and how often the client might send emails to the clinician (usually this is as often as required, but they would only be responded to once or twice a week).
- There are a whole range of other online resources, tools, and materials that can support email counseling. It is helpful to point the client in the direction of relevant resources that might include self-help materials or peer support groups. The agency might also have additional reading or resources that can also be appended to the email. When appending to the email, the clinician should introduce the resource in the email and explain why it is relevant.
- Lastly, invite further contact and provide a warm sign off. Remember that using this modality means the client cannot see the clinician smiling or gesturing warmth, so it is important to convey this both in the email and at the email conclusion.

A challenge when communicating via email as a clinician is word length. Years ago, when we received an email it was often composed like a letter and this was appreciated as we did not receive emails very frequently. Today, emails are shorter and people are sensitive to their length. This is mostly due to the number of emails people receive a day which is estimated to be upwards of 120 or more (Jenkin, 2014). Generally, the absolute maximum words per email should be around 250, which is about a page of text. A good rule of thumb is that an email should be not more than 2-3 times the length of the client's initial email. This process of mirroring can help to avoid placing the client in a position where they feel overwhelmed and less powerful in the therapeutic exchange.

Practice Element 5: Integrating Screening and Self-Help

A chat counseling session is often around an hour in duration, but the amount of content that is shared is much less than in phone or face-to-face settings. Only around half the total words expressed verbally are shared in an online session, because typing is slower than talking and significantly reduces the amount of content that can be covered. Research indicates clients spend a great deal of time telling their story, and given the constraints of the medium, this seems to be at the expense of a range of other online options that could be incorporated into the session (Rodda et al., 2015). Options that are known to improve outcomes such as online screening (or self-assessment) and self-directed options such as self-help could be offered before, during, or after an episode of care (Rodda, Lubman, Cheetham, Dowling, & Jackson, 2015).

Most services conduct screening or assessment as part of intake into their service. Screening provides a consistent method of collecting information about how much the identified behavior is a problem. In comparison, assessment defines the nature of the problem, determines a diagnosis, and develops specific treatment recommendations. In online work, screening and assessment may be used for:

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1. Administrative purposes.
2. Background information to inform the session.
3. Assessment of problem and areas to work on.
4. Assessment with tailored feedback that is integrated into the session.

In practice, the different ways screening and assessment are incorporated into online sessions can mean that the client:

- Is asked the same questions that they have previously answered in a screening tool
- Is invited to tell their story without reference to screening information
- Information is reflected, but in such a way as to check whether the information is correct
- Responds to here and now information in the screening tool (such as levels of distress), but this is not responded to even when the client says that they are upset
- Asks what their score means but the clinician is unable to readily interpret the responses
- Information is reflected and integrated into the session (such as linked to goal setting or session planning).

How clinicians respond to screening sets the tone for the session. Firstly, it is important to let the screening tool do the work of gathering information and use the information to provide feedback. Self-assessment has also been shown to elicit change and tailored personal feedback can increase the impact of assessments (Morrison, Moss-Morris, Michie, & Yardley, 2014). To do this, clinicians need to know the purpose of screening, be aware of the cut-off scores for interpretation, and be able to provide feedback on where the person is compared to others of a similar demographic. This information should be pre-prepared and ready for the session. There is no need to check the correctness of client responses as the relative anonymity can actually elicit more honest answers than may be reported in other settings.

The clinician should then work with the information that has been provided. It is helpful to recognize that the client has started the intervention before you meet in the virtual chat room. They have already thought about the responses to the assessment items and this may have increased their awareness of their situation. It is therefore important to integrate this information into the session. The example below demonstrates how screening can be reflected and used to reaffirm readiness and importance to change. This example demonstrates how to identify past strengths and capabilities and then sought to provide focus for the session.

You say it's a high priority to change & very important to you, and you are moderately confident that you can deal with it. Since you've done so well in the past staying off it for years you clearly have the strength & capacity to do it again. I'm wondering what prompted this last relapse…

The above example also used abbreviations and punctuation to render the response briefer, avoided questions, demonstrated positive regard, and shared an internal process. In addition to screening at the start of the session, clinicians might also consider checking in at the end of the session. The example below demonstrates how this can be integrated into the initial response.

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I can hear that you are feeling pretty stressed about it all and have read that you are not feeling confident about addressing it, perhaps we can talk some more tonight about what has been happening and see how you feel at the end of our chat - how does that sound?

Online screening need not only include formal or forced choice questionnaires and screening instruments. Given that writing can be therapeutic and clients want to tell their story, an option may be to assist clients to tell their story more efficiently. For example, templates could be developed that prompt a history taking narrative. This could be offered to the client while waiting for the session to commence. The clinician could then provide feedback and guidance on the text. This approach would significantly reduce the amount of time spent on history taking in the session. This is important because wait times, data gathering, and reduced session content are the main sources of client dissatisfaction with this modality (King et al., 2006).

In addition to screening, self-directed options can be integrated into chat and email. Self-directed options include online tools and resources that the client can undertake before, during, or after the session. Self-directed programs (also called internet therapy) are available for almost every mental health condition. These programs offer self-paced access to motivational or cognitive-behavioral treatment over around six sessions. Other options include smart phone applications (that can support self-monitoring or goal setting) and community forums (that can offer peer-to-peer support). A list of suitable options can be appended to emails or chat sessions for clients to follow-up. However, client outcomes might be improved if the clinician works to integrate these options into the session.

Integrating self-directed options into the email or chat session requires some planning. First, as a source of information, the clinician should be familiar with self-directed options. They should know the range of options available, how they work (in terms of content and technology), and whether there is research indicating they are effective (Baguley et al., 2010). It is helpful to know whether there are any costs associated with access and the amount of disclosure required of the client (some programs may require disclosure of personal details such as name or address). Associated with this is the likelihood of shame or embarrassment (i.e., community forums involve other people and this could be challenging for new clients). Indeed, comfort in contributing in an online forum may be improved if moderated well and this can provide an important source of support and understanding. The clinician should also provide guidance and instruction in the use of self-directed materials. Guidelines for the use of self-directed materials suggest strategies such as planning and allocating a time each day for the activity can improve outcomes (Williams, 2006). Throughout the use of self-directed options, it is helpful to support and encourage change through regular review of the client's progress. Review may include supporting the client's self-efficacy and motivation to continue as well as re-administration of assessment tools to monitor progress.

ISSUES, CONTROVERSIES, PROBLEMS

Client Suitability

There has been a great deal of discussion and debate over the years on client suitability for seeking help online. The debate has been influenced by guidelines written for the International Society for Mental Health Online (Suler, 2001). This paper identified three key issues related to suitability - technical ex-

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pertise, treatment preferences, and text-based skills. Technical expertise refers to whether the client has access to the internet in a private or convenient setting. It also refers to the client's experience of talking online, especially in the selected modality (i.e., "have they tried chat previously if wanting to use chat?").

A frequent concern when working online is the interplay between client anonymity and client safety. E-mental health is attractive to at least some clients because they can access it without disclosing any personal information. A dilemma faced here is when working with clients evidencing risk of harm to self or others is whether to request contact details other than an email address (Pollock, 2006). Some advocate contact details such as phone number, address, or next of kin contact details. Alternatively, the initial assessment could be conducted by telephone. These are methods to increase physicality with the client, but this approach arguably detracts from some of the known benefits of this modality. Some clients will not want to provide contact details and being asked to do so could be unwelcome. The limits of anonymity can be outlined in the terms and conditions of service use and links provided to online services that can provide greater anonymity.

All types of treatment can now be delivered online via video conferencing, chat, email, or self-directed modules. It is helpful to determine whether the client prefers in the moment communication (such as chat), or to reflect and edit or think before they speak (such as email). For some people, there could be benefits of using online options even when they are not the preferred modality (such as relapse prevention), and this should also be considered when determining suitability.

Suler (2004) suggests clients may not be suitable for online work if differences in language or culture impede the flow of communication. In New Zealand, chat and email could be viewed as an appealing option for Māori and Pasifika especially given the perceived stigma, shame, and confidentiality issues associated with accessing mental health services. Care should be taken however in ensuring screening tools and other written communication is culturally appropriate and that misunderstandings in wording are minimized. Given the importance of non-verbal communication and visual diagrams to enhance learning, chat and email may need to be delivered with greater flexibility and creativity. For example, clients and counselors could upload videos, photos of drawings, or other images as part of the therapeutic exchange.

Workforce Issues

Almost all of the competencies required for telephone and face-to-face counseling apply online. However, online communication has special challenges in terms of how emotions and thoughts are conveyed and the use of relevant and accessible language becomes even more important in the text-based environment. There is an urgent need to develop and make widely accessible workforce development initiatives and resources for this modality. Translation of practice from a face-to-face environment to online delivery is complex and requires supervision that is informed by the best available evidence. Postgraduate counseling programs need to include e-mental health in curriculums to ensure graduates have the requisite counseling competencies to work in this new environment.

Clinicians should also be informed by guidelines developed by their professional associations. There are multiple guidelines that can guide clinicians in providing ethical e-mental health. E-mental health guidelines are available for members of the American Psychological Association, the American Counselling Association, The Australian Psychological Society, and the British Association of Counselling and Psychotherapy (usually available in the members only area of each site). The main areas covered in these guidelines are related to confidentiality (e.g., sharing of information for supervision or professional purposes), disclosure of personal information (e.g., how far does anonymity extend), as well as

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client use of emails and the security of correspondence (e.g., providing information to clients on how to safeguard and save their correspondence). It is also recommended that information on the limits of e-therapy is provided at the outset and this is discussed as the treatment proceeds.

FUTURE RESEARCH DIRECTIONS

E-mental health has been offered to people for a range of mental health conditions for more than 10 years in New Zealand and around the world. To date however, there has been limited longer-term evaluation and much of the evidence is based on descriptive studies, case studies, or clinical observations. The exponential growth of e-mental health has meant that few services have been evaluated. This is due to the speed of growth in a relatively short time period. This is challenging for treatment providers as well as the mental health field more broadly, as practice is moving faster than the evidence base can be established. Ideally all new e-mental health services are established with funding for longer-term evaluation and this evaluation is embedded in everyday service delivery.

Longer-term evaluation is also required so that evidence-informed workforce development programs and clinical governance frameworks are relevant to online settings. This chapter presents evidence that skills obtained in face-to-face training and delivered in face-to-face settings may not always be sufficient when working online. There is a great need to identify specific online skills and to test whether clinical observations described in the literature are correct. For example, there is currently no longer-term evaluation demonstrating that the development of therapeutic rapport is required when working online. To inform training programs, information is also required on whether processes such as developing social presence, using pre-prepared email templates, and the use of text speak impact on client outcomes. Clinicians also need to feel confident in recommending e-mental health to clients. Knowing what works and for who is a key priority so that clinicians are better informed on client suitability.

CONCLUSION

Chat and email provide unprecedented opportunities for mental health workers to expand their client base and reach people who otherwise would not access help. The aim of this chapter was to provide an overview of the key issues associated with the delivery of e-mental health services and workforce development. Formal and informal pathways into chat and email have been described along with an outline of several considerations for service planners and developers.

For clinicians, e-mental health may pose new challenges in terms of developing therapeutic rapport, and warm and trusting helping relationships. The use of writing style, punctuation, emotional expression, tempo and flow can be adapted to the online environment to overcome the absence of both non-verbal and verbal cues. The physical environment for text-based counseling is completely different to face-to-face, in that the client is usually in their own home or other familiar space. While this can support more open and honest dialogue, there is a risk of multi-tasking and becoming distracted or otherwise occupied during online sessions.

Clinicians can integrate pre-prepared materials to overcome time constraints. By far, the biggest disadvantage for clients is the slowness of the typing medium, but this can be overcome through clever integration and the use of evidence-based tools. This includes screening and assessment tools adapted for

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online environments and self-directed materials. Services can also develop templates for email contact that can be tailored to the client's specific situation. This may be especially helpful for the first contact.

E-mental health is providing services in a way that many people now want and expect, when help is required. Not all people, however, will be suitable for e-mental health. It is therefore important to provide clients with information on a range of treatment options, so they can choose the option that is most suited to their needs.

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KEY TERMS AND DEFINITIONS

Chat Counseling: A text based therapeutic exchange between a clinician and individual or groups that is synchronous. Interactions require the clinician and client to be present in the same virtual room at the same time.

Email Counseling: A text based therapeutic exchange between a clinician and individual or groups that is asynchronous. Interactions do not require clinician and client to be present in the session at the same time.

Email Templates: Structured emails that have been prepared prior to the session that can be tailored for the client.

e-Mental Health: Any therapeutic exchange that occurs via technology including chat, email, video conferencing or text messaging.

Social Presence: The feeling of being in the presence of another person. In text based settings, social presence can be enhanced by adapting writing style, punctuation, emotional expression, tempo and flow.

Text Speak: Social conventions for online communication related to the use of language including sentence length, abbreviations, phonetic spelling and low use of rules related to grammar.

Therapeutic Alliance Online: The development of a positive helping relationship in the absence non-verbal cues.

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Chapter 45
Will Patients Accept Daily SMS as a Communication to Support Adherence to Mental Health Treatment?
Daily SMS: Acceptance, Feasibility, & Satisfaction

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ABSTRACT

The aim of this article was to investigate the acceptability and feasibility of a daily Short Message Service (SMS) communication system to support patients attending weekly psychotherapy. The patients (N = 32) received daily SMS messages for the duration of a group therapy treatment program. Measures relating to engagement, treatment satisfaction, acceptability of the intervention and treatment outcome were administered. The patient satisfaction and acceptability were high, with patients reporting positive attitudes towards the SMS messages, particularly with regards to increased motivation and perceptions of support. Symptom reduction over the course of treatment was consistent with expectations for transdiagnostic group psychotherapy. The current study indicates that SMS is a well-received form of communication that can be used to support engagement in psychotherapy treatment programs. Future research should focus on exploring the range of adjunctive technologies that may be used to support face-to-face therapies.

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1. INTRODUCTION

Psychological interventions are efficacious for the treatment of a range of mental and physical health conditions (e.g., Hoffman, Papas, Chatkoff, & Kerns, 2007; Kahana, Drotar, & Frazier, 2008; Lipsey & Wilson, 1993). However, there remains a high level of unmet need for psychological services, with most individuals in need of mental health services failing to receive treatment (Kazdin, 2017; Clough, B. A., Zarean, M., Ruane, I., Mateo, N. J., Aliyeva, T. A., & Casey, L. M.). Technological adjuncts to psychological interventions may provide greater outreach and increased cost-efficiency of current services (Barnett & Scheetz, 2003; Clough & Casey, 2011b, 2015). Short Messaging Service (SMS) may have an important role to play in enhancing patient adherence to treatment tasks and recommendations. These messages have been helpful in prompting attendance in physical health settings (Guy et al., 2012), however, appointments in these settings are usually infrequent. Mental health appointments are typically associated with greater frequency and different demand and task characteristics. As such, it remains unknown as to whether patients will accept this technology on a frequent basis during psychotherapy. The study examined patients' responses to an adherence related SMS communication delivered on a daily basis during a psychotherapy program.

1.1. Adherence

Patient adherence in psychotherapy refers to the extent to which patients' behaviours align with the advice given by the therapist or healthcare professional (Nose, Barbui, Gray, & Tansella, 2003). Despite the benefits associated with patient adherence to homework tasks, non-adherence is common. Whilst adherence to clinical medications has been estimated at approximately 50%, adherence with behavioural change programs is often even lower (Haynes, McDonald, & Garg, 2002). Poor patient adherence can result in increased costs associated with treatments, poor use of resources, and reduced treatment efficacy (Chen, 1991; Casey, L., & Clough, B., 2016). Use of adjunctive technologies in therapy has considerable potential to improve patient adherence (Clough & Casey, 2011c).

1.2. SMS Interventions

To date, SMS technology has primarily been researched in the periods before and after therapy. Several studies have demonstrated that text messages may be effective in increasing patient readiness to change and facilitating help seeking behaviours among participants not already engaged in treatment programs (Joyce & Weibelzahl, 2011; Mason, Benotsch, Way, Kim, & Snipes, 2014). However, there have been mixed findings with regards to the use of SMS appointment reminders in psychotherapy clinics. Whilst some studies have found positive effects associated with these interventions (Branson, Clemmey, & Mukherjee, 2013; Sims et al., 2012), Clough and Casey (2014) found no beneficial effects associated with the messages and that patient dropout was in fact higher in the SMS condition. Similarly, Delgadillo, Moreea, Murphy, Ali & Swift (2015) found that SMS appointment reminders failed to influence therapy attendance or completion rates.

Text messaging has been used to target patient engagement and adherence following discharge from inpatient programs (e.g., Bauer, Okon, Meermann, & Kordy, 2012). However, the only study that has investigated SMS during treatment is that reported by Laursen (2010). A series of retrospective qualitative interviews with young people engaging in programs for cannabis use, indicated that regular text

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messages were generally well received and that the messages prompted reflection and awareness. This study did not however contain a quantitative analysis of satisfaction or feasibility. The acceptability and feasibility of SMS as an adjunct during a treatment program has yet to be investigated.

Daily use of SMS has not previously been tested within the treatment of adult anxiety and depression. As such, we felt it important to examine the feasibility and acceptability of using this form of communication. Acceptability refers to whether an individual perceives an intervention as being appropriate, fair, and reasonable for a given problem (Elliott, Witt, Galvin, & Peterson, 1984). Feasibility is a broader concept, and concerns whether an intervention can be successfully implemented with consideration to acceptability, intervention outcomes, participant engagement and retention, and practicality of the intervention (Kazak et al., 2005).

In order for SMSs to be successfully implemented as an adjunct to psychotherapy, its use should be associated with high patient acceptability, satisfaction, and feasibility. Consistent with the previous definition of feasibility, the feasibility constructs investigated were patient acceptance of the intervention, treatment effects (an expected reduction in symptoms from pre-to-post intervention time points), patient engagement and retention, and practicality of the intervention. In addition, therapeutic process factors such as group cohesiveness, conflict, and working alliance were also examined. A common therapist concern regarding the use of technology in psychotherapy relates to the potential for such technologies to interfere with therapeutic process (Rees & Stone, 2005; Rochlen, Zack, & Speyer, 2004). As such, the inclusion of process measures was deemed an important component of feasibility testing for the current study. Therefore, the primary aim of the current study was to assess the acceptability of SMS communication as part of a group therapy program. A secondary aim was to examine treatment effects, retention, and overall program satisfaction for the group therapy program that included SMS messages.

2. METHODS

2.1. Participants

Minimum sample size for the study was determined based on an a priori power analysis for the hypothesis with the smallest associated effect size, that is, that symptom reduction would be observed from pre to post treatment. The power analysis was conducted using G*Power version 3.1 (Faul, Erdfelder, Lang, & Buchner, 2007). Minimum sample size was calculated to be 28 patients, based on one tailed testing with an estimated medium effect size of $d = .5$, $\alpha = .05$, and power of .8. An allowance of 10% was made for dropout, giving a final minimum sample size 31 patients.

Patients were recruited through advertising on social media sites and search engines, as well as through community and healthcare referral agencies. Patients were included in the study if they met diagnostic criteria for an anxiety or anxiety related disorder as their primary diagnosis (based on DSM-IV-TR criteria), were aged 18 years or older, and were able to attend face-to-face group therapy sessions. Exclusion criteria included current or previous history of psychosis, mania or hypomania, chronic or significant suicidality, current substance abuse or dependence, or were already engaged in psychological treatment. Thirty-two patients who volunteered to participate in an ongoing project focusing on group treatment for anxiety formed the sample for the current study. One patient was later excluded due to under reported alcohol use that became apparent during the treatment program. The final sample size consisted of 31 patients (12 male, 19 female) with ages ranging from 18-74 years ($M = 39.45$, $SD = 16.60$).

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Patients were assessed for diagnostic inclusion in the study using the adult Anxiety Disorders Interview Schedule (ADIS; DiNardo, Brown, & Barlow, 1994) in accordance with DSM-IV-TR criteria (American Psychiatric Association, 2000). Frequency of primary disorder diagnosis for the group is displayed in Table 1. Mean chronicity of the primary diagnosis was 15.23 years ($SD = 18.43$).

Table 1. Frequency of primary disorder diagnosis

Disorder	SMS Condition ($n = 31$)
Panic Disorder	3
Panic Disorder with Agoraphobia	1
Social Phobia	12
Generalised Anxiety Disorder	9
Obsessive Compulsive Disorder	1
Specific Phobia	2
Post Traumatic Stress Disorder	1
Hypochondriasis	1
Mixed Anxiety/ Depression	1

2.2. Design

The study was a within groups design. Dependent variables included dropout, patient engagement, group cohesion, group conflict, working alliance, self-reported measures of treatment satisfaction, and self-reported and clinician administered scales of anxiety, depression, and related constructs.

2.3. Materials and Measures

2.3.1. ADIS-IV

The ADIS (DiNardo et al., 1994) is a semi-structured interview that was used to identify eligible patients with a current primary diagnosis of an anxiety disorder or anxiety related disorder, as well as provide indications of relevant exclusion criteria such as suicidality, substance use, and mania. The ADIS was also used to provide Clinician Severity Ratings (CSR) of diagnoses, as well as an estimate on the Global Assessment of Functioning (GAF) scale. A CSR of four or greater is generally considered a clinically significant severity level.

2.3.2. Satisfaction

Patient satisfaction with the program was assessed using the Client Satisfaction Questionnaire 8 (CSQ8; Nguyen, Attkisson, & Stegner, 1983). The CSQ8 contains eight items relating to patient satisfaction with treatment services, with higher scores indicating greater satisfaction.

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Patient satisfaction with the homework tasks was assessed on completion of the therapy program. Patients responded to five questions (1 – "Overall, how satisfied were you with the between session tasks?", 2 – "How enjoyable did you find the between session tasks?", 3 – "How easy was it to integrate the between session tasks into your daily activities?", 4 – "To what extent was the between session material presented in an interesting way?", and 5 – "To what extent do you believe the between session activities helped toward your therapeutic progress?") written specifically for the purposes of this study. Participants responded using seven-point rating scales (ranging from 1 to 7) for each question.

Patients also completed an additional five self-report questions relating to the acceptability and feasibility of the SMS intervention. The questions were designed to examine the previously defined key elements of feasibility, including acceptability, relationship to outcomes, engagement, and practicality of the SMS intervention from the patients' perspective. Using seven-point rating scales, participants responded to the questions "How helpful were the mobile phone text messages throughout therapy?" ("Very Unhelpful" to "Very Helpful"), "To what extent did receiving the mobile phone text messages cause interference in your life or bother you?" ("Not at all" to "Very much so"), and "If you didn't have the mobile phone reminders, how much of the between session tasks do you think you would have done?" ("None" to "Much more"). Participants then reported how often they carried their mobile phones with them on a seven-point rating scale from "Never" to "All the time". The final question relating to the SMS communication was an open response invitation to comment on the use of SMS messages in therapy.

2.3.3. Process Measures

Working alliance was measured using the Working Alliance Inventory – Short Form (WAI-S; Hatcher & Gillaspy, 2006), group climate was measured using the Group Climate Questionnaire – Short Form (GCQ-S; MacKenzie, 1983), and group cohesion was measured using the cohesion subscale of the Therapeutic Factors Inventory (TFI-C; Lese & MacNair-Semands, 2000).

2.3.4. Patient Engagement

Patient engagement was assessed by recording the number of sessions patients attended as well through the number of treatment dropouts. Dropout was defined by completion of 5 sessions, which was equivalent to greater than 50% attendance for the program.

2.3.5. Symptom Outcome Measures

Depression and Anxiety were measured using the Depression Anxiety Stress Scales 21 (DASS21; Lovibond & Lovibond, 1995), overall distress was measured using the Outcome Questionnaire-45 (OQ45; Lambert, Harmon, Slade, Whipple, & Hawkins, 2005), positive and negative affect was measured using the Positive and Negative Affect Scales (PANAS; Watson, Clark, & Tellegen, 1988) with the reporting period of "over the last few weeks" used, and functional impairment was measured using the Work and Social Adjustment Scale (Marks, 1986).

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2.4. Treatment Protocol

Treatment was delivered in accordance with a manualised group therapy program ("Facing the Fear") for the transdiagnostic treatment of anxiety and unipolar mood disorders (Clough & Casey, 2011a; 2015). Content for the program was based on the principles of cognitive behavioural treatment for anxiety and depression, with the addition of mindfulness and motivation enhancement modules. Content was delivered over nine therapy sessions, each of two hours in duration. Adherence to the session-by-session protocol for "Facing the Fear" was assessed by regular supervisor observation of sessions. A random 10% sample of session recordings were also coded with the use of a protocol referenced checklist by an independent observer. Average protocol adherence was high, at 85.30%.

2.5. Procedure

Ethical approval for this project was granted by the university Human Research Ethics Committee. Participants completed an initial screening interview by telephone with the first author, which was designed to assess for risk, initial eligibility, and provide information on the program. Patients then completed the ADIS interview, which was used to determine eligibility as well as provide assessment of diagnosis, diagnosis severity, and functioning. Provisionally registered psychologists conducted the ADIS interviews. All interviewers received training in the administration of the ADIS interview. In addition, all interviews were presented by the interviewers in regular supervision meetings, with all diagnoses, ratings, and GAF scores discussed with senior clinicians for consensus.

All self-report symptom questionnaires were completed via a secure online website. Study information was also presented on this website with participants providing consent online. Treatment consisted of nine group therapy sessions, as previously outlined. Sessions were held weekly, with between five and eight participants in each group and two therapists. Therapists were provisionally registered psychologists completing postgraduate clinical training who attended a training workshop on the Facing the Fear program. They received weekly supervision from the second author for the duration of the program. Patients completed the three process measures (WAI-SR, GCQ, TFI-C) at the end of the second attended appointment.

Each patient received a daily text message for the duration of the program. Messages were sent using web-based text messaging software (www.esendex.com.au), with each week's messages scheduled in advance. Text messages were tailored for the patients by the group therapists. Over the course of the week text messages were structured so that participants received one text message praising attendance at the therapy session (e.g. "Hi [insert name]. Congratulations on completing session one. Starting a new treatment can be difficult, but it is a strong decision. We hope you enjoy the program."), two text messages relating to therapy content (e.g. "Hi [insert name]. Remember motivation can change over time. Sometimes it's helpful to reconsider your reasons for change and set goals for how you will achieve this."), three text messages reminding patients of homework tasks and providing tips for completion (e.g. "Hi [insert name]. Remember to try completing a 3 component model form for an emotion that you experience during the week. Try to notice as much detail as possible."), and one text message designed as an appointment reminder for the next session.

Patients were advised that there would be no reply to the messages and were provided with emergency contacts. Scheduling of the text messages was completed by therapists at the end of each weekly session and took approximately five minutes per patient to complete. Timing of the delivery of text messages

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was varied (to prevent habituation), but typically occurred during business hours each day. Although loan phones were available for the study, each patient had their own phone.

On completion of the therapy program patients completed a post treatment ADIS interview as well as the online questionnaire package. Included in this package were the additional questionnaires relating to treatment satisfaction. Patients were provided with two free movie tickets for completing the end of treatment assessments.

3. RESULTS

Data was analysed using SPSS version 21 (IBM Corp, 2013). Data was screened at each step of the analysis in accordance with guidelines by Tabachnik and Fidell (2013). Skew and univariate outliers were found on a small number of variables and transformations were performed as needed. As transformations resulted in no substantive differences in the results, untransformed data is reported for all measures and analyses.

3.1. Acceptability

To address the primary aim of acceptability of the SMS messages, descriptive statistics were obtained for the four questions relating to acceptability of the SMS communication. On the seven point rating scales, participants rated the SMS messages as being helpful throughout therapy ($M = 5.13$, $SD = 1.45$), that they carried their mobile phones with them most of the time throughout the intervention period ($M = 5.96$, $SD = 1.43$), and that they believed they would have completed less homework if they did not receive the messages ($M = 3.21$, $SD = 1.02$). Patients indicated that the SMS messages did not interfere or bother them throughout the day ($M = 1.62$, $SD = 1.06$).

Strong acceptability for the SMS communication was also indicated in the review of responses to the open-ended question regarding satisfaction with the messages. A number of responses indicated that patients found the messages to be supportive, e.g. “They always brought a smile to my face and my heart. It was like a guardian angel watching over me!!!” and “The texts were fantastic. If I was having a bad day, and I received a helpful message it really did make me focus and remember what I should be doing. They were GREAT”. Patients also indicated that the messages were helpful in prompting them to complete homework (“They were a nice way of being reminded to do your homework”) although one patient commented on the timing of the messages predominantly occurring during business hours, “If the messages could be sent a bit later in the day, that would be good. The messages tended to arrive when I was still at work, which meant I was unable to action them”. One patient also commented on interplay between the messages and her difficulties with anxiety, “As I can’t go without checking a message as soon as I receive it (in case something bad has happened to someone) getting a message while driving was quite interfering”. However, comments also indicated that the patients may have perceived the messages as being a part of a strong working alliance, “Even if the phone messages didn’t prompt me to do the exercises, they did provide a friendly connection with [Therapist 1] and [Therapist 2]. The messages appeared as an extension of their friendly personalities during the sessions”. Of the 23 patients that completed the post measures, only one patient (the previously noted response of the messages interacting with her anxiety) response indicated a lack of acceptability for the SMS communication. All other responses indicated positive attitudes towards the use of SMS as a form of adjunctive communication in therapy.

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3.2. Patient Engagement, Outcomes, and Satisfaction

To address the secondary aims of examination of treatment effects, retention, and overall program satisfaction, descriptive and within group analyses were conducted and referenced to previous literature in the field.

3.2.1. Dropout

Using the 50% session attendance rate as a cut off for treatment dropout, five patients (approximately 16%) were identified as treatment dropouts in this study.

3.2.2. Group Process

On the GCQ patients reported being engaged in the group ($M = 3.37$, $SD = .97$), a lack of conflict within the group ($M = .63$, $SD = .50$), but that there was some avoidance experienced within the group ($M = 2.58$, $SD = 1.14$), an unsurprising finding given the nature of the presenting problems. The mean ratings on the GCQ in the current sample were similar to those observed among patients experiencing comorbid disorders engaged in cognitive behavioural group therapy (M engagement = 3.9, M avoidance = 2.3, M conflict = .5; Johnson, Burlingame, Olsen, Davies, & Gleave, 2005). It is possible that the avoidance experienced by the group may also have impacted group cohesiveness. Although mean group cohesiveness on the TFI-C was scored positively by patients ($M = 49.63$, $SD = 8.02$), the mean score was slightly lower than that reported by Lese & MacNair-Semands (2000) in their development of the scale ($M = 54.91$). Patients in the current study also reported strong working alliance in terms of goals ($M = 5.40$, $SD = .99$), tasks ($M = 5.32$, $SD = 1.07$), and bonds ($M = 5.46$, $SD = .92$) on the WAI-S, with mean scores being comparable to that reported in psychometric analyses of the scale (M Task = 5.92, M Goals = 5.80, M Bond = 5.94; Busseri & Tyler, 2003).

3.2.3. Patient Satisfaction

Overall patient satisfaction with the program was found to be high on the CSQ8 ($M = 27.43$, $SD = 3.23$). This score is approximately equivalent to the reported norm of 27.80 for this scale among adults in mental health settings (Atkinson & Greenfield, 2004). Satisfaction was also high on the five original questions relating to satisfaction to the homework tasks, with descriptive statistics displayed in Table 2.

Table 2. Descriptive statistics for homework satisfaction scales

Measure	Mean
Q1 – Homework Satisfaction	4.74 (1.25)
Q2 – Task Enjoyment	3.91 (1.20)
Q3 – Task Integration	4.17 (1.56)
Q4 – Presented Interestingly	4.48 (1.41)
Q5 – Helped with Progress	5.05 (1.15)

Note. $N = 23$, standard deviations are shown in parentheses

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3.2.4. Check of Treatment Effects

Treatment effects were examined to determine whether results were consistent with what would be expected for this treatment approach, as is deemed important for feasibility examination. Treatment efficacy was evaluated using the completer and intent-to- treat (ITT) samples. The ITT sample comprised all participants allocated to treatment with post treatment scores imputed using the Last Observation Carried Forward (LOCF) method. Of the 31 participants originally allocated, 23 completed the post treatment questionnaires and 24 completed the post treatment ADIS interview. Results of the ITT analysis were consistent with the completer analysis. As the ITT analysis was consistent with the completer analysis, and because evaluation of treatment efficacy was not the primary purpose of this paper, only the completer analysis is reported.

Within subjects t tests were conducted to investigate intervention effects from pre to post treatment. Descriptive statistics are displayed in Table 3. Significant improvement was observed for patients from pre- to post- treatment on the depression ($t(22) = 2.240$, $p = .036$, $d = .467$), anxiety ($t(22) = 3.168$, $p = .004$, $d = .660$), and stress ($t(22) = 3.272$, $p = .003$, $d = .682$) subscales of the DASS21. Improvements were also observed on the OQ45 ($t(22) = 4.489$, $p < .001$, $d = .936$), negative affect subscale of the PANAS ($t(22) = 3.488$, $p = .002$, $d = .727$), and the WSAS ($t(22) = 4.080$, $p < .001$, $d = .851$), such that participants experienced a reduction in symptoms and related interference over the course of treatment. No significant effect was found from pre- to post- treatment on the positive affect subscale of the PANAS ($t(22) = 1.029$, $p = .315$, $d = .215$). However, results of the clinician administered measures supported the improvement in symptomology, with a significant effect of time found for the CSR ($t(23) = 4.226$, $p < .001$, $d = .863$), GAF ($t(23) = 4.794$, $p < .001$, $d = .978$), and mean number of disorders present ($t(23) = 4.253$, $p < .001$, $d = .868$).

Table 3. Descriptive statistics for the completer analyses on treatment outcome variables

Measure	Time Point	
	Pre treatment	Post treatment
DASS-D	11.66 (9.58)	7.92 (6.54)
DASS-A	11.92 (7.68)	7.48 (7.46)
DASS-S	19.56 (10.68)	12.78 (8.46)
OQ45	79.00 (22.72)	60.57 (17.75)
PANAS-P	28.83 (6.53)	30.78 (6.68)
PANAS-N	27.48 (8.55)	22.13 (6.93)
WSAS	16.91 (9.13)	12.00 (7.27)
Primary CSR	5.83 (.87)	4.21 (2.34)
GAF	55.71 (4.84)	65.58 (9.90)
Mean number of Diagnoses	2.42 (1.44)	1.29 (.96)

Note. $N = 23$ for self-report questionnaires and $N = 24$ for clinician administered (CSR, GAF, Number of diagnoses) measures. Standard deviations are shown in parentheses.

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4. DISCUSSION AND CONCLUSION

4.1. Discussion

This study examined patient satisfaction and acceptability of a daily SMS communication. Technological adjuncts have the potential to increase adherence and treatment outcomes within psychological interventions. However, research into patient response to this form of communication has been limited.

Analysis of qualitative feedback indicated high acceptability of the adjunctive communication. Patients reported primarily positive attitudes and responses to the SMSs, both with regards to integration in their daily life and fit with their treatment program. Satisfaction with the intervention was also high, with patients reporting they would have completed somewhat less homework if they had not received the messages and that the messages did not bother or interfere in their daily lives. Patients also reported that they carried their mobile phones with them most of the time, highlighting the importance of establishing this additional form of communication. Review of the qualitative feedback also indicated overall high satisfaction with the intervention, with patients perceiving the messages to be motivating, supporting, and an extension of a strong working alliance with their therapists. The cost of the SMS communication was less than $1AUD (<$1USD) per patient per week. Feedback from therapists in the program indicated that the SMS communication was easy to implement and not time intensive.

The SMS communication was successfully integrated as an adjunctive communication without detrimental effects on group process or outcome. Dropout in the current study was also considerably less than that found in other psychotherapy research (e.g., Wierzbicki & Pekarik, 1993), further supporting the efficacy and satisfaction of the program. Inspection of the measures of group process suggests that the messages did not interfere in the functioning of the group, with participants reporting good group cohesion, group climate, and working alliance. Furthermore, treatment gains were observed on self-report and clinician administered measures of symptomology. When compared to a recent meta-analysis of transdiagnostic treatments, the observed effect size for the DASS-D was somewhat smaller than would be expected for transdiagnostic group therapy for depression (Hedge's g = .89; Newby, McKinnon, Kuyken, Gilbody, & Dalgleish, 2015). However, it should be noted that in the current study only 25% of the completer sample (six participants) met criteria for Major Depressive Disorder as an additional diagnosis at pre-treatment, which may have contributed to the small observed effect size from pre to post time points. The effect size observed for the reduction in anxiety symptoms on the DASS-A was consistent with those reported for transdiagnostic group therapy for anxiety (hedge's g = .70; Newby et al., 2015). These results suggest that the inclusion of the SMS adjuncts did not interfere with the efficacy of the group therapy program.

4.3. Limitations and Future Directions

Although the results of the current study are promising, they should be considered within the context of a number of limitations. Firstly, a lack of a control condition inhibits conclusions being made about the effect of the adjunctive reminders in comparison to a no control condition. This specific effect requires examination in future research by means of a multiple arm trial. In addition, the specific link between the effect of the reminders on engagement and adherence behaviours was not examined in this pilot research. A larger study with increased sample size would allow for more in depth examination of these intervention effects and the mechanisms of change.

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The adjunctive reminders used in this study were also based on broad behavioural and motivational principles of change. It is possible that the effect of these reminders will vary person to person, based on presenting problem, individual motivations and personality, and other client characteristics. These factors were not examined in the current study. It may be of interest in future research to examine these influencing variables more closely, to determine the client and situational characteristics in which such an intervention may be recommended.

4.3. Conclusion

It is clear that the SMS communication can be successfully implemented as a technological adjunct in a face-to-face psychological intervention. This investigation is an important first step in understanding the effects of an adjunctive communication for psychotherapy patients, particularly given that SMS communications have produced mixed findings in previous research (e.g., Clough & Casey, 2014; Delgadillo et al., 2015; Sims et al., 2012). The next step in this investigation is therefore to determine whether the SMS communication results in significantly greater patient adherence and treatment effects when compared to a treatment as usual group.

4.4. Practice Implications

Use of technological adjuncts to support adherence in psychological interventions may allow for greater reach and efficiency of limited mental health services. This study has demonstrated that SMS communications may be successfully implemented and accepted in psychological treatments without a negative impact on therapeutic process.

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Chapter 46
An Internet-Based Quantum Biofeedback and Neurotechnology Cybertherapy System for the Support of Transpersonal Psychology

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ABSTRACT

Transpersonal psychology is the study of human nature and proceeds on the assumption that human beings possess potentials that exceed the limits of their ego and integrate the spiritual experience within a broader understanding of the human psyche and consciousness. Altered states of consciousness have been used as psychotherapy in transpersonal psychology for decades. A Cyberpsychotherapy system is proposed to support transpersonal psychotherapy. The system can be used to induce non-ordinary state of consciousness that can be used by transpersonal psychologists as a healing tool to cure his patients with psychological problems such as psychosis at a distance location with the help of Internet technologies. The Cyberpsychotherapy system uses quantum signal generator for the induction of altered states of consciousness based on the God's helmet of Persinger (1983). The Cyberpsychotherapy has integrated an EEG that serves as a biofeedback device in order to assess if the patient has reached the desired level of consciousness and can be used it to adjust the frequencies of the signal generator in order to improve the psychotherapy experience of the patient if necessary. A sample of 10 patients was used to test the Cybertherapy system based on Neurotechnology and quantum biofeedback, data was collected and analyzed. Although the results show that the patients were not able to reach the desired level of consciousness for the psychotherapy, there is statistical significant evidence that the proposed system can help to raise the level of consciousness; this can help with future designs that will eventually assist to reach the desired level for the psychotherapy.

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BACKGROUND

Cybertherapy is an Internet based computer-mediated system used to facilitate psychotherapy (Botella et al. 2009). This includes new applications of technology within psychology and healthcare, which utilize augmented and virtual reality components in order to facilitate psychotherapy (Botella et al. 2009). Although there are many Cybertherapy systems in the literature (Takacs, 2005), none of them addresses transpersonal psychotherapy and are based on quantum biofeedback. Transpersonal psychotherapy that is based on transpersonal psychology, considers that the psyche is multidimensional and there are several "levels of consciousness" and each has different characteristics and is governed by different laws. Transpersonal psychology is the study of human nature and development proceeds on the assumption that human beings possess potentials that exceed the limits of ego developed normally. A main goal of transpersonal theory is to integrate the spiritual experience within a broader understanding of the human psyche and consciousness (Grof, 1988).

The trend to explain consciousness by applying quantum theories has gained popularity in recent years and, although clearly disdained by neuroscientists, more and more researchers direct their steps this way up. Brian D. Josephson (1962) of the University of Cambridge, winner of the 1973 Nobel Prize in Physics for his studies on the quantum effects in superconductors (Josephson effect), proposes a unified field theory, quantum nature, that would explain not only the consciousness and its attributes, but also all the phenomenology observed to date in terms of psychological and mystical experiences.

The human being experiences different altered states of consciousness, that is, consciousness can be altered in different ways. Stanley Kripner (2000) defines altered states of consciousness as mental states that can be subjectively recognized by an individual or by an objective observer than the individual who experiences it as different in mental functions, the normal state of the individual, the alertness and the waking.

Altered states of consciousness have been used as psychotherapy in transpersonal psychology. One of these techniques is known as holotropic breath work that is produced by using hyperventilation making the individual breathing deeply and rapidly for several minutes. Grof (1988), with this technique, causes a crisis that leads to an altered state of consciousness and allows the study the consciousness of the individual from that new state. Stanislav Grof (1988) uses the experiential healing power of this new state of consciousness to cure his patients. Although holotropic breath work induces these altered states of consciousness, biofeedback and neurotechnology offer an alternative way to induce altered state of consciousness for transpersonal therapy that can be easily implemented with the use of quantum computer technology and used in combination with the internet to facilitate online transpersonal therapy (Valverde 2015a).

Quantum biofeedback uses sensors to monitor physiological relaxation indicators, as the temperature of the skin and muscle tension. It expands classical biofeedback by using galvanic skin response (GSR) together with modern computer technology to detect the response of the built-mind-spirit body (sometimes called the super-conscious) to a large array of stress indicators. Quantum Biofeedback is a sophisticated biofeedback technique based on advanced quantum scientific principles that promote a deeper understanding of health and healing. Seeing the body as a complex electrical circuit and the application of the principles of electrical engineering, who are able to analyze and balance the body electric.

Quantum Biofeedback interacts with all cellular matrix of the body, which allows communication with the conscious and unconscious reactions of the body. This is accomplished by establishing electrical communication using 12 electrodes are attached to the head, wrists, and ankles of the patient. A loop and

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cyber handshake between Quantum Biofeedback System and the patient using a calibration procedure is then created. By connecting in this way all 200 billion cells in the human body are included in the the exchange of information. On this basis, it is now possible to identify and prioritize the tensions and toxins that are a major concern and bring them into balance.

Classic Biofeedback is based on electrical measurements taken from the front (frontal cortex). In this information it is presented to the customer who then tries to consciously change their internal reactions to modify electrical results. Quantum Biofeedback uses your link to all body cell matrix interface, not only the conscious aspects, but also with the unconscious. This provides greater gain in the understanding of health, as our conscious perception of the world is limited by design to 17% of the stimulation we receive.

An application of quantum physics (neurotechnology) in the altered states of consciousness was carried out by Persinger (1983). Persinger (1983) was able to induce visions of God and other religious and mystical experiences in the laboratory by using a computer and with what he called the Koran helmet that has also the nickname of the God helmet. He found that the temporal lobes of the brain are the source of the most spiritual experiences and other alternate state of consciousness.

This God helmet is a device to induce altered states of consciousness using weak magnetic signals to direct brain activity that can induce spiritual experiences that helps with transpersonal exploration and transformation of many people that is able to heal because of these transpersonal experiences (Persinger 2000). It is suggested that altered states of consciousness such as sensed presence and out-of-body experience whether they are produced by magnetic, electric or other stimulations or circumstances can be most effectively explained as the changes of the relative contents and/or intensities of the test subjects' neural quantum entanglement with their surroundings including possibly spiritual environments or information (Hu & Wu 2012).

With the aid of quantum biofeedback and neurotechnology, people can discover hidden deep events and conflicts in their subconscious that can lead to healing experiences. The proposed research has the objective of creating a cyberpsychoterapy system that uses quantum biofeedback and neurotechnology to facilitate transpersonal psycho therapy by inducing altered state of consciousness over the internet.

The work has the intention to contribute to the existing literature in the application of quantum biofeedback and neurotechnology to psychology by suggesting a cyberteraphy system for the facilitation of transpersonal psychotherapy.

LITERATURE REVIEW

Quantum Consciousness

The trend to explain quantum consciousness by applying quantum theories has gained popularity in recent years (Valverde 2016), a character that has stood in defence of a theory quantum of consciousness was the physicist Roger Penrose (1994), famous for its friendly Stephen Hawking differences regarding certain cosmological aspects and a world authority with regard to the theories of relativity and quantum. Penrose (1994) attacks and almost ridicules those who argue that the artificial intelligence of computers can reproduce human attributes, including consciousness.

Penrose, based on the mathematical theorem of Gödel and based on subsequent his elaborations, concludes that no system deterministic, that is, which is based on rules and deductions, they can explain the creative powers of the mind and your judgment. This nullifies the claim of physics classic, computer,

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neurobiology, etc., to structure themselves into a complex phenomenon of consciousness. Penrose says that only the peculiar characteristics non-deterministic quantum physics could issue an approximate judgment on consciousness, within a theory that involved quantum phenomena, macro physical and conditions of non locality. At this point perhaps it would be interesting clarify that local conditions are not known in quantum physics those capabilities that either has a quantum system, communication instant between parts, ie, without there being time duration between communication of an event from one point to another system.

Albert Einstein called this peculiarity that occurs in the innermost parts of matter, the universe, "that mysterious action at a distance '. If some concepts explained at the time in the course of "Matter and Energy" understand the model proposed by Penrose relates to the concept of Universe "Nonlocal" to quantum levels, in the sense that everything that happens in a corner any of our cosmos is immediately 'felt', "meaning" for any another.

In his last conference Penrose ventures even indicate that probably It is in microtubules, microscopic tubes that form the skeleton of cells, including neurons, where the complicated interactions occur quantum kind that give their "magic" character, "mysterious" from the point of view of science, consciousness. Hameroff (1994), claims to have found evidence that loss of consciousness by providing anesthesia is due to some inhibition of the flow and movement of electrons within the microtubules. Hameroff argues that certain cellular elements such fluctuations occur quantum-relativistic that "somehow" do emerge consciousness. The major objection to this theory by neuroscientists is that all animals, including elementary, have microtubules in the cells which it seems to imply that they all possess consciousness. Hamenoff argues that such statement would be indefensible, but it is inevitable the observation of "some degree of apparent intelligence" in all animal species. There is still another favorable group to this explanatory theory of consciousness, which is headed by Dr. Ian N. Marshall (Marshall and Zohar 1997) who through empirical testing system claims to have the key to the issue. Marshall and Zohar (1997) showed that conscious thought emerges from quantum effects. Indeed, it has been found that the ability of subjects to carry out work simple while they are connected to an electroencephalogram (EEG).In general, we can say that the Achilles tendon of this group of theories lies in the extreme conditions in which the quantum interactions are observable, for example, the effect of local not manifested in conditions close to absolute zero temperature is absolutely clear that they are not exactly those of our brains. However, supporters of quantum school, as expected, they find answers to these problems and many other objections, in which are indistinguishable from the other schools that obviously do the same to defend their ideas.

Neurotechnologies

Interest in neutechnological devices has grown strongly since the release of 1986's classic text of Michael Hutchison "Megabrain" (1986). Besides neurotechnological machines, the industry has developed a range of related devices including peripherals-tapes, subliminal tapes, hypno-peripheral processing, sound meditation devices and altered state induction software programs for personal computers, etc. It seems like neurotechnology combined with contemporary psychology may seem to be revolutionary but its roots are much older as humanity has made many attempts in the past to involve consciousness with technology. The flashing LEDs in a light and sound machine can be traced back to the old practice of starting a fire in order to induce trance. Sound recordings of brain entrainment undoubtedly have their roots in the ritual singing and shamanic use of wind instruments.

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This current era of neurotechnology was born from the experiments made in biofeedback that resulted in the work of some researchers of consciousness as Masters & Houston (1966) that created the AVE (an abbreviation of Audio Visual Environment) that is one of the first electronic brain entrainment devices. The AVE was the first device to use visual and auditory stimuli as a means of altering consciousness. Not much different that many of audiovisual devices of today, the AVE consisted of a wrap-around screen and headphones to bomb the sense in these two stimuli.

These signals generated by AVE devices and detectable by electroencephalogram (EEG) tests at specific frequency ranges; seem to vary from one state of consciousness to another for their users. The products of neurotechnology appear to make possible to "tune" the brain to these different alternating frequencies, and in turn achieve new psychological states. When you "tune" into these frequencies at a slower pace, our thought processes and central nervous system are altered, causing the brain to fall into a deep level of activity. In addition, when one is tuned to a frequency faster and a higher range, the wave activity can have a highly stimulating effect on the brain.

Altered states of consciousness have been used as a therapy for modern psychological paradigms as transpersonal psychology (Valverde, 2015). Although there are several techniques such as holotropic breathing used to induce these altered states of consciousness, terotechnology offers an easier to control alternative to the transpersonal therapies.

The area called Neuro includes all types of technology that any it contributes to the advancement of knowledge related to the brain. Despite that neurotechnology is relatively old, its most significant advances occurred in the last 30 years. The 90s were even proclaimed by the US government American as the "Decade of the Brain". Much of the responsibility for this development exacerbated is due to the advent and popularization of brain imaging techniques, including MRI, CT, PET (Positron Emission Tomography), among others. With technological advances, some of these techniques at first provided only structural information from the brain but now it allows us to study the brain dynamics.

Experimentation and published research on the altering of brain activity has been going on for decades. A vast amount of applicable data has been collected by researchers and scientists concerning the manipulation and influencing of brain waves and states of consciousness. One effect discovered by German scientists in the 1930's is called the Ganzfield effect (Hyman 1985). It is an effect in which the eyes are exposed to a totally uniform visual field, with no edges, color changes, or movement. This effect can be achieved by looking up at the sky on a clear, cloudless day or with very specially constructed illuminated glasses. It affects the circuitry in the brain, which normally is constantly scanning the visual field for edges and movement. The eye responds primarily to changes, and with visual sensations shut off and the brain finding absolutely nothing, the subject cannot tell if his eyes are open or closed. This is an example of an altered state of consciousness resulting from the shift in brain waves to the theta state.

The effects of flickering light stimulation have been known for centuries. Ancient shamans used flickering lights to achieve a trance state, a key component in the development of the spiritual practices of a wide variety of ancient cultures. In the literature of the common era, Ptolemy noted around 200 A.D. that the flickering of sunlight seen through the spokes of a spinning wheel could cause patterns and colors to appear to the observer, producing a feeling of light headedness and euphoria. The onset of modern times, (1940's and 50's) brought the research of neuroscientist W. Gray Walter (Walter and Walter 1949). Walter used a strobe light to create flickering light stimulation, noting that the brain wave pattern of the cortex—just the area associated with vision—was changed. Ever since the adrenaline rush brought about by dancing around the tribal fire, the intent of scientists, researchers, and ancient religious practitioners has been to create relaxation and altered states by affecting the vibrational frequency of

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the brain waves. The use of technology is a modern day attempt to create desired changes in the brain's functioning, bringing about states of well-being and health.

Robert Monroe, one of the most prominent people in neurotechnology in particular in the field of sound with neurological efficiency, devised the method HEMI-SYNC: (Synchronization of the cerebral hemispheres by means of sounds). Like a glass resonates when a pure tone is emitted, the brain resonates when receives certain frequencies of waves, being synchronized with these, (similar to the previous with the flashes of light) effect is known as FFR Frequency Following Response (Response a frequency tracking).

Machines created based on FFR began to be popular, the typical machine based on the principle of Monroe using stereo headphones that are used are separately sent sound to each ear signals, for example 2 signs of 300 and 304 Hz. In one ear will be heard only 300 Hz signal and the other only 304, but since the sounds are combined in the brain, this will hear a third signal of 4 Hz which is the difference between the two sound impulses.

This third sign is not an audible sound, but an electrical signal that can only be created by the cerebral hemispheres acting in unison, and may go unnoticed, producing as a result, the two hemispheres are focused simultaneously on the same state of consciousness, increasing and brain power.

The Monroe Institute was created based on the principles of Monroe. This institute was founded by Robert A. Monroe, who began studying the effects of sound on accelerated learning in the 50's.The work is the result of thousands of hours of laboratory sessions.

Participants listen volunteer's specific combinations and sequences of sound patterns and simultaneously are reporting their experiences; while electronic instruments measure the effects on the activity of their brain waves.

W. Grey Walter (1964) conducting experiments in which strobe devices used to send rhythmic flashes of light in the eyes, watched amazed that the flickering light could alter the activity of the entire cerebral cortex, rather than exclusively associated areas with vision. The subjective experiences of those who received the flashes were even more curious reported seeing "lights like comets, ultra fantastic colors, color mental". Moreover, Walter discovered that certain visual stimuli of a certain frequency could cause the brain to respond quickly adjusted to the same frequency of the stimulus it received.

In 1982 a psychiatrist Denis Gorges created a machine called brain wave synchronized energized, patented and sold by his company, Synchro-Tech Inc which applies the latest technology in the first device designed optical-acoustic stimulation. This is able to promote as its inventor claimed, "an increase in the capabilities and functions of the human mind" unleashed a wave of unprecedented research and experimentation, catalyzed by M. Hutchinson (1986) through his famous book Megabrain that is being developed in and outside universities around the world.

Studies on this type of equipment is underway in North American universities, in areas including education and training, substance abuse, gerontology, pharmacology and physiology as well as pain reduction. In Europe, at the University of Vienna, it has created a special subject for further study of these devices. The neurological investigations in the last 15 years have shown that our cerebral hemispheres work independently. Each hemisphere collects the same information that its sensors (eyes, ears, taste, touch, smell) and processed differently. Our scheme of thought is influenced by the predominance of left hemisphere, logical and analytical thinking. Right hemisphere, creative thinking, visualization, and which carries out a holistic synthesis.

On the back of the brain is where the intuitive thought (Subconscious). Obviously use one of the two hemispheres or either of the Brain regions severely limits our abilities. The optimal functioning of our

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brain, is given by the synchronization of the two hemispheres: By left-right and front-back alternating stimulation occurs almost simultaneously, an issue of brain wave amplitude and frequency identical. It is that how you might think with our whole brain.

Neurotechnology are typically used for process brainwave entrainment to tune brainwaves any range brainwave. With these machines, you may experience theta waves, alpha, delta or including combinations of ranges using frequencies layered that mix several ranges brainwave in a brainwave pattern synergistic as pattern brainwave.

Hemi-Sync is a patented process sound pulses to create the same electric waves in frequency and amplitude simultaneously in both hemispheres of the brain for specific purposes.

Our brains have a hemisphere left and right. The left brain is linear, logical, practical, and time -oriented. The right hemisphere seems to be much more nonlinear, abstract, creative, holistic, and not logic. We tend to use one hemisphere at a time, or better said, will favor hemispheres particular in terms of what we're doing. An accountant probably uses less of his right hemisphere that an artist would during the course of their workday.

If the person is doing math, the staff would be using more of your left hand. If the person is going to paint a picture, the person would have the activity hemispheric more right. Both hemispheres are constantly interacting and both can be in use simultaneously. By merging both hemispheres, a person is allowed to work together and with this the person can increase his or her ability mental and improve his or her performance cognitive in general. Basically it's like having a computer processor faster able to work at faster speeds. The greater integration creates better performance.

The mind machines that help the brain synchronizes naturally to balance hemispheric activity and adjusts the activity of brain waves to match the carrier frequencies embedded brainwaves. This hemispheric coherence induced audio produces an optimal state of comprehensive synergy of the entire brain.

These hemispheres are connected by the corpus callosum. It serves as a conduit or a bridge between both sides. This bridge literally be exercised and strengthened until it is physically larger and more capable of transmitting data, ideas and feedback between the hemispheres.

The advance occurs when you use this principle to synchronize our brain wave frequencies chosen with the help of specific mental machines. We can do this easily by using technology binaural beat audio and ringtones monophonic. This phenomenon is called trailing phenomenon.

The scientific principle of drag can be used to resonate, or synchronize your brain to tune specific frequencies. The drive is quite simple. If you have two tuning forks of the same pitch, if you strike one and hold it near the other, which both resonate at the same frequency. Given this fact and the fact that our brains function as a resonating chamber. Oscillating pulses and patterns of neural excitation ripple through our brains like endless waves on a pond of subtle dynamic electric field.

The creation process frequency binaural beat - brainwave entrainment is very simple to explain. First, you create two audio tones two frequencies slightly different (ie 100 Hz and 107 Hz). When playing a tone in the ear left and the other tone in his right ear, the brain reacts to the stimulus audio by resonance brain activity to the difference between these two tones. His brain waves adjust to match this frequency differential.

For example, if you play a frequency of 100 Hz in the ear and left 107 Hz in the right ear, your brain tune the 7 Hz differential (107 Hz - 100 Hz = 7 Hz). This frequency tracking response makes your brain to resonate at 7 Hz frequency falls within the range of brainwaves theta . This guide psychoacoustics state of the art can create phenomenal results.

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The electrical activity of neurons is changing patterns of electrical potential through all cell membranes. Each cell generates in the membrane potential can be detected in about one micrometer of the cell but large sets of brain cells that can work in harmony to generate potential of few micro volts, that can be detected through the skull and scalp using electrodes. The variation of the electrical potential around the scalp is the basis of operation of the electroencephalogram. This method of recording the electrical activity of the brain, digitized maps produces the electrical activity of brain.

The state in which the two hemispheres are synchronized, that is, showing similar activity in both hemispheres, sometimes known as "whole brain" naturally occurring randomly for short periods. Stimulation through the differential tone makes it possible to sustain this state for longer periods.

EEG based on data collected in the laboratory of Gateway Institute, it is clear that after a brief period of use of frequencies of Hemi-Sync, it can be demonstrated the benefits of the technology without the use of external sources.

The Hemi-Sync process has already been tested and implemented in many ways for:

- Sleep better
- Reduce tension or stress
- Control pain
- Accelerate learning
- Study and concentration
- Enhance creativity
- Find solutions to problems

Light and Sound Machines have the purpose to create a relaxed state through the use of sound and light stimulation. It was discovered in the 1930's that repetitive light stimulation (strobing) caused brain waves to follow and pulse at the same frequency (Walter & Walter 1949). This discovery had profound implications for the human condition, giving rise to an entire industry that explores the possibilities in using outside stimulation to provide a functioning aid to the workings of the brain. The devices on the market today are set at predetermined frequencies of 1 to 40 Hz. The user is then free to experiment on just how these vibrational frequencies influence their affect on the mind's eye. Most users report patterns of colors that pulse in synch with the frequency of the beats. The patterns are often quite psychedelic and geometrical.

Light and sound machines are often used for meditation assistance, or to aid the learning process. The technologies are referred to as audio-visual stimulation systems, light and sound machines, or mind machines.

Varying patterns of light and sound are used to create different states of awareness, attention, relaxation, creativity, and receptivity to information. Most systems are controlled by a microprocessor. The sound and music sometimes comes on a CD, with the frequency patterns embedded in the music.

A typical system is made up of three components: a light/sound synthesizer, stereo headphones, and stimulation glasses with pulsating lights. A carefully composed sequence of rhythmic light and sound patterns direct the stimulation synthesis, creating light and or sound sessions for the desired effect. Some systems connect to your music CD player, or have one built in. The process employs a technology called an audio strobe system, which creates inaudible, high frequency beats that drive a light/sound system. Other systems have computer interface capabilities that allow the user to vary the tone, frequency, pitch and other parameters to tailor the program to individual needs. Some metaphysical technology compa-

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nies have downloadable programs that allow for even more growth, variety, and individual tailoring. A few make a point of offering customer service where the company provides you with specifics that are designed to individual needs (Dumit 1995).

The light and sound systems are designed to blank out the visual and auditory stimulation that the mind generally receives, and replaces it with very simple, rhythmic stimulation. Some light systems come with glasses that block certain colors so that the brain focuses on others to create the desired stimulation. The basic rhythms of light and sound cause the mental processes to change in response. Thus, the rate of brain waves adjusts to the desired vibrational rate.

Another technology designed to create specific body changes is biofeedback. Biofeedback is a non-invasive, painless, non-pharmaceutical method of teaching you to become aware of your body processes and help you learn to change them. Electrodes are placed on the skin and feed information into a small box attached to your computer via a serial port. The equipment feeds information back to you about your body. The feedback is usually auditory, a soft beep, and, by concentrating on this sound, the user can focus on specific bodily processes and learn to relax in very specific ways. The process is designed to provide the individual with an ongoing progress report as to how their body is responding to their own internal controls. In this way, one can learn to change heart rate, skin temperature, muscle tension, and certain brain wave patterns (Turnbull & Ritvo 1992). Biofeedback information is used to teach the patient what are the brain regions responsible for a certain behavior and thus be able to learn to control these areas and monitor the progress of the training.

The difference between the two technologies is that light and sound machines provide direct stimulation that affects the rate of brain waves, whereas biofeedback places the impetus on the individual to control their body's processes themselves. The goal of biofeedback is to train oneself to respond to intrinsic cues, which contrasts to the light sound stimulation machine's purpose of matching one's brain frequencies to outside stimulation.

Neurothecnology is for healing, and affecting one's mental and physical state in a positive way. However, in order to best apply the technologies to one's personal circumstances, diagnostic processes may be needed in regards to one's individual circumstances. One such diagnostic tool is called Kirlian Photography.

This process was discovered in 1939 when Semyon Kirlian (1973) found that if a living object on a photographic plate is subjected to a high-voltage electric field, an image is created on that plate. The image looks like a colored halo or coronal discharge. This process captures what the spiritual community refers to as the "aura," and the scientific community calls the "Meissner" field. This field is the area of gas ionization that is produced when electricity enters a living object. The image of the moisture is transferred from the subject to the emulsion surface of the photographic film. The field is visible to the photographic process because of the exchange of photons, or light particles, which takes place as our cells communicate through the chemical process with each other and with the surrounding environment. The light particles the body produces carry information in the same way that fiber optics carry information from one point to the next.

The color and densities that appear on the photo will vary due to the variances of energy output as a result of the different quantities and balances of acids and alkalis the body gives off as it attempts to optimize its chemical processes. The appearance of this gas ionization process on film varies in ways that are consistent. Thus, diagnosis of one's chemical balance can be inferred from the colors and densities that appear on the film.

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Therefore, a good interpreter can detect specific energy imbalances from the color variances in the field surrounding the image of the body. Pulsed electromagnetic fields—which induce measurable electric fields—have been demonstrated to be effective for treating slow-healing fractures and have shown promise for a number of other conditions. This has opened up a huge effort to market a wide variety of magnetic products to assist with the healing process. A whole range of products is available for what is referred to as "magnetic therapy." Small spot magnets can be used at the point of pain on the body. There are wraps, belts and pads, which are held on the body in some fashion. In addition, there are mattress pads that claim to balance the body's energies while one sleeps. Various types of jewelry incorporate magnets into their design, including a wide variety of bracelets and necklaces. Many magnetic necklaces, bracelets, and earrings are formed from silver and gold-rich magnetic alloys and are promoted as both fashionable and therapeutic. One catalog claims that magnetic earrings "stimulate nerve endings that are associated with head and neck pain," and magnetic bracelets "act upon the body's energy field" and "correct energy imbalances brought by electro-magnetic contamination or atmospheric changes" (Vallbona, C., & Richards 1999).

The broadest explanation of the use of magnets in treating physical ailments was presented by Dr. Kyochi Nakagawa of Japan (Nakagawa, 1976). Dr. Nakagawa claims that many of our modern ills result from "Magnetic Field Deficiency Syndrome." The earth's magnetic field is known to have decreased about 6 percent since 1830, and indirect evidence suggests that it may have decreased as much as 30 percent over the last millennium. He argues that magnetic therapy simply provides some of the magnetic field that the earth has lost. Magnetic therapy is also prominent in the treatment of thoroughbred racehorses. The incentive to try "alternative medicine" to supplement mainstream veterinary treatment is considerable; an injured racehorse represents potential loss of a substantial investment. Magnetic pads, magnetic blankets, magnetic hoof pads, and more are used for a variety of leg problems. All get ringing endorsements from many horse trainers, and even some veterinarians. One marketer of magnetic products for humans reports that he first became convinced of their effectiveness when he used them on his llama. Some argue that the placebo effect might be taking place in these circumstances, but the psychological aspects of the healing treatments are obviously not happening with the animal. However, magnet therapy enthusiasts forget that it may influence the human who is interpreting the effect of magnetic therapy on the animal.

Clinical studies report between 75-85% of patients experience relief using magnetic therapy. Whether or not the placebo effect is taking place is always part of the debate. One point of contention in the argument is that the magnetic back braces used by many senior golfers may help ease their back pains through providing mechanical support, through localized warming, and through constant reminder to the aging athletes that they are no longer young and should not overexert their muscles. All these effects are helpful with or without magnets. One British study of pulsed-field bone-growth stimulators, which were approved decades ago by the FDA, found that they were equally successful when the devices were not activated. It concluded that their effectiveness resulted from the enforced inactivity associated with their use rather than from the pulsed magnetic fields. The logical conclusion is that with circulation increased, the body's natural healing mechanism can work more efficiently. Some doctors believe that the magnetic field affects the iron component of blood, hemoglobin, thereby increasing circulation to the area where magnets are applied. Another theory is that the magnetic field energizes and oxygenates the white corpuscles in the blood stream, and these white corpuscles are nature's healing agents. In this regard, the charged ions increase the blood flow, which provides increased oxygenation to the blood. This increased oxygenation is the prevalent factor to enhancing your body's natural healing powers, and

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the results are less pain, decreased inflammation, and the possibility of increased energy levels. Other specialists believe that, since nervous signals travel via tiny electromagnetic charges, an electromagnetic field may actually tune out "false" signals. The actual pain relief mechanism of magnetic energy may never be truly understood, since it operates within the tissues at such a microscopic level. What is clear, however, is that belief is necessary for effective healing.

Studies of magnetic therapy practices and results are more common in Eastern Europe and Asia where there is less access to pharmaceutical drugs. There is evidence that magnetic therapy does improve circulation and oxygenation in the bloodstream, and thus it would serve the purpose of facilitating healing for areas of the body recovering from injury or weakened by age or disease.

One property of magnetic energy is that it has no measurable mass. This is also true for another kind of energy relevant to this course, Orgone energy. Orgone energy was objectified and scientifically demonstrated by Dr. Wilheim Reich (1951). Reich built on Freud's early work, which strongly suggested that emotions and sexuality were expressions of a tangible energetic "something." It was Reich who provided the clearest evidence that the Freudian libido was a real energy, discharged during emotional expression and sexual orgasm. Reich discovered that this same discharging energy was present in a single cell, which apparently caused him to question whether that energy could be collected and harnessed.

In 1940 Reich discovered a way to accumulate that energy, and labelled it Orgone Energy. His work was not taken seriously at the time. There was no social context providing an atmosphere of acceptance for the idea of energy from repressed sexuality. However, a simple Internet search reveals 23 published articles on the treatment of a wide variety of ailments, from cancer to rheumatoid arthritis, by the application of Orgone energy. However, despite being used to treat specific ailments since at least 1971, there are numerous qualifiers in the dialogue on its applications. The point is frequently presented that science and society will have to go through some significant changes before its use will be accepted by the general public. Orgone energy is the primordial life energy, the fundamental creative force long known to people who are in touch with nature. Perceived as "chi" by acupuncturists, Orgone energy is accumulated naturally in biological organisms by food, water, breathing, and through the skin. In 1940 Reich discovered a way to collect or "accumulate" Orgone energy from the atmosphere. Reich's research revealed that energy is attracted to and absorbed by organic substances, but is attracted to and instantly re-radiated by metallic substances. He developed a special enclosure resulting from his experiments with the Faraday cage, a device built in 1836 by Michael Faraday to exclude energy. Reich's accumulator was made from layers of organic materials which absorb and hold the energy, and inorganic materials which attract and then rapidly repel Orgone energy. He found that the inside of a metal-lined enclosure that is layered with organic and inorganic materials contained a higher concentration of Orgone energy which was detectable by a higher temperature reading inside the accumulator.

Reich's device allowed him to isolate Orgone radiation from its environment, and then accumulate the energy within his device. Orgone radiation is not foreign to the body. The Orgone energy in the atmosphere is just another form of the same Orgone energy within the human body. The accumulator concentrates that energy and helps the body to help itself. Reich discovered that the energy moves in the direction of a magnetic field. Thus, when a person with their own energy field comes into contact with an accumulating device, the two fields make contact and excite each other. This creates a stronger excitation called "lumination." This strong, orgonotic charge has been found to be very beneficial to living systems. It may help to strengthen the immune system, improve circulation, and raise one's energy level. Investigations have shown that contact with energy from the accumulator stimulates the body's parasympathetic nervous system, inducing relaxation and a feeling of expansion.

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Modern research has found ways to manipulate and focus the energy, thus resulting in applications to the medical field. The motion is a pulsating expansion and contraction, and a flow normally along a curved path. Inside an accumulator, the energy is emitted as a spinning, pulsating wave. A wide range of devices, and even blankets, are available on the market that makes use of this technology.

Another use of technology that has its roots in Asia is the adaptation of modern technology to the ancient art of acupuncture. Electro-acupuncture is the application of a pulsating electrical current to acupuncture needles as a means of stimulating the acupoints. The acupoints connect the individual's body to the universal, cosmic energy that connects us all. The stimulation of these points has been an ancient healing tradition that reaches back through the millennia. In 1934, according to Subhuti Dharmananda (2003), the Director of the Institute for Traditional Medicine in Portland, Oregon, Chinese healers added electronic stimulus to the process as an extension of hand manipulation of the acupuncture needles. The process is described, though only briefly, in most comprehensive texts of acupuncture. The procedure for electro-acupuncture is to insert the acupuncture needle as would normally be done, attain the qi reaction by hand manipulation, and then attach an electrode to the needle to provide continued stimulation. The idea was to help ensure that the practitioner, who may otherwise pause due to fatigue, gives the patient the amount of stimulation needed. It was also thought that Electro-acupuncture could produce a stronger stimulation without causing tissue damage associated with the twirling and thrusting of a needle.

The stronger stimulus provided by the electronic current is better for treating more difficult cases of paralysis. Positive results have also been seen from treating patients with the chronic pain and spasms associated with neurological diseases. The application of modern day electronic technology to an ancient healing art was developed to reduce total treatment time by providing a specific continued stimulus. The assumption was that it would be easier to control the frequency of the stimulus and the amount of stimulus than with hand manipulation of the needles. An added benefit was that it would free the practitioner to attend to other patients. However, the subsequent inattention to the patient receiving the electro-acupuncture limits the opportunities to respond to changes that are taking place during treatment. In addition, the literature cautions against using the technique on patients with serious cardiac diseases. It is generally recommended to avoid placing electrodes near the heart, as the heart can respond adversely to electrical impulses.

Another use of electrical impulses in the healing arts is Cranial-Electro Stimulation machines (Gilula & Kirsch 2005). The use of these machines involves placing sensors under the ears to send a minute electrical impulse. A slight tingling sensation on the skin is felt. The stimulation has the affect of tricking the brain into releasing the body chemical serotonin. Serotonin is a neurotransmitter that plays an important role in the biochemistry of depression, migraine headaches, bipolar disorders, and anxiety. There is also evidence that its presence or absence in the body influences sexuality and the appetite. The serotonin released can help relieve anxiety, tension, and the feeling of being "on edge."

There are portable versions of this machine, powered by a 9 Volt battery, that are small enough to put in a pocket. The sensors are placed on the neck below the ears, and can be used while walking or using the computer. They are designed to be used once a day in response to feelings of anxiety. It generally provides adjustments to the body chemistry and the ensuing relief from anxiety within 5 to 10 minutes. Another device in the category of neuro technology facilitates lucid dreaming. Lucid dreaming is being aware of the fact that you are dreaming while you are doing so. This allows the dreamer to gain insight into the purpose and symbolic meanings behind the dream, thus facilitating their analysis and the ensuing psychological healing process.

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The technology for this process was developed by Stephen LaBerge, Ph.D. (1990), during twenty years of research at Stanford University. Dr. LaBerge developed a device called the NovaDreamer, a mask-like device that detects the time that one is in REM sleep, the state of rapid eye movement that one experiences when dreaming.

The device gives cues, such as flashing lights or specific sounds, that remind one to realize he or she is dreaming. In other words, one "wakes up" while still in the dream. The purpose is to give the dreamer detachment from the dreaming process during the course of the dream. This provides the impetus for the analytical process of dream interpretation to take place during the course of the dream. Users have reported that having lucid dreams have allowed them to make spontaneous choices that enable them to learn from, and even guide, the dream to constructive ends. Anecdotal evidence of these choices includes suddenly deciding to fly away from situations, empowering the dreamer to feel safer and have more free choice. There are also reports of incidents of making an old friend appear and talking to that person about consequential matters or resolving conflicts. Dreamers report being able to feel textures, hear sounds and smell odors in the dreamscape. The users reported that these sensations were as real as any in the physical world, and they were able to make conscious decisions and choices.

The entire process of lucid dreaming gives the spiritual sojourner tools and techniques, developed deep within the psyche, to explore and use their dreams for self-discovery, creativity, fantasy fulfillment, emotional healing, and profound spiritual insights.

Full Spectrum Lighting, another simple use of technology is the use of full spectrum lighting (Veitch et al. 1991). Full spectrum lighting is a process that uses specifically designed lighting fixtures that mimic the full spectrum of colors provided by our sun's rays. The purpose is to treat Seasonal Affective Disorder, a psychological malady that is brought on by the deprivation of light. This is generally a result of the changing of summer, with its bright sunshiny days, to the fall season, with its shorter and darker day-time periods. The onset of this change can result in depression and lack of energy (Veitch et al. 1991). The use of full spectrum lighting fixtures allows for the same kind of light energy that the sun offers.

The ultimate achievement so far in modern day development of neurotechnology is the Hemi-Sync device, or Holistic Sensory Response Audio. In 1956, Robert A. Monroe founded the Monroe Institute to study the effects of various sound patterns on human consciousness, including the feasibility of learning during sleep. Monroe was a highly successful businessman, the owner of several radio and television stations. In 1958 he began to have out of body experiences in which, while relaxing or attempting to fall asleep at night, he found himself hovering above his body. At the time, he thought he was having some kind of health problem, but was reticent to discuss it openly for fear it would interfere with his dealings with a very conservative business community. Monroe soon began to quietly but thoroughly examine the circumstances of his experiences. The discoveries made in exploring this phenomenon were validated later by the work of Dr. Melvin Morse and others in their work exploring Near Death Experiences. But as the work continued, and technology was developed to stimulate out of body experiences, the information gathered was to have a profound affect on the whole of our collective perception of the nature of reality (Monroe 1977).

In 1976 Monroe was issued an original patent for technology that altered brain states through sound. Hemi-Sync produced binaural beats, which are a series of barely audible tones which play in the background of soft music, barely noticeable beneath the music. The beats are at one rhythm in one ear, and a different rhythm in the other, producing a combination that takes the brain to a specific output rate of brain waves. The two hemispheres of the brain act in unison to "hear" a third signal—the difference between the two tones. The tones counter balance each other in a way that forms an anchor, or a signal

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which helps you quickly and easily re-enter the trance state when your unconscious mind begins to hear them in the background. The tones begin by synchronizing with the brain waves associated with the normal awakened state of the mind, and then slowly changing them to assist the listener in reaching the "alpha" level. The signal can only be perceived within the brain by both brain hemispheres working together. The result is a focused, whole-brain state known as hemispheric synchronization, or "Hemi-Sync." This relaxed level was the exact state of mind, it was discovered, to facilitate not only healing, but out of body experiences (Monroe 1977).

The process has been subjected to decades of research and thousands of lab sessions, and has been refined with over 40 years of research and development. Ongoing experimentation, data collection, and analysis are conducted at the institute's laboratory facilities to demonstrate the correlations between subjective experiential reports and objective electronic measurements. Healing benefits have been extensively documented, ranging from enhanced alertness to relief from insomnia and the myriad of circumstances that fall between.

There are also testimonials regarding profound healing experiences. One woman with an undiagnosed brain injury suffered in a car accident reports using Hemi-Sync to reverse a very frustrating condition. After being released from the hospital the same day of an accident that totaled her car, she noticed a severe change in her ability to concentrate. After many months of forgetting how to cook, getting lost, and "losing her train of thought" in a middle of a conversation, she began using Hemi-Sync to produce a state of relaxation. Within weeks, she became aware of regaining her sense of humor. From there she noticed a gradual regaining of her ability to concentrate (Monroe 1977).

The device, which looks like a bulky set of headphones, is designed to move one's consciousness past the limitation of being within a body. The spectacular success this device has had in facilitating astral travel has been documented in Omni magazine, amongst others, and experienced by thousands. The most profound research for the Hemi-Sync device was done by the founder of the Monroe Institute himself. Monroe said, "The greatest illusion is that mankind has limitations." This implies that we have limitless possibilities.

The work of the Monroe Institute, with its profound breakthroughs in the use technology for spiritual exploration, has the potential of enabling vital specifics in the evolution of humankind. Despite Monroe's death in 1995, his institute continues to attract and change forever the visitors to its campus as well as the thousands who have visited the virtual reality of its web site.

The implications of Monroe's work developing the Hemi-Sync device take on a whole new meaning when viewed as to the potential for learning from other times, places, and species. The development of this technology, a technology that enables astral travel and contact with guides and other beings with purposes that are highly relevant to both personal and planetary evolution, brings focus and significance to the whole idea of pursuing the potential ramifications of neuro technologies.

Royal Rife is the inventor of the Rife Machine (Hess 1996), it is said that "one day Royal Rife will be acknowledged as one of history's greatest medical geniuses." In 1902 he discovered the human cancer virus with a microscope that he had to invent himself, since no microscope at the time was powerful enough to detect it. Through endless and exhaustive experimentation and laboratory testing, he discovered that this virus could be killed using certain frequencies that were emitted from a prototype machine he created. He was then successful at destroying cancer in patients who sat within 10 feet of the machine. His legend built from there, and by 1931 he was the most honored among the medical society for his track record of being able to cure cancer almost 100% of the time. The cure for cancer has been found long ago! However, by 1939 these same doctors and scientists who so highly praised him denied that

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they had ever met Royal Rife. A violent attack was set upon Rife by unseen forces, but they could most likely be identified as the drug companies (through the American Medical Association) who had the most to lose from the Rife Machine, and a miffed Morris Fishbein who tried to buy the rights to Rife's work unsuccessfully. After that, people who worked with him were harmed and poisoned, Rife's papers were mysteriously lost, and his labs were destroyed by arson.

He was shortly indicted and taken to trial for "fraudulent medical practices," and for the most part, his life was undone. He became a ruined man. All the doctors who were associated with him lost their medical licenses if they did not stop using Rife's invention, even though they were having incredible success at curing people of cancer. Rife became an alcoholic in order to deal with the terrible turn of events his life has taken. Rife himself was later killed in 1971 by a very lethal dose of valium at a hospital which some do not believe was an accident.

For a long time, Rife's work lay dormant. However, it has been recently re-visited. Others are picking up where he left off. It has been discovered that far more than just the cancer virus can be killed with the Rife technology. Any virus can be killed. It just has to be identified and the right frequency that kills it must be found.

Others have begun to catalog this list. Work on cataloging viruses and the frequencies that kill them has begun again. There are now thousands of viruses that can be addressed using the Rife Machine. It is not that expensive, either, compared to what the medical costs of drugs, doctor's visits, surgeries and hospitalizations would cost. A Rife Machice could be purchased for anywhere between $500 and $5000, depending on how many bells and whistles you want it to come with. If you do an internet search on Rife Machine, there will be plenty of results to peruse, but the only place you will be able to purchase one is from overseas. It is still illegal to use them in the United States. Almost all other countries in the world allow the use of the Rife Machine, at least for personal purposes or experimental purposes, if not for the public. This does seem quite strange.

A Rife Machine works by generating a field of frequency, or frequencies, and anything within that field that it has been discovered to kill will be killed. It works one of two ways. Some of the less expensive machines entail two metal, or glass, cylinders that you grasp in your hands while frequencies pulse through them, and thus into your body. Some of the more expensive machines entail detailed digital readouts and the ability to diagnose your condition by finding out which viruses are present. You also do not have to hold onto cylinders and you are able to go about your business in the room as the machine generates the frequency field that addresses the virus (Hess 1996).

Kilner (1965) proposed a device that is a way for the naked eye to see the first three layers of the human aura. The device consists of two plates of glass with a dycanin dyed liquid between them. Dicyanin is a coal tar dye. Some say that a subject's aura can be seen through the screen, while others say that one must look at a bright light first, and then look at the subject through the screen. There have been several doctors in the past years who have used this technology for discerning illnesses in their patients and diagnosing their condition.

Transpersonal Psychology

Transpersonal psychology integrates the spiritual experience within a broader understanding of the human psyche. It is with the study of states of consciousness and the full potential of man, that transpersonal psychology assumes that humans can achieve harmony and transcend through spiritual development.

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Transpersonal is something that exceeds the range of human's own experience or personal history. Transpersonal refers to that which is beyond of the person who is the essential being.

Transpersonal psychotherapist Anthony Sutich (founder and first editor of the Journal of Transpersonal Psychology) provides one of the first formal definitions of transpersonal psychology in 1969 at the inaugural edition of the *Journal of Transpersonal Psychology:*

"The emerging Transpersonal Psychology refers specifically to the empirical, scientific study, and the responsible application of relevant results, becoming meta-needs individual and species-wide, the final values, conscience unitive, peak experiences, values, ecstasy, mystical, amazing experience, being, self, essence, joy, wonder, ultimate meaning, transcendence of self, the spirit, unity, cosmic consciousness, synergy of individual and species level, maximum interpersonal encounter, sacralization of everyday life, transcendental phenomena, self-cosmic humor and joy maximum sensory awareness, responsiveness and expression; and concepts, experiences and activities " (Sutich, 1969).

Stanislav Grof, co-founder of transpersonal psychology with Abraham Maslow, defines transpersonal psychology as "The psychology that respects the entire spectrum of human experience, including holotropic states, and all domains of the psyche - Biographical, perinatal and transpersonal "(Grof, 2000).

Transpersonal psychology covers a multitude of experiences and behaviors produced by spontaneous or altered states of consciousness, impulses into higher states of being, and extraordinary spiritual practices induced. Transpersonal phenomena include the meditative experiences, dreaming, drug-induced psychedelia, peak experiences, cosmic consciousness, enlightenment, mysticism, out of body experiences, channeling trance, near death experiences, memories reincarnations, extrasensory awareness, archetypal phenomena, accelerated learning, exceptional state of health and well-being, the mind-body healing and miraculous cures. Parapsychological phenomena are important for the reduction of science and spirit implications.

Altered States of Consciousness and Transpersonal Psychology

Ludwig (1966) defines an "altered state of consciousness" as any mental state(s) for various manoeuvres of physiological, psychological or pharmacological agents, which can be recognized subjectively by the same (or an objective observer of the individual person induced) as representing a sufficient deviation in the subjective experience or psychological functioning of certain general rules for that individual during alert awareness. This deviation can be sufficiently represented by a greater concern than usual with internal sensations or mental processes, changes in the formal characteristics of thought, and the deterioration of the test of reality to varying degrees.

The cognitive approach to altered states of consciousness has revealed that similar features that are characteristic of many altered states of consciousness including alterations in thinking, sense of disturbed weather, loss of control, change in emotional expression, change of body image, perceptual distortions,change in the meaning or importance, sense of the ineffable and feelings of rejuvenation(Ludwig, 1966).

By applying the disruptive force requirement for the basic state of consciousness (either through some physiological action, such as drugs or deployment of attention and meditation), the current organization of cognitive subsystems is destabilized until a new force patterns (such as mental set, setting, expectations, drug effects) is applied to shape the subsystems in a whole new system, the production of a new discrete state of consciousness with its own stabilization processes.

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Cognitive awareness approach has helped differentiate transpersonal psychologists' grades waking state of consciousness. Awareness, for example, is not one homogenous thing, but varies and changes as the colors of the rainbow. It is possible to stratify and states order to raise awareness of alert and focused relaxed concentration and spread the cosmic consciousness. A range of altered states of consciousness have been identified as drug-induced states, hypnosis, biofeedback, daydreaming, night dreaming, sensory deprivation, and paranormal experiences. With each state consisting of many levels and functions, in each region or area of consciousness, individuals are able to process different types of information at different levels of control (Goleman &Davidson, 1979; Ornstein, 1972).

Transpersonal psychologists tend to see the experiences of "mystical union", "enlightenment", "nirvana", and related experiences as natural and beneficial non-ordinary states of consciousness that may be subject to effects of state-dependent learning. The idea that the experience of the sacred can be interpreted as altered states of consciousness arose from the observation of twice that (a) psychedelic drugs have been used through the centuries and cultures to induce religious experiences and (b) reports from some drug experiences are phenomenologically (descriptively or experiential) indistinguishable from accounts of natural mystical experiences (Smith, 1964).

Transpersonal psychologist Charles T. Tart has examined the altered states of consciousness from a cognitive perspective in terms of changes in the configuration and operation of the underlying mental processes (Tart, 1971; 1976; 1983; 1992). A state of consciousness involves cognitive functioning following subsystems: exteroceptors (receives sensory information), interoceptors (kinesthetic receives input), input processing (working memory), the subconscious processes, sense of identity, evaluation and decision making, emotions, space / time sense, long term memory, the motor output (behavior) plus latent functions. These 10 subsystems (more possible latent functions) define any discrete state of consciousness. The particular configuration of the subsystems in a given time is shaped and limited by the deployment of attention, the body's energies, characteristics of the structures themselves and the particular social and cultural environments in which they operate.

Grof (1988) suggested that the term "altered states of consciousness" cover transpersonal experiences; however, there are certain types of altered states of consciousness that do not meet the criteria for being transpersonal (involving an expansion or extension of consciousness beyond the limits of the usual and limitations time and space). For example, a living and complex childhood memory occurs in an altered state of consciousness (e.g., hypnosis or psychedelic sessions), but do not meet the criteria for being transpersonal.

The cultural context of the 1960s and 1970s provided fertile ground for the emergence of transpersonal studies as an independent field of study in psychology. The infusion of ideas Eastern contemplative traditions of Zen, Advaita, Vedanta and Taoism, along with the institutionalization of the humanist revolution in academic psychology, and the growing interest in consciousness and altered states of consciousness that are triggered by the widespread use of psychedelics, paved the way for the birth of transpersonal psychology movement in California in the late 1960s (Ferrer, 2002).

Since the 1970s, transpersonal psychology, as the humanist movement that preceded it, has been divided into three different groups; the first group represented by the ideas of Grof (1988) that believes that transcendence can only occur in the presence of an altered state of consciousness. This group produces conceptual models of non-ordinary states of consciousness. The second group, led by Wilber (1975), include those trying to assign internal states of consciousness and identify with the monistic and perennial philosophy of Aldous Huxley. Wilber believes that all expressions of the highest state of consciousness in each tradition are the same as the psychopathic conditions occurring at the bottom, the

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normal waking reality in the middle and meditative states of higher consciousness in the top. The third and by far the largest segment of the transpersonal movement has no identifiable bearer, it sees the self as getting up and go to work in the morning, the higher consciousness is sweeping the floor, washing dishes, and raking leaves. The lighting is doing everything we are supposed to be doing at this minute. There is a preconceived thing; is not an altered state of consciousness, it is simply the deep philosophy, which is to be found most clearly in the mundane.

Altered states of consciousness answer the question "who we really are?" The answer to this question is that we are a part of God and that humans are spiritual beings having human experiences that somehow reveal the direction of our full identity of our cosmic status.

Brain Waves

Our brain works primarily with bioelectrical energy. Although the power of electricity that handles our neurons is low (measured in mill volts), this power processes, manage, distribute and use vast amounts of information and generates multiple answers (almost infinite in possibilities). So by using micro electricity, we can conclude that the brain is a machine of low frequencies. Our brain, in addition to process information that comes by the senses, is capable of emitting extra-sensory information received via similar "electromagnetic waves", but with lower intensity similar to the frequencies of a radio transmitter-receiver. Our brain can act as a radio station, similar to numerous species of birds that in their migrations are guided by a genuine receiver of terrestrial magnetism located in the pituitary gland. With this receiver, they know where they have to fly and in what direction. It's like having a real compass incorporated into the brain. The mind could be defined as the "sense" of the brain (like sight is the sense of the eye).

A German psychiatrist, Hans Berger (1843-1941), demonstrated that a device "amplifier" that was called later electroencephalograph could capture electrical potential (voltage fluctuations) in the human brain. Before him, the English physician Richard Caton (1842-1926) showed similar potential in dogs. The first types of brain frequencies that were discovered were the "alpha" and "theta". Later, these findings were complemented by research in the range frequencies captured by the electroencephalograph. Each type of wave results in a different neuropsychological state. That is, our mind, our body and our physical and physiological activity are completely different in each of these states or frequencies. The type of neuro-chemicals and hormones substances discharged into the blood flow varies depending on frequency and as much as the presence and quantity of such substances as the mood we have, interact to produce a physiological-mental-physical-end that involves a mental state. A level of consciousness is conscious thought that is always thinking even in moments of apparent inactivity, but trivial ideas continually pass by consciousness. Most of the thoughts are accompanied by reactions in behavior, and small involuntary movements. When you're not actively thinking then you're probably dreaming, according Signer and Streiner (1966) a person has throughout the day about 200 daydreams. Therefore, consciousness is the sum of all the different perceptions. The most common consciousness are wakefulness and sleep; however, changes in expressing both cerebral and psycho states change according to conscious or subconscious feelings of each person are distinguished. These changes are directly related to the electrical activity of the brain. This activity can be measured by the number of oscillations per second (Hz) that are linked to different states of consciousness in the brain: our brain only perceives a limited range of frequencies indispensable to operate with ease in this three-dimensional medium. 20 to 20,000 vibrations per second are perceptible by our ears, the colors perceived by our eyes range from red to violet (although extending beyond, up and down), all possible smells and tastes (which are

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also vibrations) and the endless textures that we can distinguish with our skin. But the brain is not only receiver but also is sends vibrations. It has been proven thanks to the EEG that the brain emits waves of varying intensity and frequency depending on the mental state of the person being observed. These waves are classified into those shown in Table 1.

The alpha state is when, if we would connect to an electro encephalogram, our brains would work between 7.5 to 14 cycles per second. When "operate" in this state, we rank among the border of the conscious and the unconscious. Is the gate between both states of consciousness and this makes "alpha state" therefore a special status because it allows us, on the one hand, still have a conscious activity of our mind and body, that is, we realize what we think and happening around us? On the other hand, since the "lift" of consciousness in the "lower floors" of the mind, gives us access to information and own subconscious states, can use all the wealth of the 90% of "power" mental residing in the subconscious. This state is a "being comfortable" in inner peace and happiness, in deep relaxation. Greatly increases the power of suggestion and auto-suggestion, that is, anything that we suggest alpha, will be more easily accepted and less "filters" by our conscious rationality.

Table 1. Types of brainwaves

Types of Brain Waves	States of Consciousness
BETA WAVES: 14 Hz to 30 Hz	This type of waves is recorded when the person is awake in a state of normal activity. Correspond to states of conscious attention, anxiety, surprise, fear, stress.
GAMMA WAVES: 25 and 100 Hz	They express pathological conditions of maximum tension, excitement and the individual enters a state of STRESS in which the coordination of ideas and normal physical activity are seriously altered.
DELTA WAVES: 1 Hz to 3 Hz	It arises mainly in the states of deep sleep and unconsciousness. Very rarely can be experienced being awake unless with a very hard training (Yoga, Meditation, Zen, Hypnosis, Self-hypnosis) or with a synchronizer of hemispheres. It corresponds to deep sleep, hypnotic trance, REM sleep. It corresponds to sleep without dream, trance, deep hypnosis. Delta waves are very important in the healing process and strengthening the immune system.
THETA WAVES: 3.5 Hz to 7 Hz	During sleep or in deep meditation, autogenous training, hypnosis, yoga (whenever the formations of the subconscious act). The state stimulates creative inspiration. Considered a state for maximum capacity of learning. Fantasy, imagination. Hypnagogic images.

Magnus & Van der Holst (1987) speak of frequencies whose frequency ranges from 3.5 to 7.5 cycles per second. They are associated with the states of creative and decisive hallucination. During its broadcast, the person can discover events deeply hidden in the recesses of your subconscious, as well as conflicts and personality in particular. Is the wave of imagination and dynamic contact with other possible "dimensions psi" offering you the opportunity to research our personality and deep in our psychology?

METHODOLOGY

The state of consciousness of someone can be measured by using possible physiological changes. Some physiological changes are typically associated with altered state of consciousness so measuring these physiological changes may provide evidence to more accurately determine the state of consciousness someone is in. Cade and Coxhead (1979) was able to map altered state of consciousness with alpha brain waves between 10 to 8 cycles.

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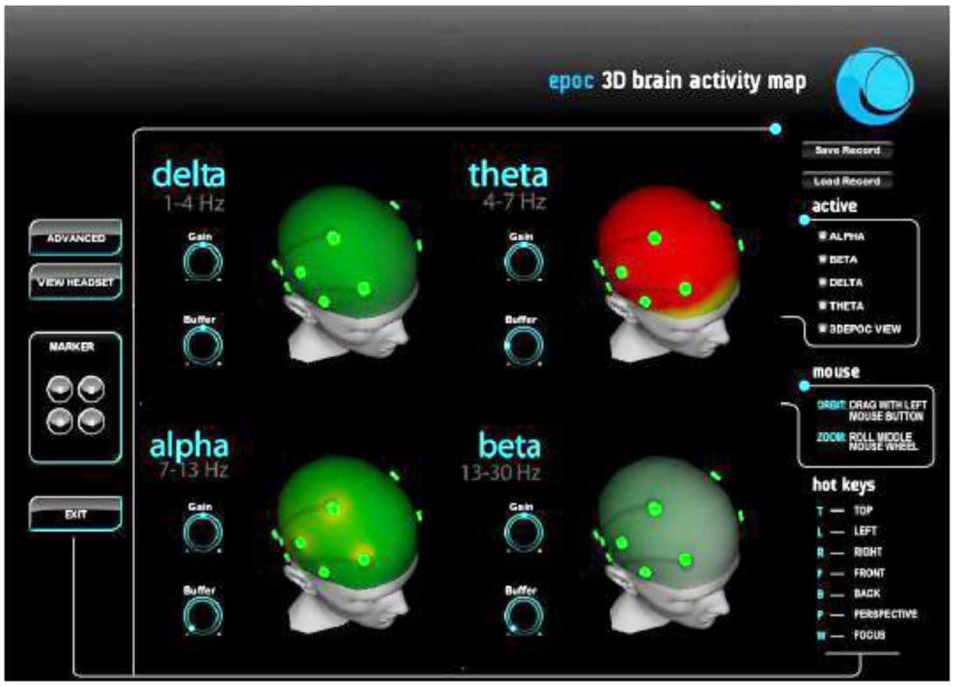
This research uses EEG that was specifically designed to show the ephemeral patterns of the electrical signals from the two hemispheres of the cortex as they are happening (Cade & Coxhead 1979).

The EEG technology used for this research is the Emotiv 3D Brain Activity Map EEG software (Emotiv 2016) that works with the Emotiv EPOC neuroheadsets. The neuroheadset captures the users' brainwave (EEG) signals. After being converted to digital form, the brainwaves are processed, and the results are wirelessly transmitted to the USB receiver. The Emotiv 3D Brain Activity Map interprets these signals to displays mental activity in real time. The software displays brain activity in four significant brainwave frequency bands (Delta, Theta, Alpha, Beta) and uses the headset EPOC to read data. The software displays a colored gradient map showing the distribution of the indicated frequency band activity where red indicates the highest level of activity, falling away to orange, yellow, green, blue then black.

Figure 1, shows theta frequency bands with the highest level of activity indicating that the individual in this case indicating deep meditative states, daydreaming and automatic tasks. Emotiv 3D Brain Activity Map EEG software has data collection and replay functionalities that can be use to analyze the collected data.

An application of quantum physics (neurotechnology) in the altered states of consciousness was carried out by Persinger (1983). Persinger (1983) was able to induce visions of God and other religious and mystical experiences in the laboratory by using a computer and with what he called the Koran helmet that has also the nickname of the God helmet. He found that the temporal lobes of the brain are the source of the most spiritual experiences and other alternate state of consciousness.

Figure 1. 3D viewer



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This God helmet is a device to induce altered states of consciousness using weak magnetic signals to direct brain activity that can induce spiritual experiences that helps with transpersonal exploration and transformation of many people that is able to heal because of these transpersonal experiences (Persinger 2000). It is suggested that altered states of consciousness such as sensed presence and out-of-body experience whether they are produced by magnetic, electric or other stimulations or circumstances can be most effectively explained as the changes of the relative contents and/or intensities of the test subjects' neural quantum entanglement with their surroundings including possibly spiritual environments or information (Hu & Wu 2012).

Intense experiences are based in the temporal lobes (Persinger 1983), The sessions used in the research are intended for eliciting altered states of consciousness, and use the coils over the temporal lobes, which is understood to be the source of mystic experiences (Persinger 1983).

This research uses a product called Shakti (Shakti 2016) that is based on the Koran helmet of Persinger (1983). Shakti Software produces audio analogs to EEG signals. These are applied to the brain using modified commonly available magnetic coils. The magnetic signals are applied to the head at very low strength. The signals are short bursts, followed by intervals of silence. Each signal speaks a language that only one brain structure understands and responds. The brain has two hippocampi and two amygdalas, one on each side. Shakti is applied using the structures own signal, but only over the side of the head where it supports something positive. When these structures respond, they put the person in a positive altered state of consciousness (Shakti 2016).

The Shakti sessions that were used for this research are 'interhemispheric' (switching from both hemispheres to one) sessions, incorporating the same principles used in the study of Sculthorpe & Persinger(2003). In this last study, it was showed that the most effective sessions turned out to be two-phase sessions. This study applies the Modulated 40 Hz signal to both temporal lobes, followed by the amygdala signal to only the left temporal lobe as indicated in figures 2 and 3. This is the session design that comes closest to the sessions used in the "God Helmet" experiments (Shakti 2016).

Electromagnetic frequency emissions (EMF) emissions are varieties of radiation, and/or electrons. The Shakti helmet uses magnetic fields, which are neither radiation nor electrons. Electromagnetic radiation is composed of photons. Magnetic fields are not. Magnetic fields are not composed of the elementary particles than can interact with some organic compounds, nor are they composed of electrons, ions, or anything else that is encompassed by the word 'emission'. These are simple magnetic fields created by two poles, and are not composed of ions, electrons, or photons. Fields from an electromagnet are made of the same matter as the earth's magnetic field. These are 'made' of 'lines of force', and are not 'EM emissions'. These do not pose a health risk of any kind (Greenland et al 2000).

The Shakti helmet uses magnetic coils connected to a computer sound card. The output of a sound card is modulated DC. The polarity - one wire is positive and the other wire is negative - is always the same, no matter how the amplitude varies. A speaker or headphones uses a magnetic coil to move a diaphragm to make sound. Generally, the goal is to move the coil two ways to make sound. However, because of the springiness of the coil you only need one polarity. For example, a given voltage might push the coil. When the voltage drops lower, the voice coil will rebound and move the other way. EM fields reach deep inside the brain. Magnetic fields cannot be blocked (Hatch, G. P., & Stelter, R. E. 2001). The proposed helmet's magnetic signals reach deep inside the brain because there is nothing in or around the brain that can stop them (Persinger 1997).

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Figure 2. Left side of the session used

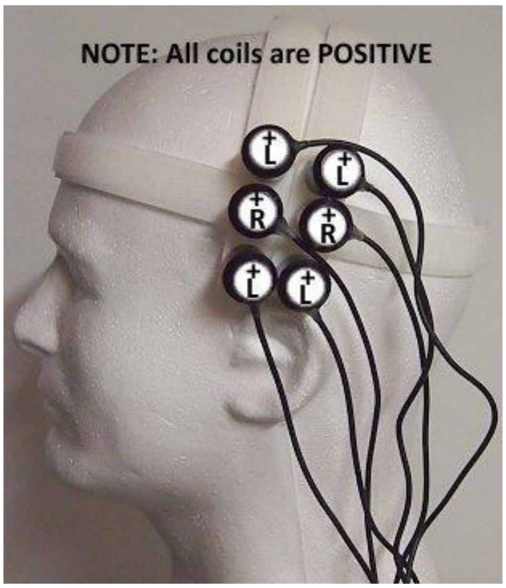
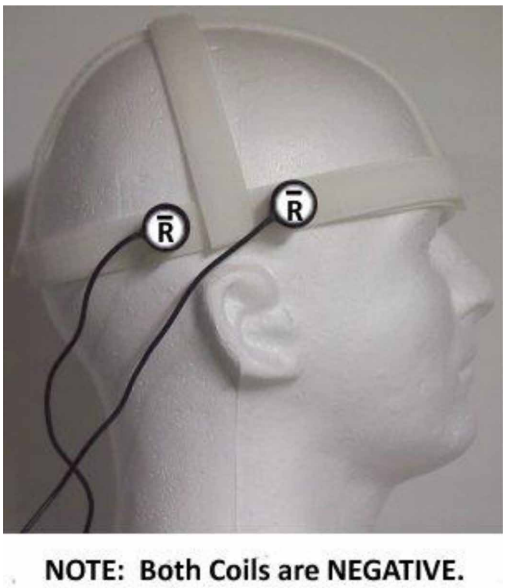


Figure 3. Right side of the session



The proposed architecture of the cybertherapy is depicted in Figure 4. The therapist computer has installed 3D activity map software and Skype. Skype is a telecommunications software that allows verbal and text communications with the patient, the 3D activity map software allows the therapist to visualize the states of consciousness of the patient by detecting the frequency band with the highest level of activity.

The therapist is able to access the EEG signals collected by the EEG headset wore by the patient. These digital signals are transmitted over the internet by using Flexihub software (Flexihub 2016), FlexiHub is a USB over IP software solution, it enables sharing access to USB devices over Internet. The EEG headset is connected to the USB of the patient's computer via a USB wireless adaptor. The Shakti helmet is worn by the patient and is meant to induce altered states of consciousness by receiving modulated 40 Hz signals to both temporal lobes from a signal generator installed in the patient's computer.

A sample of 10 patients was used to test the cybertherapy system and quantum biofeedback data collected and analyzed to confirm that the patients were able to reach a desired level of consciousness for the psychotherapy. Each patient was required to sit down and relax in a quiet room for a period of 40 minutes wearing an EEG headset without being exposed to the Shakti system (Figure 5), the therapist recorded the session during this 40 minute (pre-test). After, the patient was required to be exposed to the Shakti signals by wearing the Shakti helmet, the therapist also recorded the session for 40 minutes (post-test). Information about the difference between the two tests was not given to the patients in order to avoid bias in the measurements.

Each recording for each session displays the different frequency bands that represent each level of consciousness including alpha, beta, theta and delta. For the analysis, we quantified the different states of consciousness according Cade and Coxhead (1979) that conducted EEG tests in 70 subjects and measured the ESR (electrical resistance of the skin) and with the application of its results to the work of Terry Lesh (1970) were able to build in the table below that represents the objective and subjective correlates of these states. The targeted level is 5 as this represents altered state of consciousness but it is

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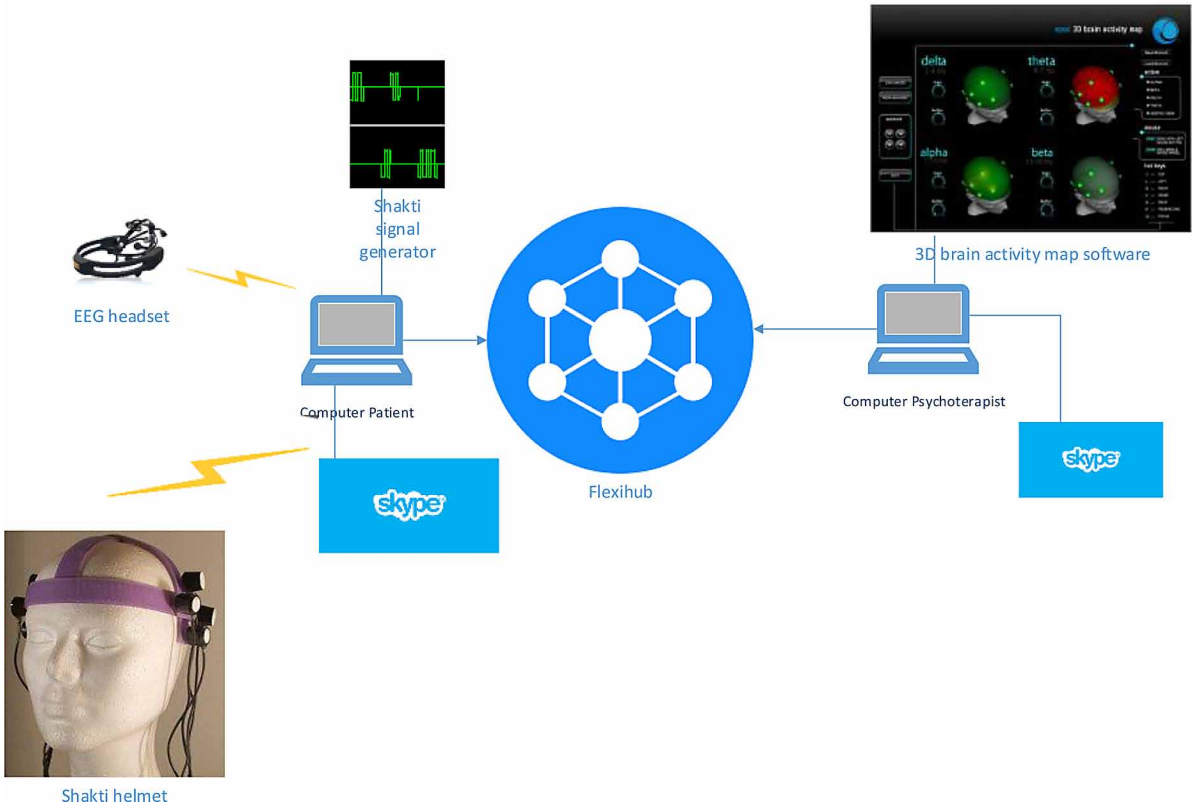
Figure 4. Proposed cybertherapy system



expected that the average of the levels is under 5 as the patient needs go from 0 to 5 at different stages. However, it is expected that the post test average is higher than the pre-test as we want to probe that the cybertherapy system is capable of raising the level of consciousness.

A mean and standard deviation for these levels were calculated for each pre-test and post-test sessions for each patient. The mean values of pre-test and post-test results were compared to check if there is an improvement in state of consciousness with the use of the cybertherapy system. The mean values were tested using the t-Student test, and the t-values were calculated by using the following formula:

t-value = (Mean of post-test – Mean of pre-test) / square root (Variance of post-test / Sample size of post-test + Variance of pre-test / Sample size of pre-test)

The Alpha level used was 0.05 of one tail test; with 18 degrees of freedom (sample size of pre test + sample size of post test – 2). According to the t-distribution significance table, the critical value is 1.734 for one tail test for this alpha and degrees of freedom. The Null Hypothesis is that there is no difference between the pre test and post test sample means for the states of consciousness because of the use of the cyberteraphy system.

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Figure 5. Patient during session

ANALYSIS OF RESULTS

Table 3 shows the results of the study, a mean of the pre-test and post-test for each patient was calculated during the 40 minutes sessions for each patient because of the use of the cyberteraphy system. The levels of consciousness for each patient reached over time during each 40 minute pre-test and post test sessions are documented in the graphs included in the Appendix, each graph indicates the levels of consciousness reached at each second over the session. The results present that each patient had a different reaction to the use of the system, while some patients showed very little difference from the pre-test and post-test (e.g. patient 8) or even a decrease of the level of consciousness (e.g. patient 2) some patients observed a great level of improvement with the post-test session (e.g patients 3, 6 and 9). The mean of means for all the patients for the pre-test is 2 (Calm and relaxed) while the mean of means for all the patients for the post-test is 3 (Feeling of floating with increased imagination and more concentration sustained). While it seems that the cybetherapy system contributes to raise the level of consciousness, none of the patients were able to maintain an altered state of consciousness (level 5) during the sessions although this level was reached for few minutes by few patients.

Table 4 displays the standard deviation for the pre-test and post-test for all the patients, these results show that all the patients experienced variability of the states of consciousness during the sessions as expected but this variability was of not more than one level of consciousness. The standard deviation for the pre-test was calculated as 1.34 and the standard deviation for the post test is 1.108 for all the patients. The t-value for the sample is 1.75. Based on this last value, the null hypothesis can be rejected; this means that there is enough statistical evidence that the cybertherapy system is able to raise the level of consciousness. However, this is not enough to raise the level to an altered state of consciousness that is required to conduct transpersonal therapy.

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Table 2. States of consciousness and frequency measurements

Level	Consciousness	Measured Frequency	Types of Waves
0	Just he is beginning to relax with difficulty quieting the mind.	25-20	alpha and beta
1	Not very clear conscience or sense of anesthesia	20-16	Guests beta alpha continuous
2	Calm and relaxed with flash back memories	16-13	Alpha continues without beta theta intermittent
3	Well defined state. Feeling of floating with increased imagination and more concentration sustained	13-10	Alfa falling Continuous theta
4	Extremely vivid awareness of breathing heartbeat, or other bodily sensations. Living consciousness. Sometimes an alternation of internal and external awareness	10-8	alpha continuous theta falling Frequency
5	Awareness with satisfaction and deep intense alertness and calmness and detachment. Feeling of altered state lacking in previous levels 0 to 4.	8-5	Theta continuous alpha close to theta
6	New way of feeling by intuitive vision synthesis of opposites in a higher unity	below 4	Delta occasionally

Table 3. Results of the experiment

Patient	Mean Pre-Test	Mean Post-Test
1	2.82	3.19
2	2.73	2.48
3	2.45	3.55
4	2.73	3.00
5	1.73	3.55
6	1.45	2.95
7	0.91	2.18
8	2.27	2.36
9	1.64	3.27
10	1.36	3.18

Table 4. Standard deviations of the results

Patient	Standard Deviation Pre-Test	Standard Deviation Post-Test
1	1.53741223	1.569046
2	1.190874392	1.167007
3	1.213559752	0.687552
4	1.420627262	0.894427
5	1.489356176	1.29334
6	1.035725481	0.218218
7	0.301511345	0.873863
8	1.103712743	0.924416
9	1.361816968	0.64667
10	1.120064933	1.32802

The results suggest that although it seems that the proposed system is on the right track, the system should be enhanced by including other known means to reach altered states such as music therapy (Bonny 1975), guided meditations (Brown & Engler 1980) and channeling (Valverde 2015b).

DISCUSSION AND CONCLUSION

Inducing altered states of consciousness with neurotechnology is a relatively new concept and although there are serious studies, they are not incorporated into psychology or traditional medicine more than anything because of a lack of understanding of this technology.

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This study introduces technologies that are based neurotechnology including quantum biofeedback, the latter has proven curative value much of particular diseases that seem to tend to be psychosomatic.

Transpersonal psychology was presented as a paradigm that recognizes the immortality of consciousness and relies on spiritual concepts that have roots in mystic religions as reincarnation and survival of consciousness brain death. The immortality of consciousness is based largely on the quantum theory explaining the origin of consciousness and its connection to the universe.

Neurotechnology explores the use of technologies of sound, light and radiofrequency to control the frequency of brain waves with the reason to induce altered states of consciousness. Altered states of consciousness have been proposed as therapies for healing in transpersonal psychology, these therapies recognize the spiritual essence of the individual and are based on the concept that psychological illnesses are rooted in the spirit and not in the brain. The patient to know the root of their problems, seem to find the answer to your anxieties and can self heal with these transpersonal experiences.

In this research, a cyberpsychoterapy system is proposed to support transpersonal psycho therapy. The system can be used to induce non ordinary state of consciousness that can be used by transpersonal psychologists as a healing tool to cure his patients with psychological problems such as psychosis at a distance location with the help of internet technologies. The proposed cyberpsychoterapy system uses quantum signal generator for the induction of altered states of consciousness and has integrated an EEG that serves as a biofeedback device in order to assess if the patient has reached the desired level of consciousness and can be used it to adjust the frequencies of the signal generator in order to improve the psychotherapy experience of the patient if necessary. A sample of 10 patients was used to test the cybertherapy system based on neurotechnology and quantum biofeedback, data was collected and analyzed.

The researched showed that with the aid of quantum biofeedback and neuroquantology, people can discover hidden deep events and conflicts in their subconscious that can lead to healing experiences. Although the results show that the patients were not able to reach the desired level of consciousness for the psychotherapy, there is statistical significant evidence that the proposed system can help to raise the level of consciousness, this can help with future designs that will eventually assist to reach the desired level for the psychotherapy.

The aim of this study is to open the eyes of the therapists about the potential of the covered technologies for this purpose and the ability of the use internet technology to be able to conduct transpersonal therapy at a different location than the therapist. Although the results do not probe that the presented technologies are effective to induce altered states, they show that there is potential for this as there is statistical significant evidence that they are able to aid to increase the level of consciousness.

The work contributed to the existing literature in the application of quantum computing to psychology by suggesting a cyberteraphy system that uses quantum biofeedback and neuroquantology for the facilitation of transpersonal psychotherapy. Although there are many cybetherapy systems in the literature (Takacs 2005, Wiederhold& Wiederhold 2004, Botello et. Al 2009), none of them addresses transpersonal psychotherapy and are based on quantum biofeedback and neurotechnology.

A recommendation for future research is the inclusion of supporting methods such as music therapy, guided meditations and breath work in the cybertherapy system in order to reach the desired state that can help the therapist to heal patients at distance with the use of transpersonal psychology. It seems that the use of neurotechnology alone is not enough to reach desired results but a combination of methodologies can be the solution for the creation of the altered states of consciousness induction machine.

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APPENDIX: PATIENT RESULTS

Figure 6. Patient 1 pre-test results

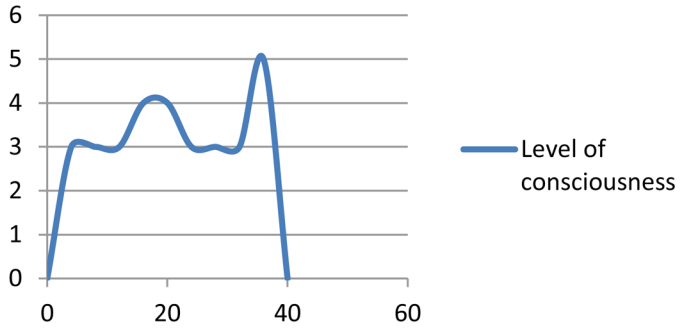

Figure 7. Patient post-test results

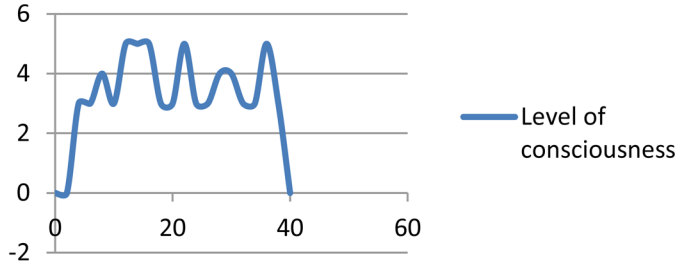

Figure 8. Patient 2 pre-test results

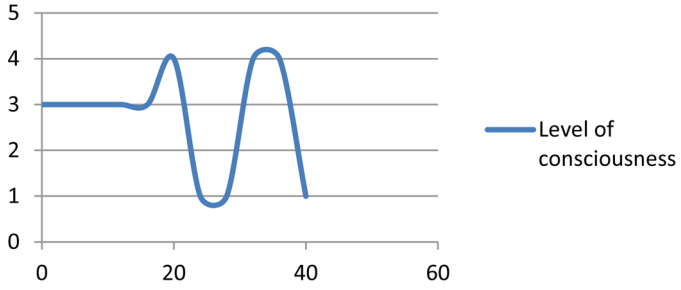

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Figure 9. Patient 2 post-test results

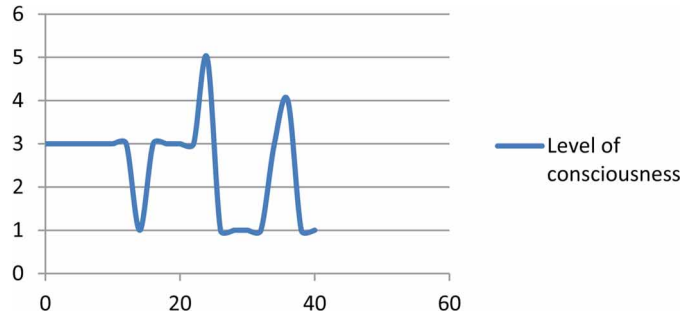

Figure 10. Patient 3 pre-test results

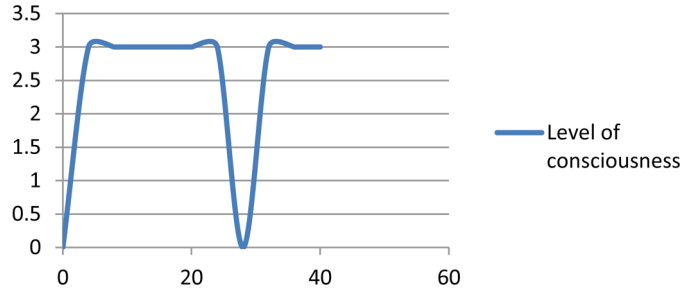

Figure 11. Patient 3 post-test results

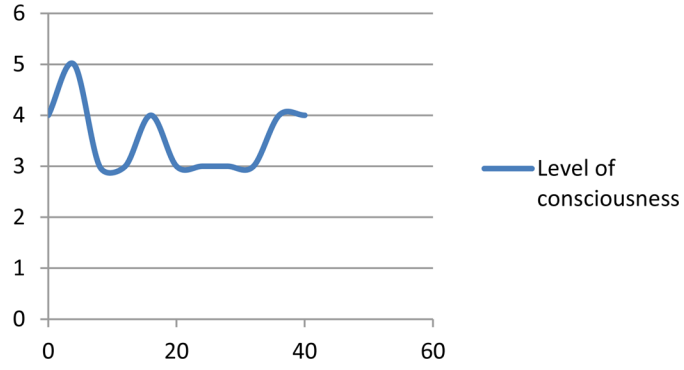

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Figure 12. Patient 4 pre-test results

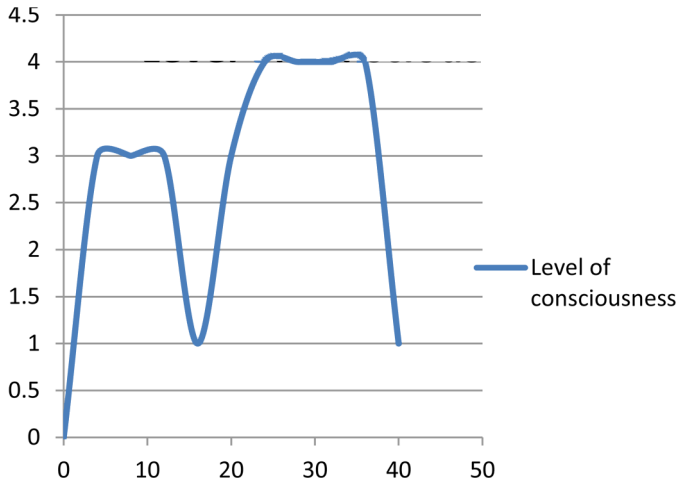

Figure 13. Patient 4 post-test

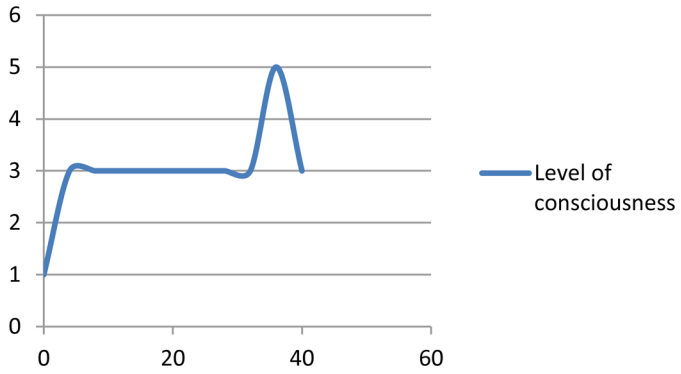

Figure 14. Patient 5 pre-test

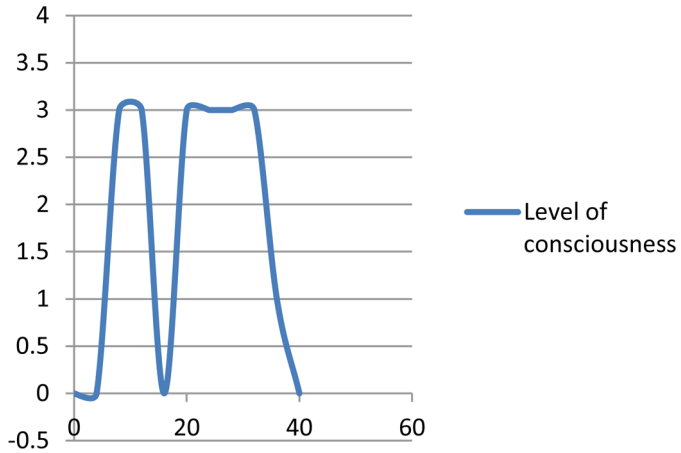

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Figure 15. Patient 5 post-test

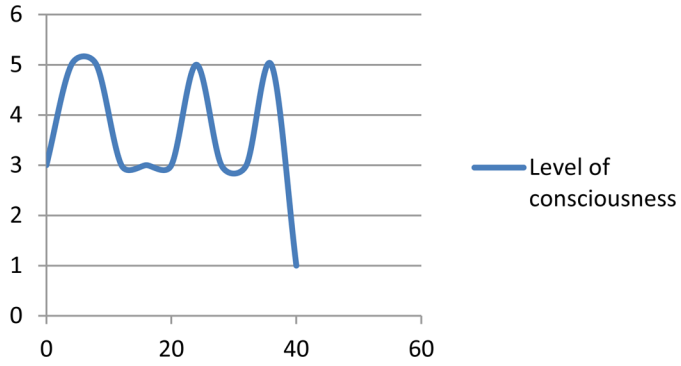

Figure 16. Patient 6 pre-test

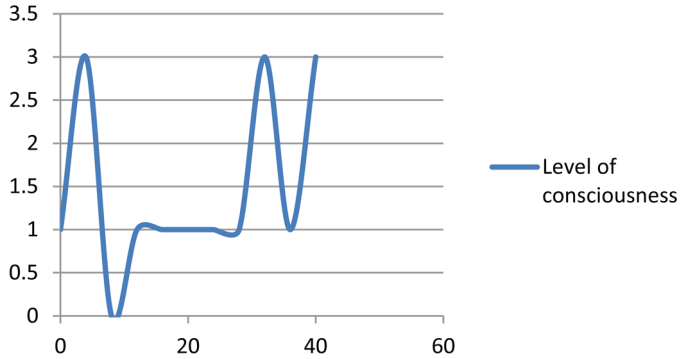

Figure 17. Patient 6 post-test

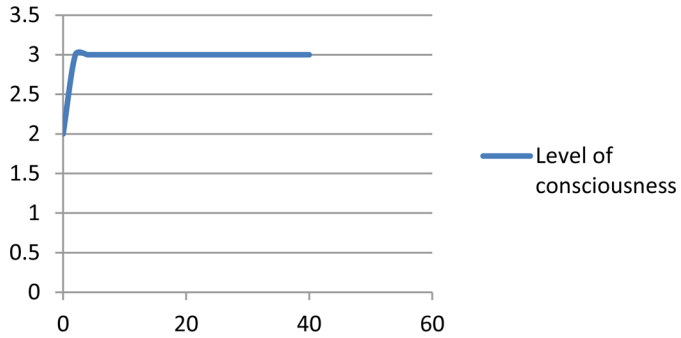

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Figure 18. Patient 7 pre-test

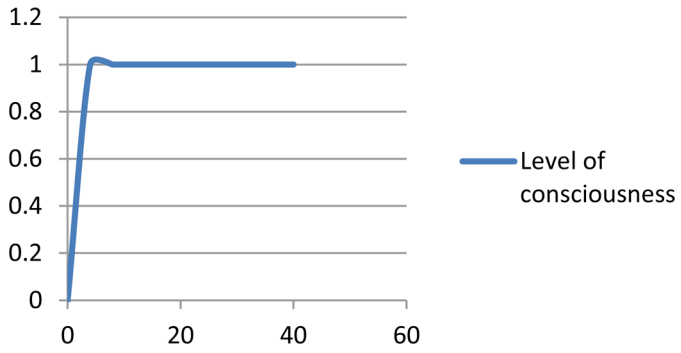

Figure 19. Patient 7 pro-test

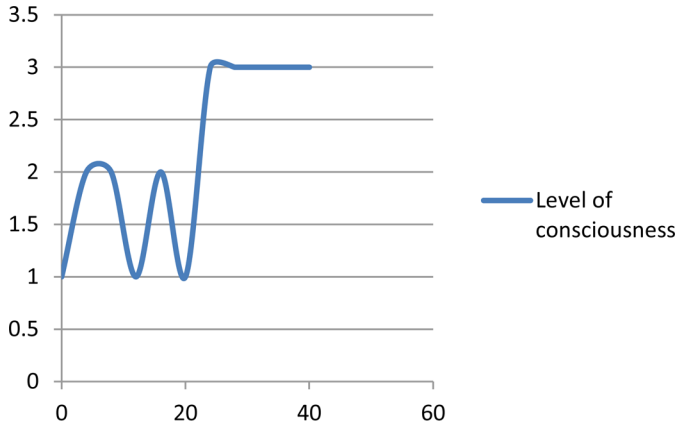

Figure 20. Patient 8 pre-test

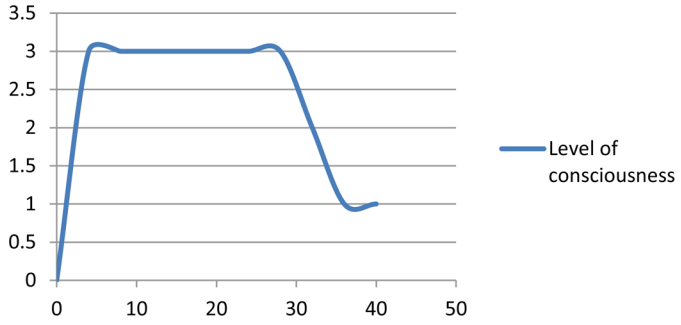

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Figure 21. Patient 8 post-test

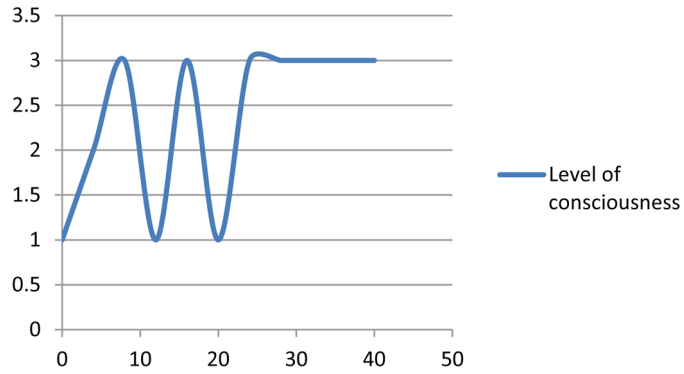

Figure 22. Patient 9 pre-test

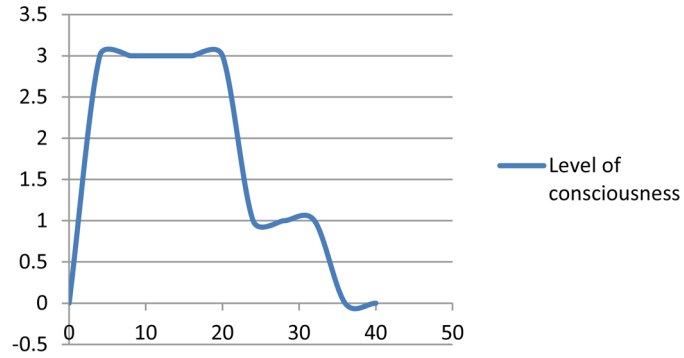

Figure 23. Patient 9 post-test

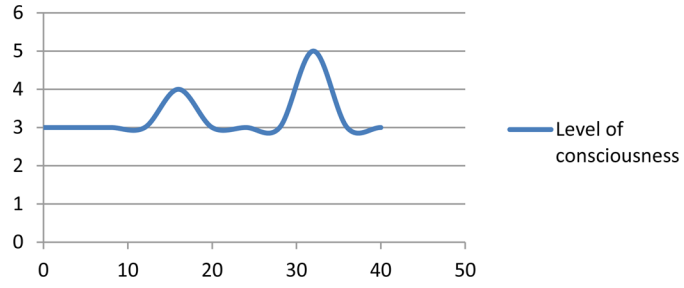

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Figure 24. Patient 10 pre-test

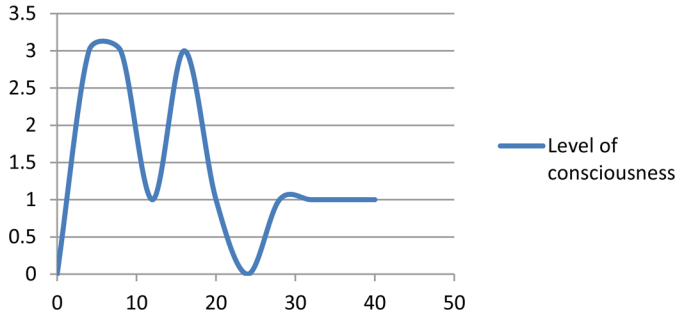
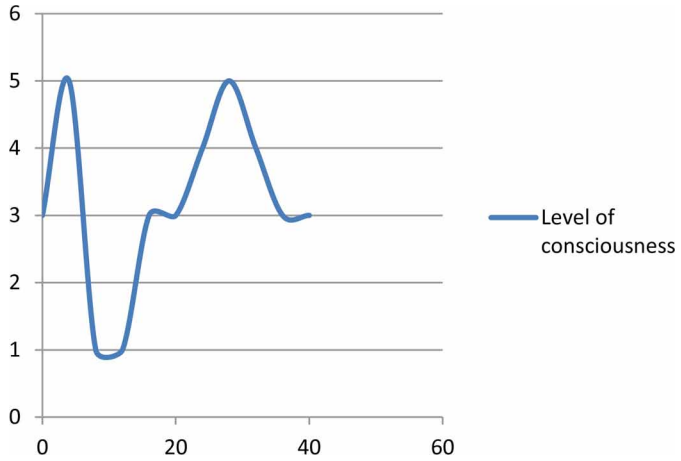


Figure 25. Patient 10 post-test



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Chapter 47
An IoT-Based Platform for Rehabilitation Monitoring and Biosignal Identification

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Department of Embedded Systems, FHDW Hannover, Hannover, Germany

ABSTRACT

This article describes how as a result of technological advances of the embedded system, the Internet-of-Things (IoT) has created a wealth of new applications and tailored solutions, even in the area of health and medical technology. The integration of state-of-the-art IoT-systems in an existing prototype platform for biosignal acquisition, identification, and prosthesis control provides new applications for prevention and rehabilitation monitoring. This article concentrates on an IoT-based platform for rehabilitation monitoring and biosignal identification. The IoT-characteristics for the application in the area of medical technology are discussed and the integration of such IoT-modules in the given architecture is introduced. Based on this extended architecture, new applications in the field of biosignal measurement, signal processing and biosignal monitoring are presented. Some results of a rehabilitation monitoring system, based on a self-designed IoT-module, integrated in the whole platform, are shown.

1. INTRODUCTION

New technologies allow more powerful, smaller, and more energy efficient embedded systems. Based on these systems, the Internet of things has emerged. Legio of applications are existing taking benefit of the IoT-evolution (Lee and Lee, 2015). New services and applications, new business models and ecosystems are arising with this application domain. Apart from the financial aspects of IoT, where the increased focus on value-based care shifts financial incentives to a model in which providers are compensated based on how their patients fare, rather than by the number of tests, visits, or procedures performed, new challenges are existing in the area of medical technologies due to architectures, big data, process modeling, machine learning, cloud services and, last but not least, security and energy harvesting (Al-Fuqaha et al., 2015; Kumar et al., 2017). In this paper the focus is on the integration of IoT-devices into the prototype

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platform of a biosignal acquisition, identification and control system and on new application scenarios using IoT-devices and smart devices, like smart phones (Islam et al., 2015). The IoT-devices provide mobile and flexible sensor and actor nodes, while the smart device provide enough power to perform a number of computing activities and provide communication and positioning (Global Positioning System, GPS) characteristics. The integration of these technologies offers new application scenarios and a powerful extension for example of the platform for biosignal acquisition, identification and prosthesis control. In particular, a mobile application become possible, providing continuous measurement of biosignals and therefore in many cases a better diagnosis, treatment and rehabilitation process. In addition, these mobile applications take care of the personal life situation (Ahmed et al., 2017).

The objectives of the present work pass in the integration of IoT-devices in a HW- and SW-platform solution. The development of intelligent sensors and actors by using IoT technology enables to integrate a variety of sensors and actors into the existing platform. Besides, in particular the radio communication plays an important role which allows a flexible positioning of sensors according to the individual user's needs.

Due to the flexibility of the platform, different use cases with application-specific solutions, based on adapted platform-related modules, can be realized.

So, new application scenarios, in particular continuous measurements, providing better prevention and rehabilitation monitoring, can be developed.

The central objective of the present work is the sensor fusion of the integrated sensor data to improve the identification based on a machine learning method. The sensor fusion allows new therapy procedures, for example to improve the gait analysis (see subsection 4.2). Furthermore, the fusion of sensor data also supports already the identification of the so-called zero space movements from the prosthesis control (Klinger, 2015).

In this article, first, the characteristics of Internet of Things-systems (IoT) are introduced and some examples for medical applications, based on IoT-modules, are described. Then a brief overview of the smart modular biosignal acquisition, identification and control system (SMoBAICS) is given, describing the integration of IoT-components into its architecture. Subsequently two IoT-based applications are introduced. Before concluding, some results are shown, using a self-designed IoT-module for the rehabilitation monitoring system, introduced in subsection 4.2.

2. THE INTERNET OF THINGS

The Internet of Things (IoT) covers the use of connected devices and systems providing intelligence based on computing capabilities to leverage information acquired by embedded sensors and actuators integrated in smart clothes, technical components and other physical objects. The Internet of Things creates new opportunities to link sensors, actuators or intelligent decentralized systems either with each other or with other systems (Bajaj et al., 2017; Bassi et al., 2013; Streitz and Markopoulos, 2017). The IoT-Roadmap promotes new technologies and, therefore, new challenges.

To establish an IoT-System, a system of devices, functions, and services is required. Without any type of quality of service, such an IoT-system is not applicable.

The IoT-system has to provide the following capabilities:

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- **Sensor:** Sensing Data and providing a conversion from the measurement value to digital data. If continuous data are acquired, an analog-digital converter has to be integrated;
- **Processing:** The data from the sensor can directly be sent to a consumer, but in most cases a data processing takes place, providing for example threshold values or other data preparation;
- **Memory:** For data processing or for data storage (raw data!) memory is necessary;
- **Communication:** The communication channel connects the IoT-system to a server infrastructure, providing databases or higher level functions. Using several different sensors and IoT-Systems sensor fusion is one of the challenging topics;
- **Actor:** If the IoT-system has to perform a specific task, an actor is necessary to execute this task, e.g. switching a LED on, closing a valve, etc.;
- **Application:** There are several possibilities using an application with the IoT-device. Of course, the IoT-device is able to execute a local application, for example for detecting events or for computing histograms or other statistical data. The prerequisite is enough computing power, integrated during the platform design process. Second a smart device, for example a smart phone can be used as GUI for the application and is able to host the application. And thirdly, a cloud-based server is able to host any application while the smart device again serves as a GUI.

Keeping these different key and service capabilities in mind, specific IoT characteristics with the objective to engineer and integrate an IoT-System in the biosignal acquisition, identification and control platform has to be defined (see section 3).

2.1. IoT Characteristics

An analysis of different use cases for IoT systems shows the need of establishing IoT-platforms providing a flexible and application specific IoT-system configuration. Such a platform is formed by a specific hardware (HW) and software (SW) architecture which allows for an exchange/configuration of HW-/SW-modules to fit the application requirements on the basis of a HW-/SW-core system. The connectivity is here one key factor. Lots of smart devices, like smart phones or tablets, provide a communication- and computing-infrastructure. Based on this the flexibility and scalability of the platform can be increased significantly using the present-day infrastructure. In addition, the number of intelligent components, providing sensors with local computing capability, rises within the scope of the IoT rapidly (Bassi et al. 2013, Streitz and Markopoulos 2017). Thus, intelligent sensors can be integrated to the platform. This decentralized periphery extends the application spectrum of the platform considerably via adding more sensor and actor devices. Nevertheless, some key aspects have to be taken into consideration:

- The IoT-module is based on layer architecture; the core is an essential part, providing interfaces for the different module-based capabilities: sensor, processing, memory, communication and actor. It enables an efficient and performant integration of different modules and provides smart services;
- The modular character of hardware and software and their platform characteristics is of particular relevance. The platform paradigm provides a flexible partitioning and relocation of functions and services on specific hardware and software modules. Especially the open system gateway initiative (OSGI) or other platform concepts are one of the key features realizing the software platform;

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- Connecting more than one or two devices, the Smart-Device and/or the CPU-module of the IoT-system has to provide gateway functionality. Based on new Bluetooth- (>BLE4.2) or Wi-Fi- (802-11ah) standards, the communication environment with these characteristics can be realized;
- The service orientation of the interface is an essential aspect due to the integration of IoT components. An efficient linking and communication require a defined quality-of-service level to realize a seamless integration of services and modules;
- Using IoT-modules security aspects are a further key point. Without secure data transfer and a secure module interconnection an IoT-based system is applicable in a limited way, especially in medical applications (Kumar et al. 2017). Every connection has to be secured using pairing-based or certificate-based strategies. This is not in the focus in this article.

In Figure 1 the essential features of an IoT-device are depicted, forming a platform circle including the mentioned key aspects. The base functionality of an IoT-module contains an actor/sensor element, and processing, memory and connectivity features, adapted to the specific application. For example, the connectivity may be based upon a wireless or wired connection. Moreover, all modules are designed regarding low-power strategies providing an autonomously operation. Here, energy harvesting is one of the main future topics for IoT-systems due to implantation or the requirement of mobility. The core of the IoT-platform allows for a flexible integration of different modules to configure the platform according to the application requirements. For example, the sensor element can be exchanged to support a gas sensor instead of a pressure sensor.

Figure 1. Platform circle, covering the major system features

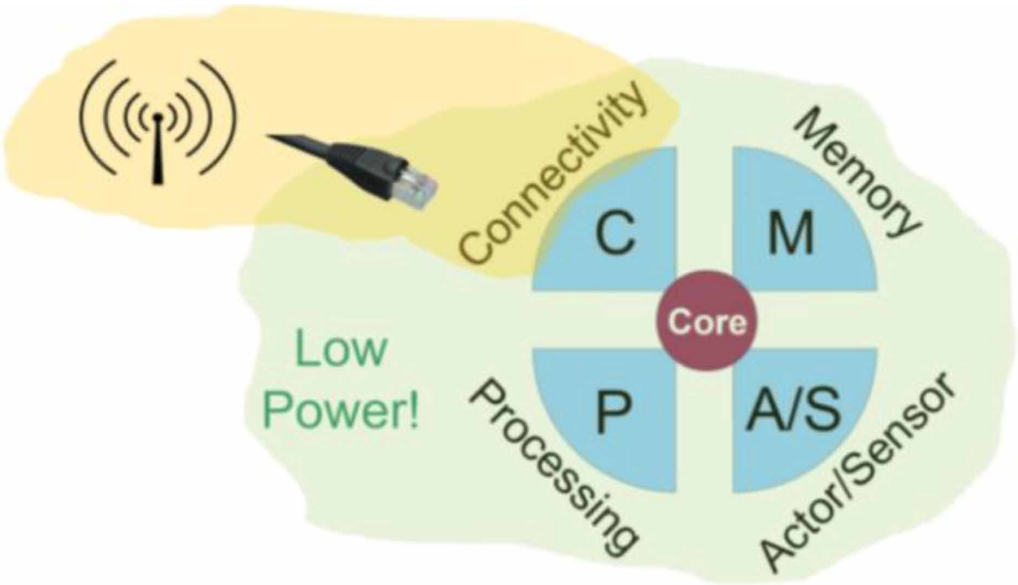

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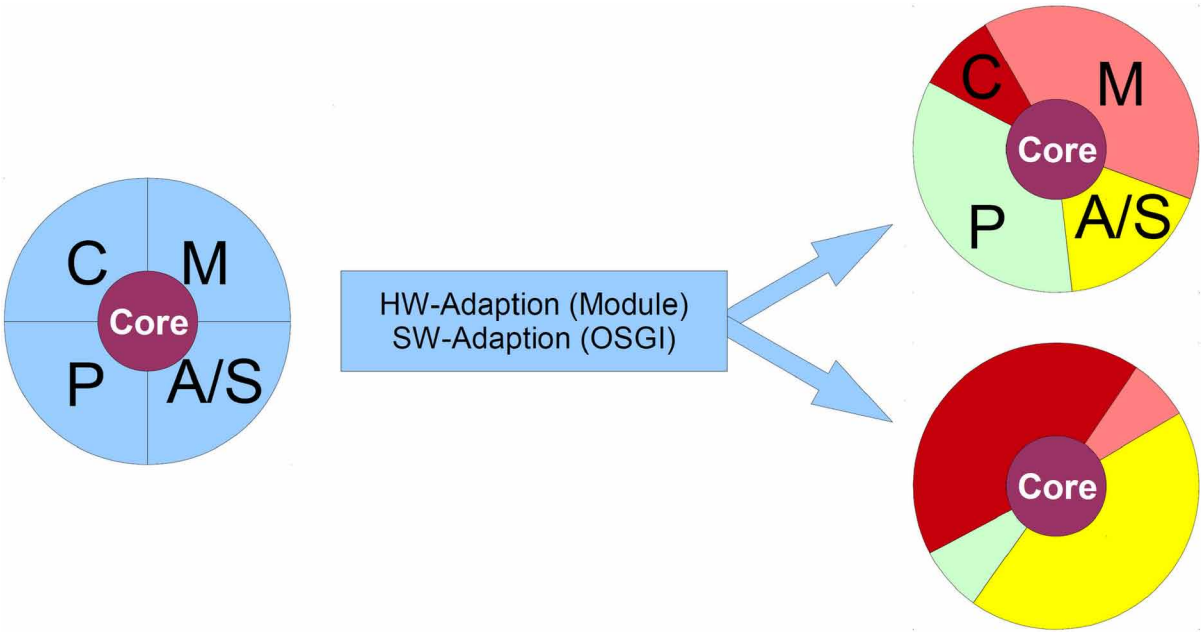
Figure 2 shows different specifications of IoT-systems designed for specific applications. For example, processing features or connectivity are more pronounced than other features. Based on the platform paradigm every IoT-system can be designed according to its specific project requirements. Exchanging or reconfiguring modules, the platform can be adapted to provide a lot of memory (see Figure 2) or to support a complex sensor/actor frontend (Figure 2).

Figure 2. IoT instances based on an IoT-platform



2.2. IoT-Systems in the Area of Medical Technology

IoT-systems can be used in any application area, even in the area of medical technology, prevention and rehabilitation. In this section two examples help to understand the platform paradigm, introduced in the last section. In section 3.2 additional examples are given, focusing on applications of the developed IoT-module.

The prerequisite for both examples is an existing IoT-platform, which consists of two different modules, where one module (Core) is providing the IoT-core interfacing the communication, the memory and processing features and a motion sensor. The other module (Analog Frontend (AFE)) provides specific sensory equipment.

2.2.1. Example 1: Fall Detection (Core Stand-Alone, No Frontend)

The core used separately provides a motion detector and can be helpful in everyday life of elderly people. According to (Centers for Disease Control and Prevention, 2016), only in the USA more than 700000 people a year are hospitalized as a result of fall injury. The motion sensor can detect abnormal accel-

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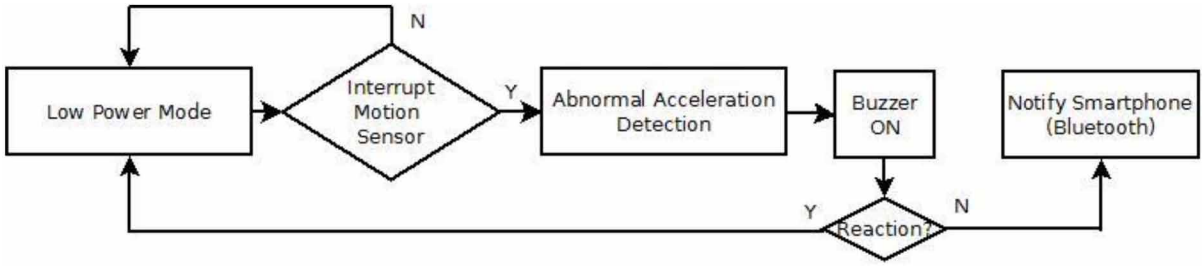
eration values in the ground direction and inform emergency department using Bluetooth and mobile phone connectivity. In addition, GPS coordinates from the smartphone can be included in the emergency message. The time of the event and additional raw data can be saved for example on an integrated SD-card. An illustrative flow of such an event is presented in Figure 3. The system can operate in a low power mode, until an interrupt from a motion controller is triggered. When no user reaction is detected, a smartphone notification and alarm are generated.

Figure 3. Fall detection and emergency notification overview

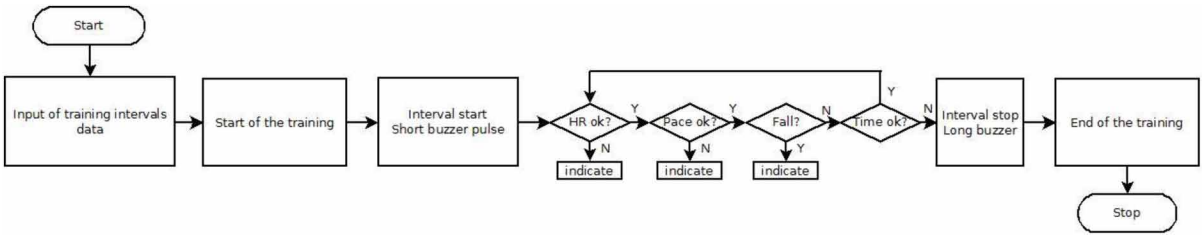


2.2.2. Example 2: Vital Functions Analysis (Core and Frontend Used)

If the IoT-system is equipped with a specific frontend module – here for heart rate detection – it can be used by people with heart disorders, as well as, by sportsmen. Patients suffering from heart problems may benefit from parallel heart rate and fall monitoring. In case of any abnormal behavior, a relevant person may be notified by smartphone application. The functionality for sportsmen presented in Figure 4 would be implemented differently. An accelerometer combined with heart rate monitoring would be a useful tool for interval training for runners. The plan of the training might be set on the Android smartphone and imported to the memory of the device. A timer interrupt might indicate a start/stop of an interval and trigger a buzzer. Heart rate and pace of the run, monitored by motion sensor might be indicated by LED diodes. In addition, the platform can constantly transmit data to the smartphone and save it on the SD-card, if no smartphone is carried. The system is constantly on and monitors interval timing, as well as dangerous events, such as fall.

Similar monitoring applications can be implemented with ECG front-end and other non-health related sensors, such as smoke, or gas sensors.

Figure 4. Heart-rate analysis for athletes, interval running mode



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3. THE SMOBAICS-PLATFORM

Embedded systems provide new approaches in biotechnology and medical therapy. Based on modelling and simulation methods, biological, physical and technical relationships can be described and verified (Kandel, Schwartz, and Jessell, 2000; Law and Kelton, 2000; Zeigler, Praehofer and Kim 2000; Klinger 2014).

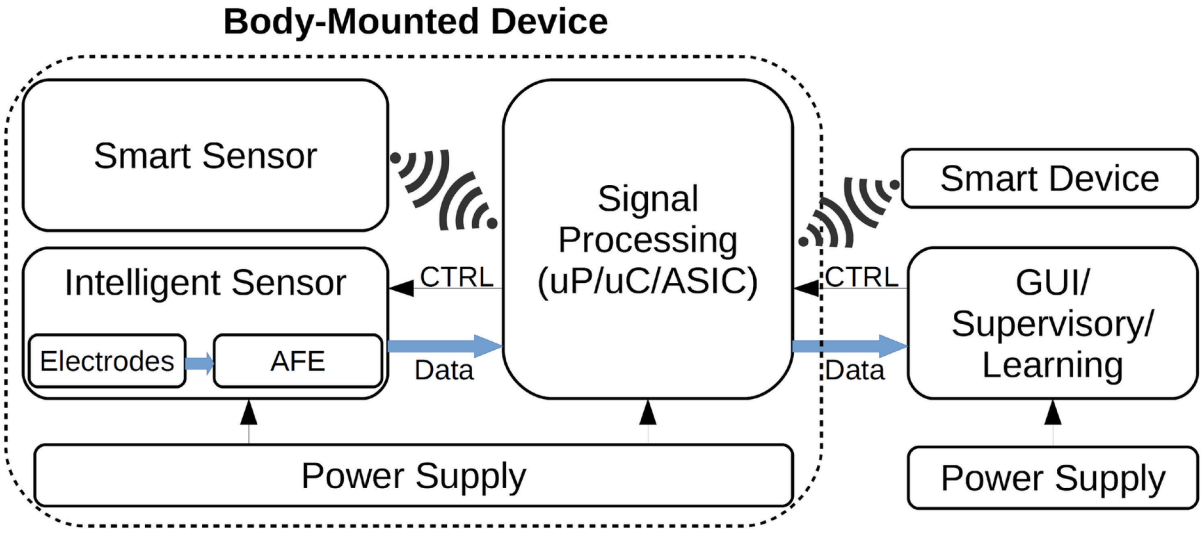
The integration of hardware- and software-components provides an intelligent, smart and application-specific system. Using a platform paradigm, the partitioning between hardware- and software-components is adaptable concerning project-specific requirements. Further-more the platform characteristic enables a modular architecture with high-level flexibility. The integration of sensors and actors in this adaptive hardware/software-platform increases flexibility and provides a measurement and identification platform for lots of applications.

In (Klinger and Klauke 2013), (Klinger 2014) and (Klinger 2015) a modular platform is presented focused on the acquisition of electromyogram (EMG) and electroneurogram (ENG)-signals and a data-based identification approach.

3.1. Architecture and Characteristics

In addition to a continuous improvement of the system core features (in particular the identification), new fields of application and an enhancement concerning flexibility are in focus. In Figure 5 the block diagram of the smart modular biosignal acquisition, identification and control system (SMoBAICS) is shown.

Figure 5. Block diagram of SMoBAICS



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The SMoBAICS-platform consists of several stages and modules, briefly described in the following overview:

1. **Data acquisition and stimulation:** The ENG or EMG (ExG) data or further sensor data have to be acquired and sampled according to their signal characteristics. The number of channels has to be determined by the application. In particular applications stimulation is necessary, for example to trigger movements by activating muscle groups;
2. **Data processing:** Data processing focuses on two key priorities: Data conditioning and identification:
   a. **Data Conditioning:** The acquired data have to be processed to improve the signal conditioning. Besides the programmable filters and amplifiers are resampling functions available to provide periodic samples. The acquired data (action potentials) are disturbed by intrinsic and a substantial extrinsic noise, originated for example by EMG from surrounding muscles. Using integrated analog filters and additional digital filters the signal quality of the recorded data has to be improved. Several filters like specific high-pass, low-pass, band-pass and notch filters are available. A further data processing is necessary to generate events from the action potentials like the activity level of a muscle group or the detection of an exposure scenario;
   b. **Identification:** The identification feature is required for prosthesis control or any type of high level signal evaluation, like gait analysis. The identification is based on machine learning and recognizes different information sources: The action potentials from brain to muscle, the action potentials from the proprioceptors and additional sensor data from microelectromechanical system (MEMS) of force sensors. The identification method and the corresponding verification scenario have been introduced in (Klinger and Klauke 2013), (Klinger and Klauke 2015) based on results in (Bohlmann, Klinger, and Szczerbicka 2009), Bohlmann, Klinger, and Szczerbicka 2010), (Bohlmann, Klinger, and Szczerbicka 2011), (Bohlmann, Klinger, and Szczerbicka 2012). The identification is subdivided into three levels. In the first level, the algorithm recognizes patterns of axon related action-potentials. This set of solutions is checked to well-known parameters, like impulse frequency, the relative magnitude of the nerve impulse amplitude and the refractory period. In addition, clusters are built up to model the different groups of activation and their related sensory information (proprioceptors). So, certain clusters in the neural bundle can be arranged to map muscle groups and their corresponding receptors. In the second level the agent-based set of solutions is combined to global solutions taking the causality between actor and sensory information into account. The third level correlates the first and second level solutions with trajectory information from the camera-system or the MEMS, using inverse kinematic algorithms. Data acquisition and stimulation;
3. **Data archiving:** A local data archive is necessary due to two scenarios, online and offline operation:
   a. **Offline Operation:** For offline operation the identification needs sets of model parameters, data from the learning outcomes and RAM for algorithm execution. Furthermore, all data can be logged on the system for a later offline analysis. During event recognition all data are logged, only event data, for example an exceeding of a maximal force, are sent to the host system;
   b. **Online Operation:** During online operation all local algorithms need memory for an efficient execution. This local memory reduces the requirements for data bandwidth to the host system;
4. **Data exchange / Connectivity:** With regard to Figure 5, the processing of data goes in two different directions, either the local signal processing (operating phase (Klinger and Klauke, 2013))

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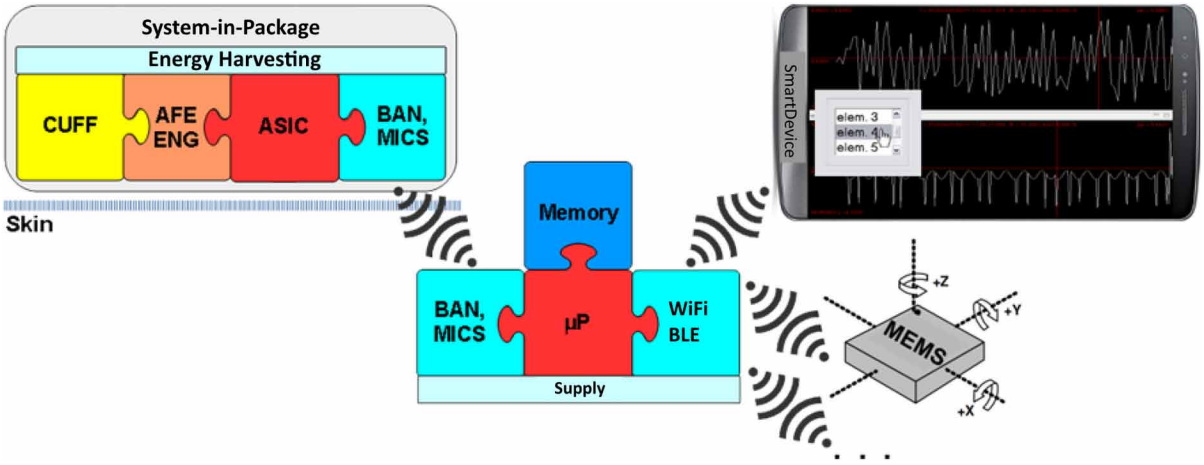
or the host processing (learning phase (Klinger and Klauke, 2013)). Furthermore, the data can be saved locally or on the host, transferred using the communication link (cable or wireless);

5. **User interface:** The graphical user interface (GUI) allows for access to the different system functions and presents either a configuration or a data display;
6. **Configuration:** The system functions can be configured for different use cases and specific GUI:
   a. **Learning:** The control application helps to adapt parameters and to initiate different learning phases;
   b. **Operating:** The operating GUI allows to start and stop the application and to load specific parameters;
   c. **Logging:** The logging collects not only events but all system data for a later offline analysis;
   d. **Event:** The different events and their corresponding limits have to be defined and selected.

In Figure 6 the block diagram is transformed in the platform layer, where the architecture and the functional system components are visualized. This figure shows the design roadmap, where the key component is integrated into a system-in-package (SIP) to provide an implantable device. Furthermore, this figure shows the wireless integration of the MEMS-device, a smart sensor providing the required connectivity shown in the block diagram (Figure 5). This wireless connection improves the flexibility and simplifies the system integration.

Figure 6. Platform layer of SMoBAICS



With regard to the platform, the advantages (+) and disadvantages (-) of this wireless connection type are opposed in Table 1.

Based on this comparison and with regard to platform paradigm, system flexibility and mobility, the wireless connection has been chosen for the integration of all external sensors into SMoBAICS. This decision opens the perspective of using Internet of Things (IoT)-modules which have the added benefit of the future availability of legion of IoT-sensors and actors. The internal sensors, like the cable wired cuff-electrode (Klinger and Klauke 2013), cannot be connected using wireless techniques according to the current state of the art.

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Table 1. Comparison of selected connection opportunities and ranking from the wireless point of view

Issue	Ranking	Comment
The device has to provide an own power supply	-	Cable linked, the device can be powered by the main system
Wireless connection flexibility	+	No number of inputs have to be specified; No galvanic coupling
The device has higher design complexity	-	Design effort
Local intelligence	+	Local intelligence provides more features and functions
No cable link	+	Cable link makes trouble due to mobility; No galvanic coupling

3.2. The SMoBAICS IoT-Modul

As described in (Klinger and Klauke 2013) and (Klinger 2014) the SMoBAICS is a modular system for identification and prosthesis control. The extension or adaptation of the system may then, depending on the application, benefit from existing developments and/or modules. The SMoBAICS platform is used to acquire EMG- and ENG-signals and to provide a data-based identification of movements and trajectories. The identification method is model-based and uses simulation for the continuous model improvement and for verification purposes. The data of the external sensors, here especially of a 9-axis tracking device, are essential for the model- and simulation-based identification method. Here the focus is on the first own designed IoT-module for SMoBAICS that already uses components developed based on this new technology.

Based on the acquisition of action potentials via ENG, the information of the peripheral nervous system is used to identify movement patterns. A micro-electro-mechanical system (MEMS) (mobile phase (Klinger and Klauke 2013)) and/or camera system (learning phase (Klinger and Klauke 2013)) is necessary to get information about the movement trajectories. To integrate the MEMS, an IoT-module was designed to improve flexibility and to simplify the integration of the sensor using wireless connection. Figure 7 shows the block diagram of the SMoBAICS IoT-module. The first prototype with a rectangular base has the system dimensions shown in this figure. The design can be shrunk massively, due to design for test considerations we did not shrink the prototype further.

It is realized according to the platform paradigm and is based on a modular design. The main task of the IoT-system is data processing and Bluetooth Low Energy connectivity. As the system's main task is data acquisition, one of the main requirements was sufficient number of analog inputs and integrated analog-digital converter. Other required features were an integrated Bluetooth 4.1 transceiver and SPI interface (serial peripheral interface). A microcontroller CC2650 (CC2650F128RGZ) of Texas Instruments (Texas Instruments Incorporated 2015) was chosen. The device has a 48 pin VQFN 7x7 mm package with 31 GPIOs (general purpose IOS). The main core of the component is 32-bit ARM Cortex-M3 running at 48 MHz in the active mode. The device is equipped in 8 analog IOs and 12-Bit ADC (analog-digital converter). A separate ARM Cortex-M0 processor is responsible for Bluetooth connectivity. This feature ensures that specific Bluetooth timing will be kept and the main core can go in the low power mode without losing Bluetooth connection. The microcontroller is equipped with a standard SPI interface that is used for the communication between the components. The CC2650 was chosen mainly, because it contained all necessary functionalities and no additional components were

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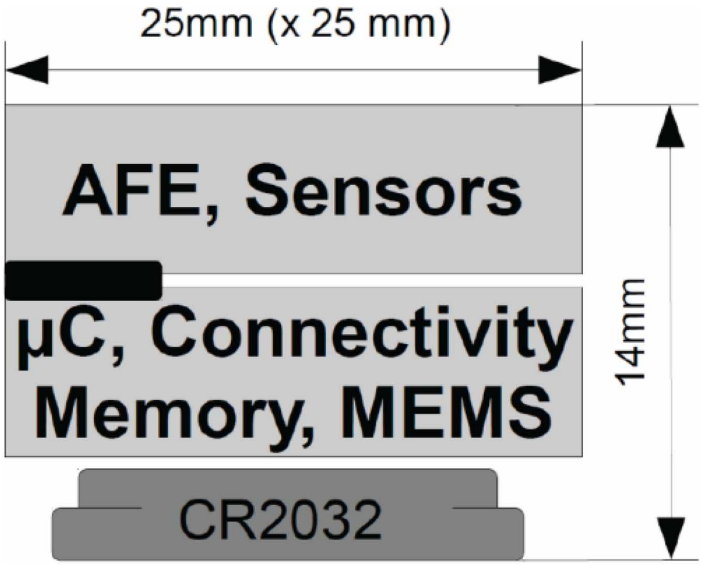
Figure 7. System configuration of the SMoBAICS IoT-system: Base system (lower board); Sensor extension (upper board)



needed for Bluetooth transmission and analog conversion. This microcontroller is available in different packages; this offers the option of shrinking the system for specific applications.

The task of this IoT-system, apart from data processing and radiofrequency connectivity is motion detection. As a motion sensor MPU-9250 (InvenSense 2014) was chosen. The sensor is equipped with 3-axis accelerometer, 3-axis gyroscope and 3-axis magnetometer. The communication with the microcontroller can be implemented with SPI and I2C bus. One of important features is "wake-on-motion", which means that the accelerometer can generate interrupt signals for the main processor when movement is detected. This feature was the main reason why the component was chosen, additionally to the SPI interface.

The platform is equipped with a standard micro SD-card slot, which also determined the minimal size of the PCB board (printed circuit board). Moreover, several LEDs, two standard buttons for user interaction and a magnetic buzzer is integrated to provide interaction. For radio connectivity a standard 2,4 GHz SMD (surface mounted device) antenna for Bluetooth connectivity is used. The choice of the voltage regulator depends on the maximal power consumption of all components. The maximal theoretical power consumption of all platform components that require stabilized voltage, including microcontroller with RF on, motion sensor, 2 LEDs and buttons pressed was theoretically estimated for ca. 50 mA. This value will not be achieved in practice - it would require all components to be constantly on. A maximal value estimated with 15 measurements was oscillating around 10 mA. As the voltage regulator in the platform may also supply front-end components driven by microcontroller outputs, 50 mA was chosen as a minimal reference for voltage regulator selection.

In Figure 8 the current design of the CPU-module is shown. To realize the IoT-system according to the platform paradigm the large CC2650-package providing more I/Os is chosen. Realizing a product-based design, the IoT-system can be shrunk considerably.

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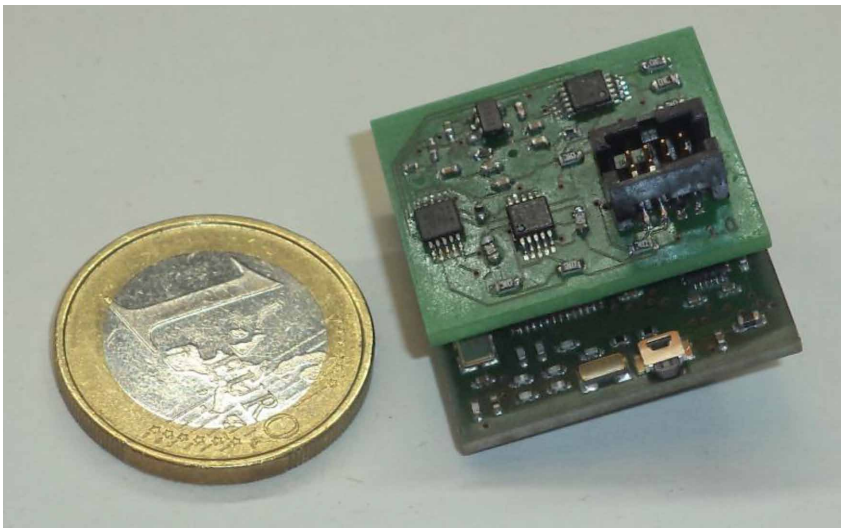
Figure 8. New IoT-platform



According to the platform circle, shown in Figure 1, all essential features are realized:

- **Controller:** ARM-based controller for data and event processing, system control and analog-digital conversion;
- **Connectivity:** In the current version Bluetooth is supported to provide a communication link to the body area network (BAN), connecting all devices of the platform;
- **Memory:** For logging and data buffering a SD-card is integrated;
- **Sensor:** The MEMS is an integral part of this IoT-module because the acceleration and gyro data are important for all relevant applications around this project. To provide further sensor support an interface is designed to connect additional sensors to the IoT-system. This additional sensor system can be connected to the base system as shown in Figure 7. In section 4 we show corresponding application scenarios using additional sensor support.

The prototype attached button-cell battery provides enough energy to independently operate the IoT-device for several days. The intelligent power management helps to reduce power consumption according to the activity cycles. In Figure 9 activity cycles for different use cases are shown, ranging from training applications to different rehabilitation scenarios.

The four operation modes are characterized by power consumption and wake-up capability:

- **Off:** The device is powered off, no power consumption;
- **Standby:** The device is in the lowest power consumption mode, waking up by interrupt of the MEMS-device;
- **Activity:** Data acquisition is activated automatically from standby; depending on the communication status (logging, event mode, transmit continuously, transmit periodically) the power consumption differs considerably;

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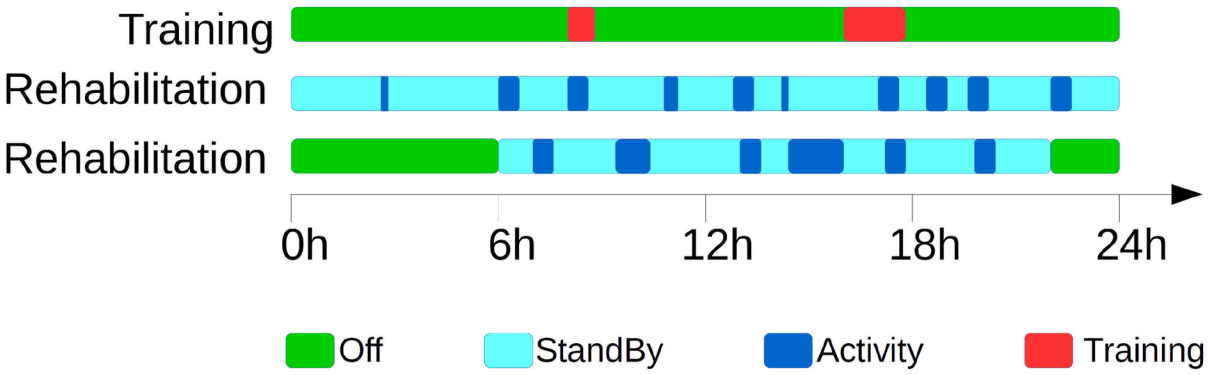
Figure 9. Application specific time-of-use: Day schedule



- **Training:** Data acquisition is activated manually and the communication mode is selectable according to the activity mode.

4. APPLICATIONS

A wide range of applications in the field of biosignal measurement, signal processing and biosignal monitoring are existing. The focus is on two specific examples, demonstrating the further development of the known platform (Klinger and Klauke 2015) and the flexibility of the platform paradigm.

4.1. Prosthesis Control System and Gait Identification

Based on the idea of an ENG-based arm prosthesis control we are still working on the identification to improve the identification algorithms and to make it more robust. Using signals from the peripheral nervous system, the objective of a prosthesis control is adaptable to leg prosthesis, too. In Figure 10 the application schematic is shown, consisting of the same elements, like the system for the arm prosthesis control (Klinger and Klauke 2013).

According to this scenario a MEMS is integrated to get information about zero space movements during the operating phase (Klinger and Klauke 2013). This MEMS contains a 9-axis motion tracking device (gyro + accelerometer + compass). During the first identification runs it turned out, that the MEMS-signals are not sufficient to correlate with the information from the nervous system due to signal drift. So, it was not possible to realize a gait identification which is necessary to provide a leg prosthesis control. Therefore, we add force sensors to the MEMS, called now MEMS+F. Using force sensors, it is possible to get more precise information about the force progression over time and therefore about the gait cycle, shown in Figure 11. The gait cycle information and the force sensors are essential requirements for an identification process (Aziz, Park, Mori, and Robinovitch, 2014), (Ito 2008), (Kugler et al., 2012), (Tao, Liu, Zheng, and Feng, 2012). Furthermore, the gait cycle information triggers another application, shown in the following subsection.

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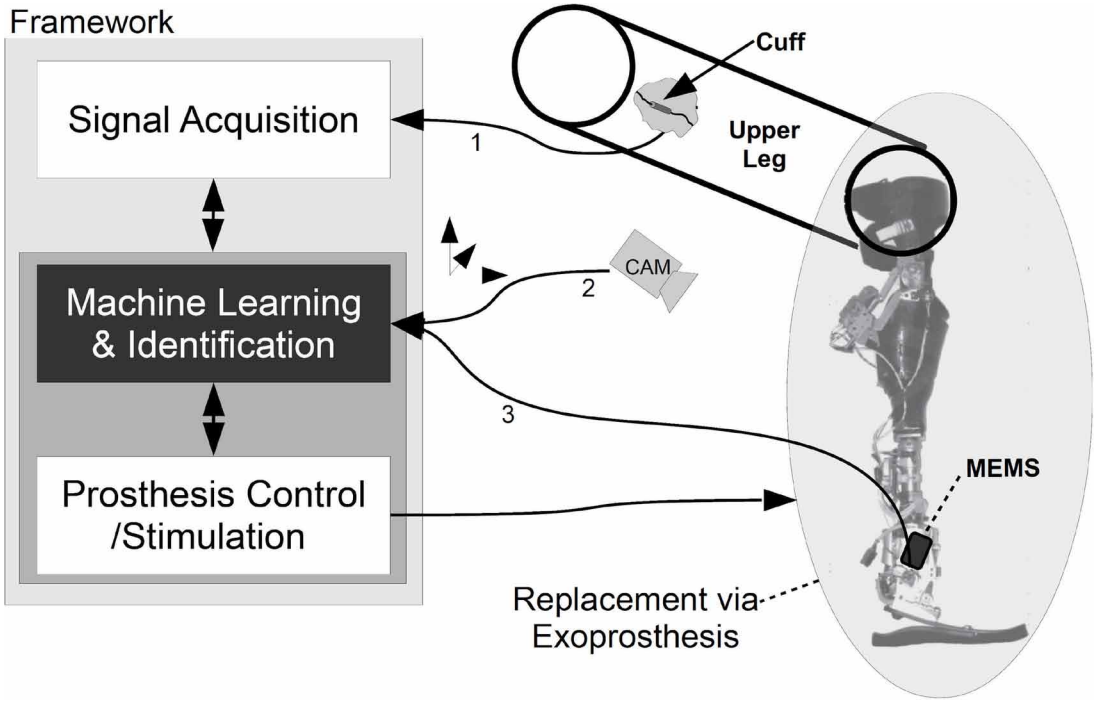
Figure 10. System concept: Prosthesis control



4.2. Rehabilitation Monitoring System and Gait Evaluation

Deploying the MEMS with additional force sensors (MEMS+F) there are a lot of rehabilitation monitoring systems and gait evaluation systems possible:

- **Rehabilitation Monitoring:** Using the MEMS+F device it is possible to measure, evaluate and archive all forces acting on the foot vertically (z). With additional sensors, adaptable to the MEMS+F-device, it is possible to take the other forces (xy) and torques into account. During a rehabilitation phase after a fracture, dislocation, etc. the physical stress can be observed continuously. Therefore, a correlation between stress type, stress duration and recovery progress is possible. In addition, the accumulated load per time period can be taken into account. Furthermore, the monitoring can be used to optimize the gait during rehabilitation to realize a normal gait. If the specific permitted limits are exceeded, an event can be triggered, informing the patient or the treating physician to take the situation into consideration;
- **Gait Monitoring:** The evaluation of gait of apparently healthy persons is an important method to analyze an imbalance or dysfunction which can result in health problems. These problems can be evaluated using continuous gait monitoring to identify pathological or abnormal gaits. Paying attention to how you walk and run reduces unnecessary muscle strain. In addition, this gait monitoring can be used to monitor and optimize movement sequences within the sports segment. In Figure 11 a single gait cycle including the different phases is shown.

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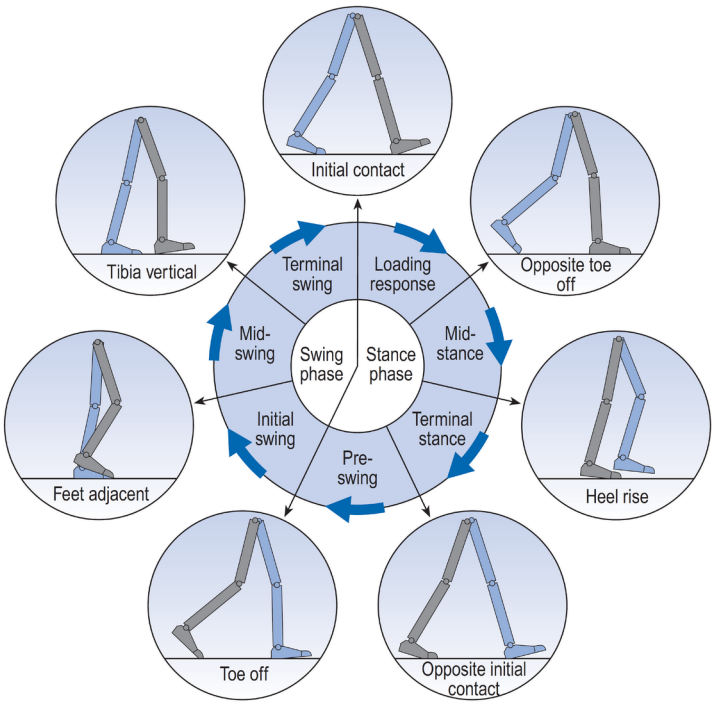
Figure 11. Single gait cycle (Levine et al., 2012)



5. RESULTS

The focus is on the first measurements taken by the new SMoBAICS IoT-device. This device is necessary for all applications and use cases with identification to provide positioning information. Both applications in section 4 are using this device as MEMS+F-device. Focusing on the second use case in subsection 4.2, the whole system can be downsized with regard to the platform paradigm. In Figure 12 a small cut-out of the block diagram in Figure 5 is shown, emphasizing an additional direct connection between the smart sensor MEMS+F and the smart device used in this class of application. In addition to the 9-axis motion tracking device, the prototype is using currently three force sensors to provide a mobile measurement of forces as well of accelerations and gyro data according to a gait evaluation. The current resolution of the analog digital converter (ADC) is 12 bit at a sampling rate of 10 kHz for all force, acceleration and gyro data. These parameters are adequate to detect all effects with sufficiently accuracy.

The position of the three force sensors, used by the current prototype, is depicted in Figure 13. The force sensors extend the information from acceleration and gyro data to identify the centre of gravity and to determine the different phases of the gait cycle (see Figure 11). In contrast to fixed installed measurement plate (Heidenfelder 2011), providing a one dimensional data stream for the vertical force, the mobile MEMS+Fdevice supports in the current version three force sensors as shown in Figure 13.

In Figure 14 the user interface is shown, presenting the data based on an Android application. Figure 15 shows this one dimensional data stream for the vertical force during two steps (Fzl: Left leg; Fzr: Right leg). Using three force sensors a far more detailed force level and force progression can be detected. In Figure 16 to Figure 18 the load distribution for the sensors 1 (red), 2 (green) to 3 (blue) (see Figure 11) for different scenarios, like step, run, jump and changes in balance are shown:

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Figure 12. Direct connection from the MEMS+F-device to the smart device

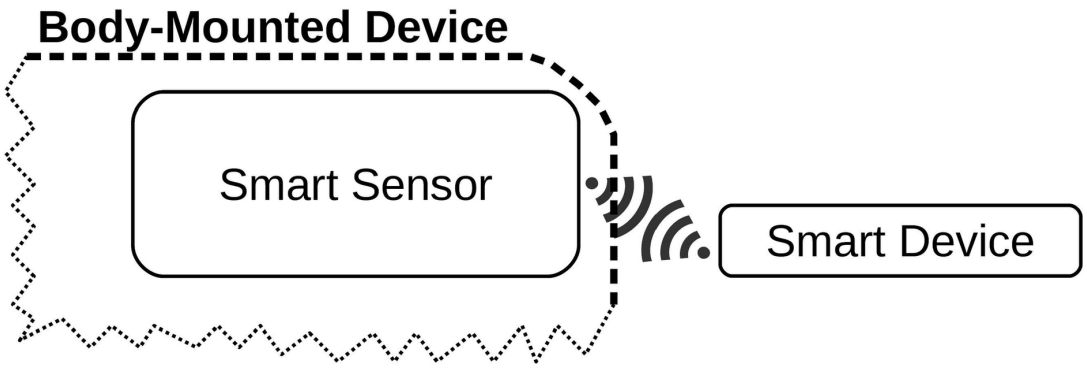


Figure 13. Sole configuration with 3 sensors for vertical force

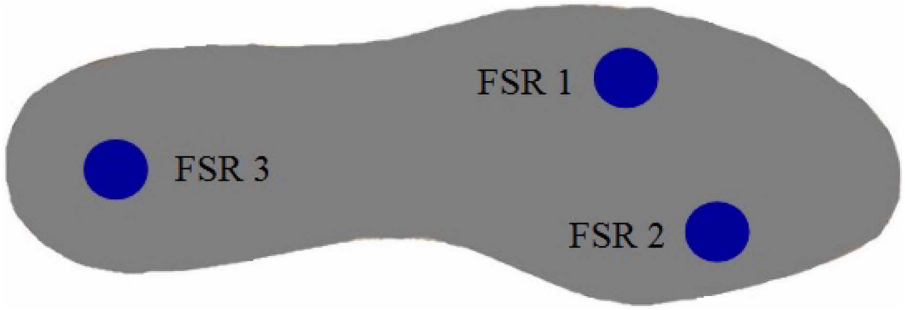
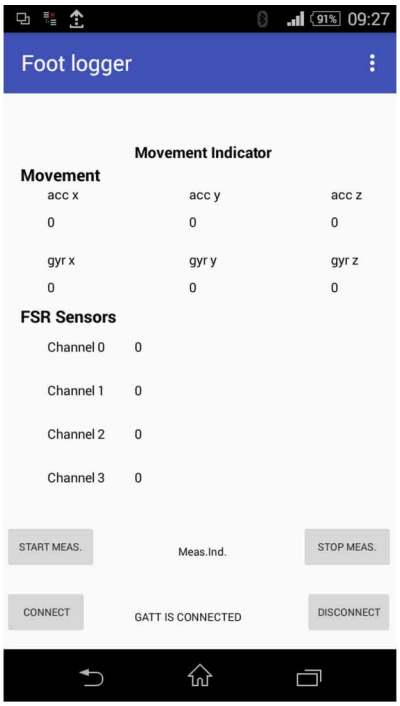


Figure 14. Android App for displaying force data



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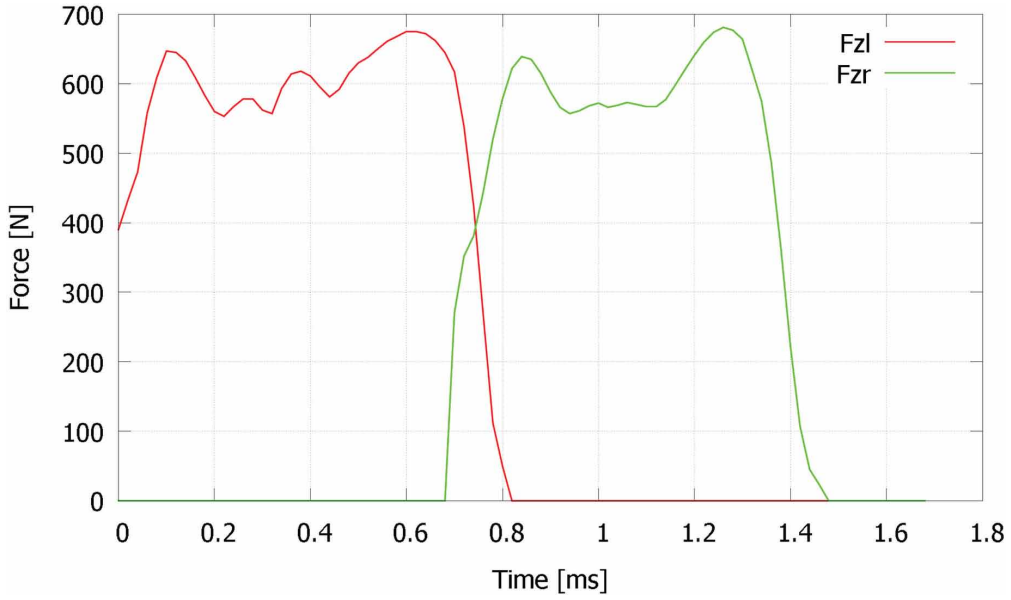
- **Figure 15 and Figure 16 - Normal gait:** According to the gait cycle the different force levels and the force progression for all force sensors over time are shown with regard to one step. In Figure 15 the force levels are shown based on a fixed installed measurement plat. In Figure 16 the force sensor configuration, shown in Figure 13, is used. From the initial contact on the heel up to the push off, the force levels for all sensors are available over time. It is obvious, that the measurement plate shows only the sum of all forces, while the three sensors show a more detailed time and spatial resolution function;
- **Figure 17 – Running:** In comparison to the gait, here the shorter and more intensive force level, dependent on the way of running, is shown over time;
- **Figure 18 – Jumping:** All phases of the jump including the short flight (forces=0) between 930 ms and 1110 ms are evident.

Figure 15. Normal gait: Vertical force plotted over time on a fixed installed measurement plate (Fzl: Left leg; Fzr: Right leg)



6. CONCLUSION

In the following summary, all aspects of the paper are recapitulated. An additional subsection presents the further work on the SMoBAICS-platform.

6.1. Summary

The presented approach for a platform-based embedded biosignal acquisition and identification system integrating IoT-devices offers a wide range of medical applications. The modular system character, based on the platform paradigm, provides adaptability to different diagnostic, rehabilitation monitoring and control scenarios with regard to computing power, connectivity and analog frontend characteristics.

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Figure 16. Normal gait, one step right leg: Vertical force plotted over time for 3 sensors (1 (red), 2 (green), 3 (blue), sum(1,2,3) (magenta), see Figure 15)

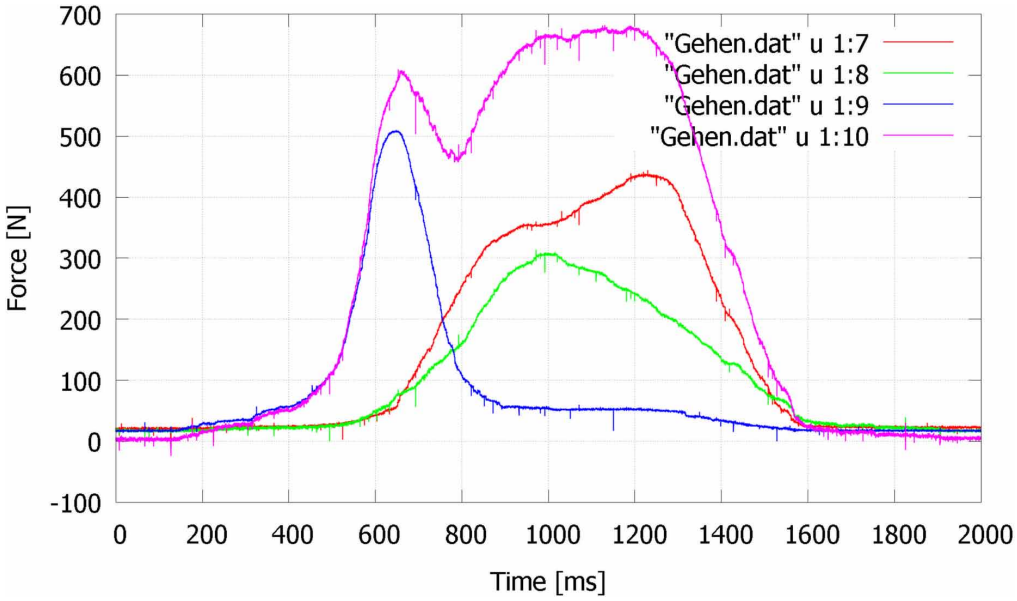

Figure 17. Running, one step right leg: Vertical force plotted over time for 3 sensors (1 (red), 2 (green) 3 (blue), sum(1,2,3) (magenta), see Figure 15)

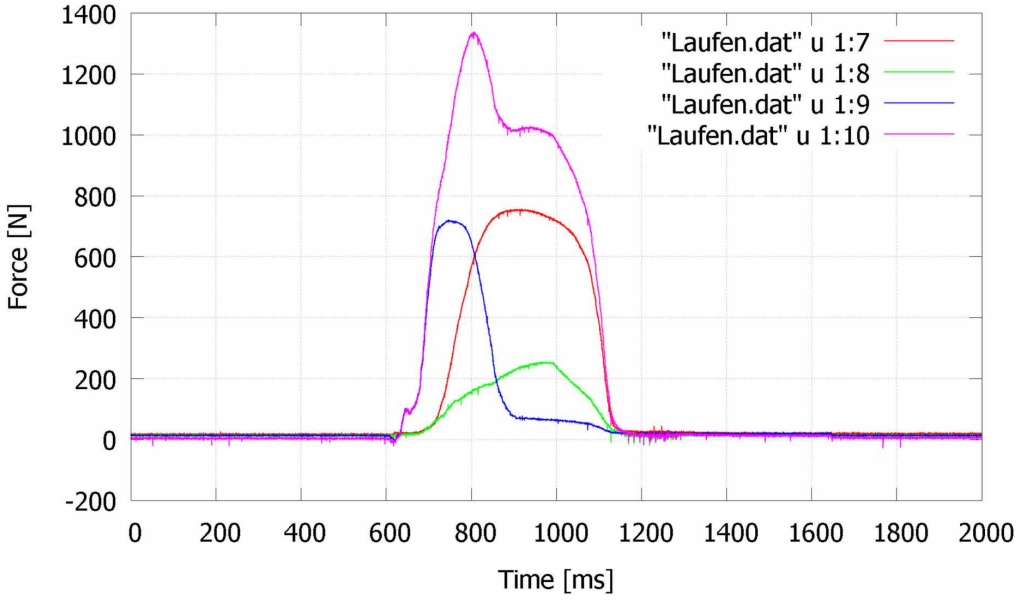

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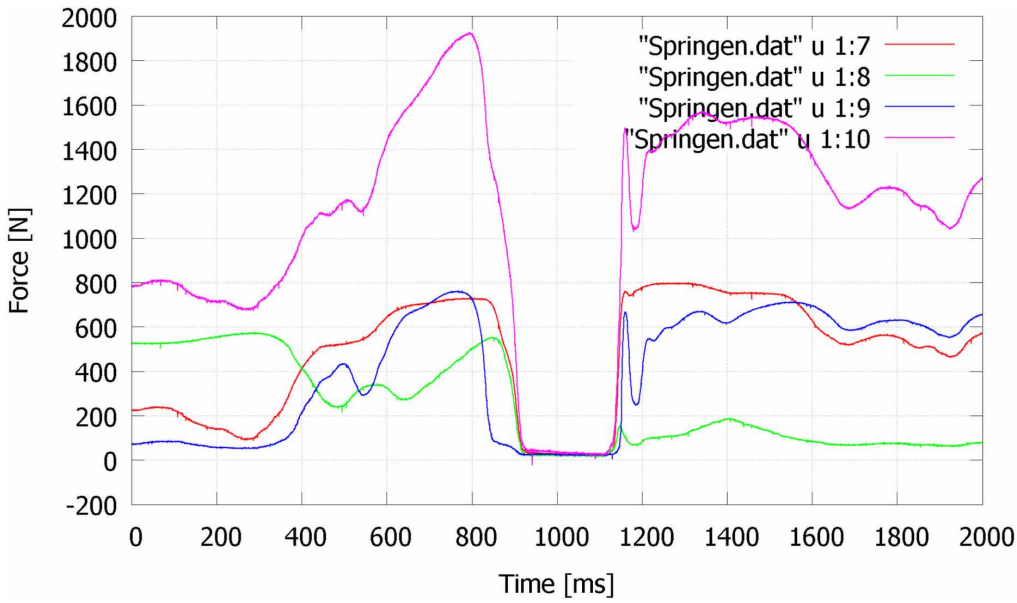
Figure 18. Jumping, right leg: Vertical force plotted over time for 3 sensors (1 (red), 2 (green) 3 (blue), sum(1,2,3) (magenta), see Figure 15)



The integration of IoT systems further expands the range of applications and allows for the correlation of data and thus the sensor fusion and context recognition. IoT has the potential to deliver solutions that improve in particular health applications. The first objective of the present work is achieved. The new IoT-device, also designed according to the platform paradigm, helps to acquire missing data, like MEMS- and force data for identification, and provides a smart integration into the platform using wireless links. Based on the developed IoT-device new applications are constantly emerging, like rehabilitation monitoring, gait evaluation and training-based motion sequence optimization.

The central objective an improved identification of biosignals using sensor fusion based on machine learning is an ongoing task allowing new therapy procedures, for example to establish gait analysis for prevention or rehabilitation services (see subsection 4.2).

6.2. Further Work

Additional tests and clinical applications are ongoing to improve the system characteristics and the identification method with regard to different applications further.

The embedded EMG- and ENG-based biosignal data acquisition and identification system, using a flexible hardware and software-platform, offers considerable potential. The use of monitoring platforms based on platform architectures allows flexibly tuning the system to different application scenarios. The current research and development activities have a dual focus: On the one hand the further development and verification of identification algorithms and the further integration of MEMS- and force data, on the other hand the deployment of a software framework for and graphical user interface for monitoring applications.

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Section 4
Utilization and Applications

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Chapter 48
Is It Real or Not?
Experiences of Synchronous Learning and Training for Counseling Graduate Students

Katie Koo
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ABSTRACT

Counseling graduate trainings, in-person discussions, one-on-one supervision, group supervision, and in-person mentoring are key components of clinical trainings. Thus, developing and delivering diverse counseling trainings by utilizing effective synchronous learning cannot be emphasized more in the field of counseling training. The purpose of this chapter is to explore effective, efficient, and achievable synchronous learning methods by analyzing current counseling graduate trainees' practical experiences on synchronous learning. The chapter will discuss diverse synchronous learning tools that counseling graduate programs offer and the effectiveness of these methods as well as the directions and implications for researchers, educators, and counseling practitioners in higher education.

INTRODUCTION

With the impact of distance learning and highly equipped technologies in higher education, online learning has become one of the most frequently discussed topics in the field of higher education (Young, 2011). Online learning has been considered as a vehicle for enhancing pedagogy, and improving opportunities for students to access education with lower costs (Taplin, Kerr, & Brown, 2013). Along with this educational trend in higher education, graduate training programs for counseling (e.g., counseling, counselor education, counseling psychology, and student affairs) utilize online learning tools to educate and train future counselors. However, counselor educators have been questioning whether students can develop micro-counseling skills and interpersonal skills (Ivey & Daniels, 2016) through online training and whether online delivery methods are appropriate.

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Although the advantages and positive impact of online courses in higher education are well documented: student retention rate, student enrollment, diverse pool of student population, and degree completion rates (Allen & Seaman, 2013), the effectiveness and implementation of online courses in the counseling field is still underdeveloped. Online counselor training programs have been examined by counselor educators, and researchers in the past. However, existing literature primarily focuses on specific areas of trainings such as ethical issues of online counseling programs (Abbass et al., 2011; Rousmaniere et al., 2014), clinical supervision issues (Abbass et al., 2011; Rousmaniere et al., 2014; Rousmaniere & Frederickson, 2013), facilitating interactions (Walker & Rockinson-Szapkiw, 2009), and counseling skills development (Ilieva & Erguner-Tekinalp, 2012; Nelson, 2014). Therefore, relatively little is known about the students' and trainees' perspectives on effectiveness of online counseling courses and online training tools. In addition, studies of online counseling courses focus on asynchronous tools using quantitative research methods except for a limited number of mixed method studies (Nelson, 2013).

This gap suggests that exploring counseling students' and counseling trainees' perspectives and experiences of online counseling courses and synchronous learning tools and effectiveness of this learning method will be beneficial to understand special learning methods in this specific field and to develop more effective and accessible training programs for future counselors. The purpose of this chapter is to explore effective, efficient, and achievable synchronous learning methods by analyzing current counseling graduate trainees' practical experiences on their online courses and synchronous learning methods using a qualitative inquiry. This chapter will also discuss future research recommendations and practical implications for both trainees and trainers as well as counseling program developers.

BACKGROUND

Online Learning

According to Allen and Seaman's (2015) definition, online education is defined by the percentage online courses compared to in-person courses. For example, if 80% or more of course content and interactive activities are offered online, the course is considered an online course. There are multiple online course platforms such as Blackboard, eCollege, D2L (formerly Desire 2 Learn), Canvas, and BBlearn. Each platform provides different methods of content delivery, discussion board, and assignment submission tools. As educational technologies including the internet have dramatically evolved, educators have developed different types of online courses (Clark & Mayer, 2011). According to Allen and Seaman's (2015) report, more than 34% of all undergraduate and graduate students in U.S. higher education institutions have taken at least one online course since they entered college. Public four year institutions reported a seven percent increase in online enrollment, and private four year institutions experienced growth rates for online enrollment by 13 percent during the 2016-2017 academic year (Hall, 2017). Due to the increase in online courses and programs across diverse disciplines in higher education institutions, educators have developed various tools and learning methods to deliver knowledge and skills effectively.

Technological Teaching Tools for Online Courses

Two major online learning technological tools to facilitate diverse online courses are asynchronous method and synchronous method. According to Oztok and colleagues (2013), asynchronous learning methods

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is providing learning environments for teachers and students to engage and interact at different times. Examples of asynchronous modality are powerpoint slides or video-recorded lectures that learners can access at any time, online discussion board that both instructors and learners can engage in discussions at their convenience, and Q and A sessions that learners can post questions and instructors can respond to those posted questions. Because asynchronous learning provides learners enough time and space to reflect on their learning and react to educators' instructions before their actual responses, asynchronous methods are more attractive to students. In addition, both leaners and educators can select their most convenient time and place of engaging in learning, giving more flexibility and benefits of online courses to students and instructors (Degiorgio & Kampfe, 2009).

On the contrary, synchronous learning methods delivers an educational environment where students and instructors can meet and interact online simultaneously: learners and educators cannot select their convenient time and space to learn and teach, but their learning space and time is limited to a mutually agreed and pre-arranged time. The primary methods of synchronous learning is audio and video conference, video presentation, and live chat (Brett & Hewitt, 2013).

Although these learning tools cannot be utilized by every student and teacher because some individuals are not familiar with utilizing these live methods, students and educators can present their thoughts and information, and interact live as if learning is happening in a traditional in-person class space.

Benefits of Synchronous Learning

Advantages and benefits of synchronous learning methods have been well-documented. Giesbers and colleagues (2014) found that synchronous methods in education are helpful in students' group decision-making process and cognitive complexity, Oztok and colleagues (2013) reported that synchronous learning methods make students more satisfied with online courses. For educators, synchronous learning methods help teachers to understand students' learning attitude (Huang & Hsiao, 2012). In addition, e-conferencing using a synchronous learning method promotes both students' and educators' social presence (Rienties & Toetelel, 2016). Although synchronous learning tools appear to be less convenient compared to asynchronous methods because educators and students need to present and interact at the same time, synchronous methods are widely used to overcome disadvantages of asynchronous instructions. In the next section, counseling online programs and methods will be discussed.

Counseling Online Programs

Although counseling professionals have not been active to utilize and adopt new forms of learning technology due to the unique characteristics of counseling training (Rousmaniere, Abbass, & Frederickson, 2014), the use of computer based technologies in the counselor training has evolved. The Council for Accreditation of Counseling and Related Educational Programs (CACREP) reported that 12 counseling graduate programs (e.g., Clinical Mental Health Counseling, School Counseling, and Counselor Education) are online degree CACREP accredited programs (CACREP, 2016).

Researchers (Arredeondo & Arciniega, 2001; Corey et al, 1993; Giovannelli, 2003; McAuliffe & Eriksen, 2000) investigated necessary counseling skills and critical areas require training through counseling training programs: building empathy, self-awareness, self-reflection, compassion, being open-minded, being comfortable with ambiguity, being comfortable with silence, being open to diverse worldviews and perspectives, being open to clients' diverse background and experiences, and being flexible with

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emotionally or cognitively dysfunctional clients. Although the above mentioned necessary counseling skills are well-documented through traditional counseling courses, empirical studies and explorative studies on counseling skills developed through online counseling courses are still underdeveloped. The main focus of existing literature on online counseling training programs has been specific outcomes on counseling skill development and counseling competencies (Ekong, 2006; Lundberg, 2000).

As the counseling field becomes more diverse and international, development of cultural competencies is considered as one of the important counseling skills that needs to be learned through counseling training, and Ilieva and Erguner-Tekinalp (2012) examined the effectiveness of online training for students' cultural competency development. They found that learners appreciate the convenience and flexibility of online counseling courses, and students showed positive reactions on opportunities of reflections. In addition, participants reported that they felt comfortable sharing their personal experiences, reflections, and opinions through online space compared to the face to face format.

Supervision is a significant componentof counseling training, and online supervision through online counseling training (Abbass et al., 2011; Chapman, Baker, Nassar-McMillan, & Gerler, 2011). Students reported the positive side of online supervision through online counseling training is easier access to licensed and well-qualified clinical supervisors, productive supervision sessions, better access to clinical supervisors for students from out of the country (e.g., international students) or students who reside in rural areas (Abbass et al., 2011; Chapman, Baker, Nassar-McMillan, & Gerler, 2011). Additionally, Conn, Roberts, and Powell (2009) reported that supervisors preferred being trained by the hybrid supervision group indicating that easy access to supervisors was essential. Coker et al. (2001) found that students reported online supervision as very positive, and Perry (2012) also indicated that the online supervision is an effective modality for supervisees' professional identity development.

Despite the benefits of online supervision, counseling supervisees also reported negative side effects of online supervision: limited ability to capture and recognize non-verbal communication among supervisees and supervisors (Coker, Jones, Staples, & Harbach, 2002); now being comfortable with technologies and less nuanced verbal and non-verbal ques including reduced eye contact (Sorlie et al.,1999).

Synchronous Learning in Counseling Training

Although there is a growing number of literature on online learning in counseling programs, studies on synchronous learning methods specifically related to counseling trainings are still underdeveloped. However, a few researchers have focused on different synchronous learning methods for counselor training programs. For example, Rousmaniere and Frederickson (2013) examined the effectiveness of online clinical supervision by using online live one-way mirror supervision sessions. They found that online live one-way mirror clinical supervision is beneficial and effective for both supervisors and supervisees and the tool can be utilized for those individuals who have limited access to their clinical supervisors.

Synchronous chat is a widely used synchronous method for counselor training. It involves a group talking online simultaneously. Instructors use text chats, verbal chats, or both (Osborn, 2009). By studying online chats for counseling graduate students, Jin (2005) reported effectiveness of synchronous chat and students' positive reactions on live chats. In Liebowitz's (2003) study, students rated live chat role play methods higher compared to the role play practice in traditional classrooms. Liebowitz's (2003) highlighted the effectiveness of role play using online live chats. In addition, synchronous tools for counselor training is not limited to the classroom only. By using a live chat for virtual office hours, McKeage (2001) reported that many trainees enjoyed the idea of a live virtual office while they still like

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the face-to-face office hours. Ling (2007) also found that an online synchronous tutorial chat was very effective for both educational and social purposes. Schwier and Balbar (2002) reported students' sense of community as one of benefits of synchronous chats in counselor training programs.

Although a growing number of studies have focused on online counseling programs and learning tools, and synchronous chats for counselor training programs, relatively little is known about the effectiveness of diverse synchronous learning methods for diverse counseling programs and students' experiences and perspective on synchronous learning methods. Given the dearth of empirical and exploratory studies on this specific topic and population, systematic studies on counseling students' and trainees' perspectives and experiences on synchronous learning tools are necessary. The present study will add to the body of research on synchronous learning in counseling training, and is significant as the study will contribute to the field of counseling, student affairs and higher education. This study will help inform the practice of counseling professionals, scholar practitioners, and researchers in their work with this growing and complex constituency.

RESEARCH METHODS

The basic qualitative approach was employed as the study design of this research given the exploratory nature of the data and inquiry. Basic qualitative studies seek to "discover and understand a phenomenon, a process, or the perspectives and worldviews of the people of the world involved" (Merriam, 1998, p. 11; Creswell, 2009). Therefore, the author tried to explore counseling graduate students or counseling trainees' perspectives and experiences who study and experience synchronous counseling learning tools as part of their graduate degrees in online counseling programs.

Participants

Participants were recruited through purposeful sampling for qualitative study (Palinkas et al., 2015) based on characteristics of a population and the objective of the study. The final sample consisted of 15 graduate students who are currently enrolled in online counseling graduate degree programs at large research universities (e.g., mental health counseling, school counseling, counseling student affairs, and counseling psychology). For representation of geographical locations, participants were invited from different regions (e.g., West, East, South-West, Mid-West, and Mid-Atlantic). To capture students' genuine experiences, graduate students who took at least two online courses were invited to participate. Table 1 displays participants' pseudonyms and demographic information.

Data Collection

Data was composed of brief field notes including reflections on the interviews, audiotaped records, and the transcripts of one individual semi-structured interview with each participant. Each interview was conducted between 1 to 2 hours. Interviews were conducted during the spring 2018 semester (from January to May, 2018) by the author of the study and a ten dollar gift card was given to each participant as compensation. The semi-structured interview began by completing a brief demographic information survey asking participants' basic information including marital status, estimated family income, and parents' educational background. Open-ended questions were used, such as participants' positive and

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Table 1. Demographic information of participants

Pseudonym	Gender	Age	Pursuing Degree	Major	Region
Alicia	F	24	Master's	Counselor Education	West
Allison	F	25	Master's	Clinical Mental Health	West
Aaron	M	23	Master's	Clinical Mental Health	Mid-West
Carter	M	27	Doctoral	Counseling Psychology	South-West
Callie	F	29	Doctoral	Counselor Education	East
Dylan	M	33	Master's	School Counseling	East
Doris	F	25	Doctoral	Counselor Education	Mid-Atlantic
Heather	F	34	Master's	Counseling Student Affairs	West
Iris	F	22	Master's	Clinical Mental Health	West
Jenna	F	27	Doctoral	Counseling Psychology	Mid-West
John	M	28	Master's	School Counseling	East
Olivia	F	38	Doctoral	Counselor Education	Mid-West
Peggy	F	41	Doctoral	School Psychology	South-West
Patricia	F	32	Master's	Counseling Student Affairs	West
Stephanie	F	25	Master's	Counseling Student Affairs	Mid-Atlantic

negative experiences of synchronous chats, video conferencing, and synchronous virtual office hours, effectiveness of synchronous learning tools, what participants want to add to improve effectiveness of synchronous methods. Table 2 presents the full interview questions.

Data Analysis

All interviews were transcribed by the author and shared with author's research team members. A constant comparisons method by Glaser and Strauss (1967) was employed to code and analyze transcripts. Keywords in the transcripts were highlighted and similar concepts that emerged consistently and frequently were grouped together under a common category. The respective emergence from transcriptions

Table 2. Interview questions

1.	Please list all online courses that you have taken.
2.	What kind of synchronous learning methods did your instructors use?
3.	Do you think those synchronous methods were effective? If yes, why? It no, why not?
4.	What was the most effective and helpful synchronous method, and why?
5	What was the least effective synchronous method, and why?
6.	What would you recommend to add to improve synchronous methods for online counseling programs?
7.	Tell me about your relationship with your clinical supervisor. Do you believe online meeting with your supervisor is as effective as in-person meeting?
8.	Feel free to share any experiences, reactions, and memories about synchronous methods in counseling program.

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was compared with that of the other data in order to check similarities or dissimilarities, and then the author compared all transcriptions in order to search for specific answers to the guided research questions (Corbin & Strauss, 2008).

Trustworthiness

To strengthen the trustworthiness of interpretation for the qualitative inquiry, member checks were used. Randomly selected participants were contacted by the author after the first draft of the manuscript was developed and were asked to provide any type of feedback and reactions on the analysis interpretations of their conversations if they were compelled to do so. It was confirmed that no participants expressed questions or disagreement on the analysis or their quotes.

Researcher Positionality

The author participated in the entire research process including conducting individual interviews, data analysis, and interpretation. The author is an assistant professor in education and completed her counseling master's program and student affairs doctoral program. The author worked as a counselor at the university counseling center for four years and received clinical supervision for her practice. Although she had not taken any online counseling courses in her graduate education, she is currently teaching two online doctoral courses every semester. While the author recorded the field notes from the interview for the study, she reflected on her own experiences as a counselor trainee.

Results

Six key themes were identified on counseling graduate students' experiences on synchronous learning methods for counseling training: 1) synchronous chats were effective; 2) video conferencing was effective; 3) synchronous virtual office was effective; 4) synchronous learning is beneficial for those who cannot access instructors or clinical supervisors; 5) synchronous learning is not the best for group supervision; 6) in-person class is preferred for counseling training programs.

1. **Synchronous Chats Were Effective:** All fifteen participants reported that synchronous chats were very effective and they learned a lot about necessary skills and lessons through interactive sessions. Allison, a 25 year old female student in Master's clinical mental health program said,

It worked really well to me. I was able to write all questions and issues that I had with my mock client, then I talked to the professor through live chat. Because I was able to prepare what to ask and what to learn, I could use the live chat time very effectively.

Some students indicated that online chats were more helpful for them to engage discussions and academic conversations compared to face-to-face conversations. Iris, a 22 year old female Master's student in clinical mental health program indicated,

You know, I am very introverted and quiet. I struggled a lot at the class discussions because I did not feel comfortable to talk in front of the class. But, this live chat, it was different. I did not need to worry

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about what to talk or care about what others would think about my opinions. I felt comfortable sharing my thoughts through the live chat. To me, online class was better. I wish there were more online courses in college, then I would not be that quite.

Participants also reported that they were able to share their thoughts and opinions more honestly in online environments. Doris, 25 year old female doctoral counselor education student said.

I think online setting makes people more brave and honest. At least to me. I don't really talk about in class because sometime I am not quite sure whether I am on the right track, or I just don't want to be judged by other. So I used to be not very active in class. But for this online class, I noticed that I became brave. I was able to talk honestly not caring that much about what professor would think or what if this is wrong. In terms of that, online class was more effective to me.

As mentioned above, synchronous live chat for counseling programs appear to be effective and students benefits its unique environments and opportunities.

2. **Video Conferencing is Effective:** participants reported effectiveness of video conferencing for their group supervision and groups counseling class. Regular supervision is required for counseling training programs. For online trainings, live video conferencing is the only method for synchronous and interactive engagement for supervision, and all of participants' current degree programs utilize video conferencing for supervision meeting. Dylan, a 33 year old Master's student in school counseling program said,

How can you meet your supervisor? I think video conferencing is the sole method for supervisee-supervisor conversations. I audio-recorded my internship session and I played the audio file in my live video conferencing session. Then my supervisor listened and provided me her feedback on my sessions. How effective! I think I maximize this an hour long supervision session not only because it is mandatory for graduation, but also I definitely learn a lot from my supervisor. As I prepared for the supervision meeting, I could reflect on my works and think what I have done well, and things that I did not like as an intern counselor. Then, I could talk to my supervisor.

Learning about diverse perspectives from fellow trainees who live in different places was another reason why students think video conferencing is effective. They reported that they enjoyed learning diverse perspectives about their clinical experiences and mental health issues from their classmates who live different states or different countries. Peggy, a 41 year old doctoral student in school psychology program indicated,

I am an old woman. I think I am the oldest in my cohort. But in online learning environment, it does not matter. The class is so diverse. As I open the computer window for live video conferencing for supervision, I see a student who is visiting to UK logged in and share her experience interning in UK. Isn't that interesting? That is not the only case. Because online learning helps learners to overcome geographical restriction, we are able to meet diverse trainees in the field. I think it's a fortune.

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3. Synchronous Virtual Office Was Effective

In addition to live chats and video conferencing, students benefit from synchronous virtual office provided by the instructors. Many online courses offer virtual office hours where instructors can provide class related information and answer to students' questions. Some educators also hold synchronous live virtual office sessions so students can visit their professors for questions and advising sessions via online tools. Students of the present study also reported that they visited their professors' virtual office using video conferencing or live chat depending on the instructors' and students' mutual preference. Students reported that synchronous virtual office was very effective as instructors held weekly office hours (e.g., approximately 1-2 hours per week, regularly) and students were able to sign up for a virtual meeting. They indicated that virtual office hours worked well similar to in-person office hours. Patricia, a 32 year old female student in the Master's counseling student affairs program shared her experiences with synchronous virtual office,

To me, live virtual office worked great. My professor treated her virtual office hours as if it is the real physical office hours. She set up a sign up sheet for the office hours in advance, then students signed up and we met with the professor at assigned time using either Skype, Google Hangout, Zoom, or whatever worked for both student and professor. I believe that I maximized my signed time and I brought with many questions. Professor managed the virtual office hours professionally and I received great support. I think virtual office hours made my online courses more positive because I felt I was supported enough.

Similar to other regular face-to-face counseling programs, students of online programs meet their faculty advisor or dissertation chairs on a regular basis using synchronous office hours. Callie, a 29 year old female doctoral student in counselor education program addressed how she liked the virtual office hours,

In my master's program, my advisor was extremely busy and sometimes she had to cancel our regular advisor-advisee meetings due to her unexpected schedule. But for this online program, my advisor never cancelled our virtual meetings because she was able to make it to the synchronous online meetings. I think this is a great advantage of the synchronous online meeting, especially for busy students and faculty. I have bi-weekly advising meeting to report my research progress and to ask any research related and dissertation related questions to my advisor. I feel very comfortable working with my advisor online and this virtual office hours on a regular basis worked for us really well for the past 2 years. Looking back my master's program, I really think that this synchronous virtual office hour is a wonderful tool to me.

4. Synchronous Learning is Beneficial for Those Who Do Not Have Access to Instructors or Clinical Supervisors

Most participants indicated that synchronous learning methods made their online education possible, especially for those who do not have access to the instructors or clinical supervisors. For counseling students who worked full time or who reside in different cities or states, they were not able to enroll in the counseling programs because they could not commute to institutions to take courses or attend required meetings. Given that clinical supervision and in-person counseling practicum are significant for the counseling trainings, traditional face-to-face programs were not able to accommodate students who work full time or who live in different locations. However, as universities provide online counseling

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programs, students from different states or different countries are able to enroll in graduate programs and take classes online. In addition, synchronous learning methods such as synchronous video conference for individual supervision and group supervision made online counseling programs real and possible because these clinical supervisions are required for program completion as part of supervised clinical practice. Dylan, a 33 year old part time counseling master's student shared his experiences as a full time K-12 teacher who takes counseling practicum class.

This is my 8th year teaching full time at a middle school and I decided to earn a master's degree in school counseling to be eligible to provide counseling to my students. But it was not easy to find a good program that I can enroll while I am teaching full time because many school counseling online programs required certain number of face-to-face clinical supervision and group supervision hours. So it took me a little while to figure out the program that I can receive approved online clinical supervisions. The current program allowed me to meet with my clinical supervisors online, so I was able to enroll in this program. Ah, they required synchronous online supervision, so I need to meet with my supervisors at the synchronously using a google hangout program. I even meet with my supervisors online while I am visiting other cities due to teachers' conference. It's very effective. I like it.

Peggy, a 41 year old school part-time psychology doctoral student who is currently working full time as an assistant principal addressed how much she appreciated her online counseling class.

I only take one or two classes in regular academic year because my work schedule is full as an assistant principal. Last semester, I took a clinical assessment online class and I met with my clinical supervisor every week via synchronous video conferencing. While I was visiting China to learn about China Initiative Partner Program in our school district, I continued my regular weekly clinical supervision meetings using video conferencing for three weeks and those worked beautifully. Without this synchronous clinical supervision sessions, I was not able to finish the class last semester. I really appreciated this opportunity that I can keep my job while taking the Ph.D level classes. I admire this online program.

5. Synchronous Learning is not the Best for Group Counseling and Group Supervision

Although most participants reported positive experiences on online courses and synchronous learning methods, many of them also addressed that there are some limitations to online groups supervision. Students reported that online courses are not effective for group supervision even though they use synchronous meeting tools because group counseling and group supervision require complicated and sophisticated group dynamics which video conferencing cannot fully capture despite of high technology. Stephanie, 25 year old female student in master's counseling student affairs program said,

I think this online counseling student affairs program is almost perfect or even better than the traditional face-to-face program except for my internship class due to our group supervision sessions. Twenty students who enrolled in this internship class get to share our internship experiences and my cohorts and the instructor provide feedback, recommendations, suggestions, or sometimes emotional support. But, how can you really provide well-advanced emotional support when you talk to your computer via webcamera? They are real people, but it's not real. They are there. But they cannot hug me or pat on my bag to comfort me or encourage me whenever I collapse or show my emotion. One of my cohorts was

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sobbing while she was sharing her internship experience at the student advising center. She felt strong connection with her student because her student struggled with very similar family issues that she had with her own family. She looked lost. She looked devastated at that time. But she was in her room and no one in that class was able to visit her and hugged her to help her, of course. All we could do was talking and encouraging verbally which I don't think very effective. I am sure that instructor felt the same. She is a wonderful teacher, but she could not travel to the student and help her. I noticed that it was the limitation of the online internship program. Don't you think so?

Students also indicated that the level of conversations and sharing in group supervision and group counseling was not deep but shallow because it was a video conference. Jenna, a 27 year old counseling psychology doctoral student shared her experiences about taking an online group counseling program,

Group counseling was the only program that I did not like, that I could not like. Our group dynamic was way too shallow. The reason why I can tell for sure is because I took a group counseling class in person in my master's program three years ago, then I am taking this online group counseling now, so I can compare those two. In the past in-person group counseling class, our conversations were genuine. We showed our authenticity to one another as future counselors. Those conversations and non-verbal language were real and genuine. I believe that we all learned a lot through our genuine conversations and openness. But for this current online group counseling class, I definitely see that my professor struggles a lot because students are not participating in engaging. I think the online environment is not the best for us to share, talk, and validate. Also, it is not easy to understand other classmates' intention or real conversations simply because it's synchronous video conferencing. How can we catch sophisticated emotions and feelings which is very important for the group counseling settings? I wish that I could take this class in person, but I know it is not possible.

6. In-person Class is Preferred for Counseling Training Courses

The last and the sixth emerged key theme is that counseling graduate students prefer to take in-person counseling training courses over online counseling courses. Seven participants indicated that they would not recommend taking online counseling or clinical supervision courses if there are other class options because genuine and supportive interactions are lacking in counseling practice online class. Students reported that in-person counseling classes and supervisions are more effective and more real compared to online counseling courses. Olivia, a 38 year old counselor education doctoral student said,

I am not sure if this is because I am a low tech person or because I am relatively older than other traditional students. But video conferencing for my individual counseling practicum and weekly supervision is not the same as the regular face-to-face meeting. How can you comfort or encourage your supervisee through video chat? How can you capture your supervisor's non- verbal sign well? Although I believe the power of online classes, especially for a busy woman like me, I have four children and my husband is out of town for 6 months of the year, online class works well for most of cases. But I would prefer to take in-person class if it's a counseling class.

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SOLUTIONS AND RECOMMENDATIONS

The present study explored current graduate students' perspectives and experiences on online synchronous learning methods in their counseling training courses. Most students showed positive experiences on their synchronous learning tools for counseling such as virtual office hours, video conferencing, and video counseling sessions while they still believe that there are limitations on online counseling courses compared to the traditional face-to-face counseling course due to limited humanistic and emotional interactions for online courses. Given the fact that the nature of counseling training requires genuine interpersonal interactions and non-verbal communications, students' struggles and challenges with online counseling courses are considered as common issues for the area of the study. However, if the limited aspect of synchronous learning methods for online counseling graduate training can be updated and modified, online counseling courses can be more powerful, accessible, and effective to accommodate diverse students and trainees who cannot access traditional face-to-face education. As students indicated from this study, trainees wanted to have genuine and authentic conversations and supervision through their courses and clinical supervisions. To support their needs, advanced technology for real interpersonal interactions is recommended. Although the counseling graduate programs have not yet developed more advanced learning tools to capture the real humanistic side of online synchronous communications, if both trainees and trainers are fully aware of limitations of online counseling courses and clinical supervision, they may invest more energy and focus to participate in those programs to overcome the challenging part of online trainings. Also, adding monthly or quarterly in-person meetings to support students' and supervisee's needs may be another recommendation to overcome limitations of synchronous online learning methods. Students indicated that they wanted more genuine and real support from their clinical supervisors because meeting with supervisors via online is limited to exchange more real interactions and hard to catch trainees' strength and weakness of non-verbal body language or interpersonal skills. Therefore, hiring and assigning a clinical supervisor who resides in the same city where trainees reside in addition to students' faculty supervisor can be a solution to fill the gap between online and in-person clinical supervision. For this solution, graduate programs need to be supportive and professional to locate and hire licensed, professional, and well-known clinical supervisors of each location.

FUTURE RESEARCH DIRECTIONS

This study's findings inspire future researchers. One of the important issues that emerged from the present study was that students reported their genuine connections with trainers and supervisors via online programs become weak as the semester proceeded. Although Orzok and colleagues (2013) reported that online student-instructor communication via synchronous video conferencing is as effective as traditional face-to-face communication, this study indicated that there are limitations to synchronous online communications. Therefore, it is recommended for researchers to investigate the effectiveness and impact of student-educator synchronous video conferencing communications on learning to understand specific areas of limitations. An interesting aspect of counseling graduate students' experiences with online courses was students' employment status. Whether students were working full time or part time impacted the quality of their education quality. As full time employed students indicated that they appreciated online courses more because online training options were the only opportunity for them to enroll while they were working full time. Because full time working students did not have many options

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of taking in-person courses at their desired institutions, they appreciated their current online programs and their satisfaction level was higher. Therefore, more investigations of students' employment status or work experiences related to their reactions and experiences on synchronous online trainings are recommended. It is shown that students had different reactions on different synchronous learning tools (e.g., video conferencing, virtual office hours) in their programs. To provide more effective and individualized services and trainings to students, studying on effectiveness and unique characteristics of each synchronous learning tools is strongly recommended. Evidence based knowledge on technology will enlighten both educators and students as it will help them understand what they are teaching and what they are learning, so that they can select the most effective and beneficial learning tools. As the findings of this study indicated, geographical locations of learners were important factors to students' experiences and their perceived effectiveness on synchronous learning methods: participants who lived in major cities or suburbs reported more positive experiences on online counseling programs compared to those who resided in rural areas. Given the fact that students in the cities can easily access learning resources and possible clinical internship sites and clinical supervisors in town, it is inferred that students in the cities or suburbs consider online learning tools more positively believing that they may have diverse resources in addition to their online courses while students in rural areas consider their trainings and learning opportunities as limited due to geographical restrictions. Therefore, further systematic explorations on students' experiences and reactions on synchronous online counseling learning methods depending of their geographical locations are recommended. This detailed information will provide valuable insight on the program and what individuals want.

CONCLUSION

As online learning continues to be one of the major issues in higher education, many interpersonal skills related majors (e.g., counseling, medical school, nursing) synchronous online learning technologies play an important role in supporting both educators and learners. Furthermore, along with growing student population in online counseling graduate programs, synchronous online learning tools have become important in light of supporting and advancing educators' and students' quality of education. Therefore, online counseling graduate programs and higher education researchers and online instructors have a responsibility to address the needs and concerns of graduate students in counseling training programs. The findings of this study will contribute to assist professors, advisors, and higher education administrators better meet the needs of counseling graduate students who enroll in online programs who depend on synchronous online learning tools and who benefit from the programs.

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KEY TERMS AND DEFINITIONS

Clinical Supervisor in Counseling: A formal and disciplined supervisor who reviews and evaluate counseling trainees' clinical works, and provide advice, suggestions, professional support, and encouragement as part of training procedure.

Counseling Psychology: A general practice and health service provider in professional counseling. Counseling psychology deals with personal, emotional, social, work-related, and physical concerns to improve wellbeing of people.

Licensed Counselor: A nationally licensed individual who is qualified to provide personal and group counseling to their clients. To be qualified, individuals need to complete at least a Master's degree in counseling from accredited institutions and fulfill 200 hours of supervised clinical practicum hours.

School Counseling: A professional help from a licensed school counselor by providing academic planning, exploring future careers and future school options, counseling students with academic concerns and challenges, and consulting with teachers about classroom management and student issues.

Student Affairs Professionals: Individuals who work with students in higher education settings by providing individual support, academic guidance, campus resource, personal counseling, and appropriate referrals to help students grow and develop in college.

Synchronous Conferencing: A real time online meeting that participants meets at the same time with the help of advanced technologies. Participants can engage in the meeting lively and receive feedback instantly.

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Chapter 49
The Perception of Muslim Clients Towards Non-Muslim Counselors

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ABSTRACT

Having a counselor with a different religious background from the client might lead to conflicting perspectives. This chapter intends to explore the perceptive of a Muslim client in choosing a non-Muslim counselor. The concept of helping process, which is highly respectable in the teaching of Islam, is explicated. Muslims are encouraged to help each other, especially those who are in need. Preferably, a non-Muslim counselor should have some basic understanding of the Pillars of Islam prior to conducting a counseling session with a Muslim client. The knowledge will facilitate the counselor understanding process of the clients without bias. It is anticipated that the information presented herewith would benefit non-Muslim counselors and help them in understanding their Muslim clients better. This chapter also examines the cultural issues that may influence the effectiveness of a counseling session between Muslim clients and non-Muslim counselors.

INTRODUCTION

The challenges in human life today are highly complex. Counselor nowadays has become a place of reference to express a problem, seek advice, and a source of motivation. In addition, they also become a place of discussion about the various human scenario and diverse problems, which are getting increasingly critical and community-specific. Consequently, they need to equip themselves with vast knowledge and various skills not only to strengthen their existing counseling skills but also to deal with diverse clients of a different background. It is essential to streamline the counseling services offered to address the

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growing societal complex problems. However, there are counseling methods that emphasized the Western way of thinking, which are incompatible with the culture, religion, and norms of the society in Malaysia.

A counselor with good counseling skills but lack knowledge in the field of religion, or vice versa, has limitation in offering counseling services. For instance, if a client is facing a critical religious issues, the counselor will not be able to help the client, effectively. This is because religious issues must be handled with due care, especially matter related to the legal aspect of the religion. Hence, the question; could a non-Muslim counselor provide an effective counseling service to a client, especially when it involves religion-related issues?

Counselling is a process that involves a counselor and a client in which the intention is to have a better outcome for the client. Both the client and the counselor are important to the counseling process. Having a counselor from a different religious background from the client might contribute to conflicting of perspectives between the counselor and the client. Multicultural counseling, as explained by Sue and Sue (2008), refers to the role and helping process that employed a method and a goal setting consistent with the client life experience and values. It also takes into account the client identity as an individual and a member of a society by using a strategy that is universal and specific to the client's culture when making an evaluation, diagnosis, and a treatment for the client. The cultural diversity between a counselor and the client makes the counseling process unique, which should be taken into account by the counselor. This is explained by Hays and Edford (2010) who asserted that the role of a client's cultural identity must be given due consideration during a counseling session because it has a strong influence on the client experience. A client who attends a counseling session with a counselor of a different religious belief is expected to undergo a unique experience. The limitation of understanding of the belief as well as the different values between a Muslim client and a non-Muslim counselor will somehow affect the counseling session effectiveness.

Counseling also occurs in the Islamic teaching. The concept of a helping process is highly commendable in the Islamic perspectives. It strongly indicates that Muslims are encouraged to help each other, especially towards those who are in need. The Quran and hadith also emphasize the need for a Muslim to be kind and helpful towards each other. A counselor needs to have some basic understanding of the Pillars of Islam to conduct counseling sessions with Muslim clients. The knowledge and understanding of this fundamental aspect of Islamic teaching help to ease the process of helping a client without prejudice. As a multicultural counselor, the combination of knowledge, awareness, and skills are the three main components required to conduct a counseling session, efficaciously. This paper explains counselling from the perspective of Islam, the duties of Muslim clients and issues regarding Muslim clients and non-Muslim counsellor. It is anticipated that the information offered in this paper would benefit non-Muslim counselor to have a better understanding towards their Muslim client. The non-Muslim counselor restricted understanding of the clients' belief as well as the different values between a Muslim client and a non-Muslim counselor will somehow affect the therapeutic relationship and the efficacy of the counseling process. This chapter also examines the cultural issues that may influence the effectiveness of the counseling session between a Muslim client and a non-Muslim counselor.

Counseling From the Perspective of Islam

Counseling is a process of a helping relationship between a counselor, who is trained and specialized in the field of counseling, and a client who needs an assistance and guidance. The helping nature of a counseling process between a counselor and a client is a noble feat, which is commendable in the Islam

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religion. This deed is clearly stated in Surah Al Ma'idah [5:2], which means, "Rather, help one another in acts of righteousness and piety, and do not help one another in sin and transgression." This verse indicates that the nature of counseling, which is to help a client resolve the test he or she is currently facing, is highly praiseworthy by the Islamic teaching.

The counselor role in encouraging a client who is experiencing an impasse is greatly regarded in Islam. This is evidenced by the numerous hadiths narrated with regard to helping others. The first hadith mentioning this notion was narrated by Abu Hurairah r.a., who said, Prophet Muhammad (PBUH) decrees that "If anyone relieves a Muslim believer from one of the hardships of this worldly life, Allah will relieve him of one hardship of the Day of Resurrection. If anyone makes it easy for the one who is indebted to him (while finding it difficult to repay), Allah will make it easy for him in this worldly life and in the Hereafter, and if anyone conceals the fault of a Muslim, Allah will conceal his fault in this world and the Hereafter. Allah helps His slaves as long as he helps his brother." Another hadith narrated by Tabarani and Daraqutni stated, "The best of people are those that bring the most benefit to the rest of mankind." This means that the earnest assistance provided by a counselor to a client will be rewarded in this life and his adversity in the Hereafter will be eased. Thus, a career as a counselor who benefits the client through the counseling sessions is regarded a noble and respected profession in Islam.

A counselor plays a role in helping a client in distress or facing difficulties. The Quran speaks of the challenges faced by humans. The tests take various forms including physical (property and poverty), emotional (fear and concern) and personal as well as family trials. Tests are considered a mechanism to strengthen the trust and belief of a client as a believer of Islam. The following are some verses from the Quran, which explain the trials that befall humans.

We shall certainly test you by afflicting you with fear, hunger, loss of properties and lives and fruits. Give glad tidings, then, to those who remain patient. Al Baqarah [2:155]

Do you supposed that you will enter Paradise untouched by the suffering endured by the people of faith who passed away before you? They were afflicted by misery and hardship and were so convulsed that the Messenger and the believers with him cried out: "When will Allah's help arrives?" They were assured: "Behold. Allah's help is close by." Al Baqarah [2:214]

(Believers!) You will certainly be put to test in respect of your properties and lives, and you will certainly hear many hurtful things from those who are granted the Book before you and those who have associated others with Allah in His divinity. If you remain patient and God-fearing this indeed is a matter of great resolution. Ali Imran [3:186]

Know well that your belongings and your children are but a trial and that with Allah there is a mighty reward. Al Anfal [8:28]

These Quranic verses clearly stated that God always tests humans with various trials. No matter what trials befell a person, they are resolvable. The verse of Surah Al Baqarah [2:286] said, *"Allah does not lay a responsibility on anyone beyond his capacity. In his favour shall be whatever good each one does, and against him whatever evil he does."* This verse specifies clearly that God does not test a man beyond his capacity. In other words, whatever issue faced by a client can be resolved with the help of a counselor.

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Understanding Muslim Clients

The Muslims believed that God is to be worshipped. As a Muslim or a believer in Islamic teaching, there are two sources of reference underlying their life as a Muslim—the holy Quran and the Prophet Muhammad's (PBUH) Sunnah. These two sources play an important role in providing guidance to the Muslims in their daily living. The Quran is the main guide for the Muslim due to its comprehensive content that explain all the elements required in a man's life (Rosmizi, Fazrul, Munira, & Roslizawati, 2012; Sue & Sue, 2008), which include social matters, family life, economics and business, sexuality, and other fundamentals of life (Sue & Sue, 2016). In fact, the Quran stated laws and rules that the Muslim need to obey. The second source of reference is the Sunnah or hadith that serves as a guide to the way of life, such as speech, adherence, character, personal disposition, and the nature of events based on the Prophet Muhammad (PUBH) conduct. In terms of cultural and religious values, the Muslims engage in the ritual prayer five times a day. They are also committed to fast during daylight for the whole holy month of Ramadan. In addition, those who could afford, they would devote a certain amount of their wealth for *zakat* and almsgiving and perform the pilgrimage at the holy city of Mecca (Nobles & Sciarra, 2000).

In addition to the two main sources of reference, a Muslim is required to adhere to the teaching of Islam in the aspects of faith, Islamic law, and morals (Rosmizi, Fazrul, Munira, & Roslizawati, 2012). A Muslim gains knowledge and understanding of the divine and prophethood through the teaching of faith or *akidah* as outlined in the Pillars of Faith. Through the Islamic law and morals outlined in the Pillars of Islam, every Muslim learn about the relationship of life with God, man, and nature. With the general understanding of Islam, every Muslim client practiced the understanding and teaching in their daily lives. The Muslim clients practice the knowledge and teaching of Islam in their daily lives according to their religious belief.

Some knowledge of the Islamic teaching could help a non-Muslim counselor to understand a client from the client's cultural perspective. Knowledge is one of the important components required in order to increase the competency of a multicultural counselor apart from awareness and skills (Sue & Sue, 1996, 2008, 2016). Othman Mohamed (2017) also agreed on the need for the counselor to have a profound knowledge of a client's culture. A counselor that acts as a facilitator will strive to understand a client from a personal aspect and the client's cultural background (Mohamed, 2017). The need to understand a client's cultural aspect is highlighted in the Multicultural Counseling Theory as proposed by Sue and Sue (1996) through the following six suggestions:

1. Multicultural Counseling Theory was introduced to identify the cultural elements more clearly and objectively within the existing counseling theories. In the context of a Muslim client, counseling theories were applied to understand the client issues without neglecting the Muslim client's cultural aspect.
2. The identity of a counselor and a client is formed as a result of a certain level of experience and context. This means any intervention need to consider the client as a Muslim in entirety by looking at the root cause of the issue; not only focusing on the client but also the client's surrounding, such as the family, society, and his/her culture as a Muslim.
3. The development of the cultural identity as the core that shaped the attitude of the counselor and the client towards himself/herself and others, with the client or outside the client community group. The attitude will affect one's feeling and behavior as well as one's worldview towards others. This

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means the level of development of the Muslim client cultural identity must be clearly understood so that the conceptualization of the issues and goal setting of the counseling can be made accordingly.

4. A counselors' competency increased when he/she take takes into account the experience and the Muslim client's cultural values when setting the goals of the session. This means any goal setting should consider the fundamental doctrine set out in the Islamic teaching. Hence, the need for the knowledge and experience about Islam is essential when conducting a session with a client to improve the counselor competency.
5. The importance of using the society's role, effectively, to help a client of a multicultural background. This means, in addition to the general organization such as the Welfare Department (JKM) and the National Population and Family Organization (LPPKN), organizations that are specific to Muslim clients such as the Department of Religious Affair and the State Islamic Religious Control can be utilized to assist the client further.
6. The counselor awareness towards the importance of the cultural aspect of a Muslim client in a counseling session. This means the counselor understanding of a Muslim client's issues should include his/her relationship with the family, society, and organizations related to the client as a Muslim.

Cultural Assumptions and Misunderstandings

The counseling practiced in Malaysia is mostly based on counseling practiced in the West. Theorist such as Sigmund Freud, Carl Rogers, and others in the field are well-known to the counseling practitioners in Malaysia because they are used as the main references in the study of counseling at various level of education. The theories describe aspects such as human events, goals, techniques and the counseling process, the roles of counselor–client, and their application in the counseling sessions. The descriptions are quite convincing that those theories were chosen to guide the local counseling practice.

However, the current development of counseling knowledge, especially in Malaysia, indicate the emergence of a view that the counseling theory from the West lack in the spiritual aspect. Undeniably, counseling of the West disregard the spiritual aspect in its analysis. Several researchers such as Badri (1994) and Langgulung (1990) found that spiritual aspect was not emphasized by the western psychologists. It indicates the inappropriateness of the western counseling to be practiced in Malaysia due to several reasons related to the local culture and Islamic teaching. Islam believes that if humankind does not adhere to the revelation of the Quran and the Sunnah, they will not find the true resolution and gain the Creator pleasure, which is the ultimate life goal of a Muslim.

Nevertheless, this does not mean that western counseling cannot be practiced in Malaysia, however, it has to be adapted according to the practice and teaching of Islam. Philosopher Imam Al-Ghazali said, "there is a relationship between faith and religion with the spiritual enrichment." As a result, Islamic researchers are constantly trying to adjust the practice of western counseling to make it relevant to the culture of Muslim society. The main reason for this is because the principles of Islamic teaching is pertinent to every aspect of human life. Raba and Othman (1998) opine that Islamic counseling is applicable to all target groups, including children, adolescent, and adult. Two important points that are part of the major differences between the western counseling approach and Islamic counseling approach are:

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1. Religion and life are inseparable because religion rules a major part of the human lives. This means humans will not do things against the religious teaching on the principle of fearing God's punishment.
2. Values have many roles in counseling because they underlie the selection of counseling theories and techniques as well as determine the treatment process and decision-making. In other words, the counselor's values also play an important role in the counseling process undertaken towards the development of a therapeutic and conducive relationship.

The difference in view between the western and Islamic approaches as indicated by numerous findings has brought many benefits by means of improving the effectiveness of the counseling sessions. Any difference of view should become a reason to assess and examine the principle of counseling as the medium of helping service. A point of similarity should be sought and an appropriate adjustment should be made as both will contribute to the development of counseling knowledge. Misconception should be minimized and an understanding should be optimized so that the religious and cultural elements become part of the aspect that helps the development and success of the counseling sessions.

Hamdan (2007) states that Islam is a religion that covers all aspects of life, such as spiritual, social, economic, political, and family. Islam is considered a way of life that does not separate religion from other aspects of life. Furthermore, Islam provides a variety of functions, such as the provision of comfort, meaning, identity, spirituality, and society (Abu-Raiya & Pargament, 2010). Pew Research Centre (2007) conducted studies on American Muslims and found that 72% of the respondents affirmed that religion played an important role in their lives. In addition, although Islam is like other religions, there are unique factors to be understood and need to be given thoughtful consideration (Abu-Raiya & Pargament, 2011). Therefore, it is important to understand the effect of religion on the treatment of counseling and how it affects the counseling process.

There is a growing need for a definite information on how to treat Muslim clients and how to engage them in a treatment process. The implications of this for the current psychologists are that there is no available source of reference when working with Muslim clients. Amer (2009) states that psychologists often gave up looking for published research that could explain the appropriate services and eventually turned to the mainstream media or colleagues to seek for advice and resources that were usually inaccurate due to false and biased information. This may suggest that the therapists did not use the best practice for the Muslim clients. Abu-Raiya and Pargament (2010) propose that there is a need for empirical studies that examine the effectiveness of some of the techniques used as suggested by psychotherapists working with Muslim populations. Hence, creating an important gap in examining the effectiveness of the techniques in the previous studies. In other words, there is a need to provide therapy with empirical-based information to ensure the best treatment is given to the Muslim clients.

Prior to seeking a professional help, a Muslim may be more likely to seek help from religious leaders (Kobeisy, 2004; Springer et al., 2009). Springer et al. (2009) indicate the Muslims believe that in trying to solve personal and family problems, they have to turn to Islam (page 232). Padela et al. (2012) studied 13 focus groups of Muslims that revealed the majority of respondents reported they consulted the Imam instead of mental health professionals. In general, Muslims view their religion and religious leaders as entities that would help them in dealing with their problems.

Additionally, the cultural norm and religious belief emphasize families' responsibilities in teaching children on the proper behavior in the society; thus, problematic children reflect negatively on their parents and families (Daneshpour, 1998). This view suggests that the family will be blamed for any

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psychological problems arose and their inability to properly deal with the problem led them to seek out-of-the-kind assistance. This may be an important point for a non-Muslim counselor to consider when helping Muslim clients. Seeking out help may indicate that the person's faith is weak and a manifestation of a missing support system (Kobeisy, 2006).

Expectation of Muslim Client Toward Non-Muslim Counselors

The counseling process should take into account the cultural aspect of the counselor and client, thus, both the counselor and client should consider the meaning of culture. When an individual becomes a client, it means he/she is presenting his/her identity in the context of his/her culture to the counselor. The culture embodies the client identity, which comprises ethnicity, language, genus, economic status, family, learning style, and spirituality (Othman, 2005). A competent counselor always takes into account the cultural factor of the client and such counselor is said to have a multicultural competency. *Theory Multicultural Counseling and Therapy* by Sue, Ivey, and Pedersen (1996) and *Model Multicultural Counseling Competencies* by Sue, Arredondo, and McDavis (1992) suggest three characteristics or domains of competency, namely awareness, knowledge, and skill. Likewise, there are three dimensions of competency, which are:

1. Counselors' awareness of his/her own assumption, values, and cultural bias.
2. Understand the client's worldview from the perspective of the client's culture.
3. Develop appropriate intervention strategies and techniques for the client.

Counseling services in Malaysia are provided by counselors to clients of multicultural background. By the same token, clients met counselors of various cultural background including in the aspect of religion. A question arose; how does a Muslim client feels having a counseling session with a non-Muslim counselor? Ahmad Raba and Abdul Halim (1998) explicate that non-Muslim counselors have to master the knowledge of Islam as best they could before they can be a good counselor, particularly to the Muslim clients. This includes the understanding of the causes and the fundamental of helping in Islam. This requirement is deemed a major concern for non-Muslim counselors. Counseling from the perspective of Islam can be used to assist clients regardless of race and religion. The implementation of Islamic counseling has to be done systematically, similar to the western counseling. The Islamic counseling is based on the Al-Quran and Sunnah, which are being practiced by the Muslims. This aspect needs to be understood and taken into consideration in the counseling practice by non-Muslim counselors. If non-Muslim counselors can embrace this practice, it will give a good impression to the Muslim clients, hence, they will be more willing to undergo counseling sessions with non-Muslim counselors.

There is a growing need to get specific information on how to get Muslim client involved in the treatment process. The reason for this is because in the United State for instance, despite the increasing number of Muslim citizen, they are less likely getting psychological treatment (Kobeisy, 2004). Inayat (2007) notes several reasons for this occurrence, which include a feeling of distrust towards the counseling service provider, fear of the treatment process, fear of racial and discrimination, language barrier, communication differences, and cultural and religious issues. Khan (2006) conducted a survey on 459 Muslims in the Ohio region regarding client attitude towards therapy. Only about 11.1% indicated that they have been using a professional counseling service within two years while 15.7% of the respondents agreed that they actually need the service. The Muslim society is facing numerous difficulties, such as

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anxiety, depression, psychosomatic difficulties, PTSD, alcoholism, family problems, adjustment disorder, difficulties with prejudice and discrimination. For these reasons, Muslims need the clinical services as much as other population. Therefore, it is important to understand the concerns and uniqueness of Muslim society.

The study of 121 Muslim clients in Washington DC and Chicago by Kelly, Aridi, and Bakhtiar (1996) found that a small majority (52.9%) preferred Muslim counselors while 43.8% chose either Muslim or non-Muslim counselors. They also found that if they need to go to non-Muslim Counselors, more than 50% of respondents said it was very important and 25% felt it was important for the counselors to have similar religious values with them. It is also important for the counselors to understand Islam; 56.2% believed it is very important and 29.8% thought it is quite important. Carolan et al. (2000) found the same outcome in his study in which while seeking out help, a Muslim counselor was the Muslim client first choice. Nevertheless, non-Muslim counselors are known in the Muslim community as a cultural-sensitive professional (Carolan et al., 2000) and would be an ideal option if a Muslim professional is unavailable. In addition, there are some clients who may prefer non-Muslim counselors who are sensitive towards their culture (Keshavarzi & Haque, 2013; Kobeisy, 2004). These findings suggest that what is important for the Muslim client is to seek help from a professional, however, there is a concern of trust towards non-Muslim counselors and the need for them to understand Islamic teaching.

These studies reveal that Muslim clients also need professional counseling services although they could fulfil these needs according to their culture and beliefs. This is because Muslim clients are experiencing the same difficulties as other clients. Similarly, they are willing to undergo counseling sessions with non-Muslim counselors who are, professionally, deemed dependable counselors. However, the multicultural skills of non-Muslim counselors play an important role and could impact the perception and trust of the Muslim clients. This means that the multicultural competency of non-Muslim counselors should be improved from time to time in line with the changes that occur in the society, especially Muslim community.

In a counseling session involving a Muslim client, the role of the therapist may be different. A therapist can play a role as an advisor or a teacher and the client as a student (Ahmed & Amer, 2012; Keshavarzi & Haque, 2013). This situation differs from the western culture approach in which the therapist may suggest to a client an option of to do something but the client does not necessarily have to act on the suggestion. According to Hedayat-Diba (2000), even though Muslim clients do not believe in the therapists, they generally give a lot of power to the therapists and adhere to what is recommended or set by the therapist, at least in the initial stage. If they indicate otherwise, it would be considered offensive, hence, the client passive attitude in the treatment process. Hedayat-Diba (2000) also states that because psychological symptoms are often tangibly expressed, they are often expected to heal without involving the spiritual aspect; just like a person going for his/her doctor's appointment. Such circumstance gives a lot of power and responsibility to the therapists. However, Keshavarzi and Haque (2013) assert the role of a practitioner in assisting and guiding a client through the process towards self-realization and willingness to contemplate. It is important for the therapists to determine a collective approach; balancing the power given to them and keeping in mind the client wellbeing.

One of the concepts and fears felt by Muslim clients is likely to reflect their perceptions of how the therapeutic process will take effect. Kobeisy (2004) propose that the lack of information about the preparedness and expectation of counseling and misinformation on counseling from others may prevent Muslims from seeking professional help. This circumstance is different from those who are living in the United States or who have been receiving their education from the US academic institutions (Kobeisy,

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2004). In general, information about therapy is rather limited. Kobeisy recommends the type of information considered beneficial for the clients, including therapeutic function, education and training of the therapists, helpful therapeutic issues, and counseling expectations. In addition, it is also important to inform clients of the therapy procedure, such as what to expect during the sessions and the financial liabilities (Kobeisy, 2004). Hedayat-Diba (2000) also suggest educating clients on the importance of time boundaries, such as appointment, delays, and non-attendance sessions. Graham et al. (2008) propose to improve the information and information sharing by safeguarding confidentiality and to clarify the roles and goals of social service agencies. Overall, the provision of information when giving a treatment to a client is deemed an important step to change clients' negative attitude towards therapy.

However, there are other challenges to be considered during a therapy session such as the religion aspect. One possible reason for this related to the psychological training. More than 90% of the psychologists studied revealed that their education and training in religious issues are scarce or non-existence (Shafranske & Malony, 1990; Shafranske, 1996), in other words, less than 20% reported that they have some knowledge of religious psychology. Therefore, a possible hypothesis for the difficulty of combining religion with the treatment is that psychologists lack training in the field of religion. Another possible reason for the difficulty of incorporating religion into the treatment is the therapists own religious belief (or lack of it). Religion seems to play a minimal role in the lives of most psychologists in the United States. The study by Jones (1996) found that only 33% of the clinical psychologists described religious beliefs as the most important influence on their lives. In addition, in a national survey, only 29% of the therapists found that religious beliefs were important in the treatment process of most of their clients (Bergin & Jensen, 1990). This may be another hypothesis of why psychologists are reluctant to consider religious belief as part of the therapy and this gives an indirect message to the clients that religion has no place in the treatment process. Consequently, this circumstance confirms the Muslim clients' reservation with regard to trust and values that seem to be ignored in the therapy process.

CONCLUSION

The difficulties faced by the Muslim clients in getting treatment call for a solution to include this group in professional treatments to address their apprehensions. The present researchers offered various suggestions to help Muslim clients going through the counseling process. These suggestions are largely based on the clinical work experiences with Muslim clients. The main objective is to build a relationship. Muslim clients may be reluctant to attend the counseling sessions, therefore, building a relationship at the initial stage is critical (Keshavarzi & Haque, 2013). Generally, if a counselor does not get involved with the clients or their family, the possibility of the counseling session to continue will decrease (Kobeisy, 2004). Kobeisy (2004) identifies several important factors that will ensure the continuity of the counseling sessions, which include clients' first impression of the counselors, clients' feelings towards the counselors, and positive expectations towards the counseling relationships. Apparently, creating a positive relationship with Muslim clients is an important initial task of the counseling process. Counselors should also be aware of bias and discrimination that could happen to Muslim clients. In general, counseling sessions may also be a medium of discussion for issues relating to Islam that lead to discrimination and bias, hence, augmenting mutual trust between the counselor and the client.

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Chapter 50
Community-Based Rehabilitation in Hong Kong: Opportunities and Challenges

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ABSTRACT

Community care is one of the worldwide strategies for governments to manage contemporary healthcare challenges and long-term care. In response to an ageing population, the Hong Kong government has been promoting the concepts of community care and made initiatives, inter alia, in community-based rehabilitation (CBR). Despite these new drives, there is insufficient supply of CBR services. Provisions of CBR are currently fragmented, project-based, or on a self-financed basis. The authors argue that there is a lack of longer-term plan on CBR and that the government still relies on the heavily subsidized public hospital system. In this chapter, the authors share their views on the opportunities and challenges of CBR in Hong Kong.

INTRODUCTION

Contemporary societies have been exploring appropriate approaches to promote and sustain health (World Health Organization ("WHO"), 2005) and identifying healthcare strategies to help those in suffering (Arnott & Koubel, 2012). Community care is one of the healthcare choices to take care of the needs of those requiring long-term care (Campbell et al., 2016), to manage inherent rising costs (Chappell, Dlitt, Hollander, Miller, & McWilliam, 2004) and to address issues arising from an ageing population (Sau Po Center on Ageing & Department of Social Work & Social Administration, 2011). Other tactics may include patients' self-management, telemedicine, cross-disciplinary disease management programmes, care paths, and financial incentives to minimize preventable admissions to casualties, etc. (Bardsley, Steventon, Smith, & Dixon, 2013).

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Developing countries welcome the concept of community care. In Thailand, for instance, community care provisions such as "the Bangkok 7 Model" have been in place to integrate health care and social services (Kespichayawattana & Jitapunkul, 2008). In China, in view of the increasing social care demand for older people, scholars have advocated that more emphasis should be placed on community care and partnering with families, whereas institutional care should be the last recourse (Zhou & Walker, 2016); and the Chinese government has been developing community care since 2004 to provide care at levels of provinces, municipalities, and counties (Li & Chui, 2016). A number of other developing countries have also realized the need for community care and established national strategies to manage mental patients (Jacob, 2001) and support patients with tuberculosis (WHO, 2003), for example.

Developed jurisdictions have also advocated community care for decades. In the UK, for instance, the policy debate on community care could be dated back to mid-1950s (Smith et al., 1993) and a recent successful story in practice involved a National Health Service foundation trust which satisfactorily piloted a community-based therapy scheme, allowing patients to receive treatment at home or at a health centre to help save bed days ("Antibiotic clinics provide 'incredible' community care", 2015). In the United States, section 10202 of the Patient Protection and Affordable Care Act 2010 has provided for a "State Balancing Incentive Payments Program" to increase financial incentives for states offering home and community-based services as a long-term care alternative to nursing homes. In Canada, the government expanded community care as one of the tactics to ease the financial pressure in the 1990s (Naylor, 1999) and it has become "a vital part of health systems in Canada" (The Conference Board of Canada, 2012, p. i). In Western Australia, community care has been regarded as a non-inpatient means to improve the overall efficient flow of patients and alleviate hospital pressure on space and equipment, on top of increased staff satisfaction gained through new models of community care (Health Reform Implementation Taskforce of Western Australia, 2007). In Japan, the government has put in place an integrated model of community care as a national long-term care policy to facilitate ageing in place (Nakanishi, Shimizu, Murai, & Yamaoka, 2015). In Hong Kong, "[a]geing in place as the core, institutional care as back-up" is the guiding principle of the elderly care policy (Labour and Welfare Bureau ("LWB") & Social Welfare Department of Hong Kong ("SWD"), 2014, paragraph 2). In this chapter, the authors discuss community care, with a special focus on the opportunities and challenges of community-based rehabilitation ("CBR") in Hong Kong.

COMMUNITY CARE

Health is a resource for everyday life (the Ottawa Charter for Health Promotion, cited in WHO, 1986). Various modes of care delivery have impacts to different degrees on the quality of life and the cost effectiveness . Elders in institutionalized care, for instance, may feel alienated from their usual living environments and practices, thus resulting in a drop of their perceived quality of life (Kong, Fang, & Lou, 2016). In terms of healthcare financing, home-based care may be more cost-effective than hospital-based care in a shorter term of health maintenance (Knapp et al., 1998). In fact, care shifting from hospitals to the community has been a global trend (Royal College of Nursing of the UK, 2014).

Community care is defined by the WHO (2004, p. 16) as "[s]ervices and support to help people with care needs to live as independently as possible in their communities". The WHO Centre for Health Development has further elaborated the meaning of community care from the perspective of elderly care (WHO, 2004, p. 3):

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Community health care aims to add new scope and value to the existing primary health care approach in providing integrated health and social services by public and private partnership to meet the increasing health and welfare needs of older persons and their families at community level.

Community care complements the concepts of active ageing, i.e. "the process of optimizing opportunities for health, participation and security in order to enhance quality of life as people age", as advocated by the WHO (2002, p. 12) and active ageing allows older people to make full use of their potential and thus less dependent on family members and societies (United Nations Economic Commission for Europe / European Commission, 2015). In Hong Kong, there is no principle for active ageing and supports to services for the ageing population are provisioned on an incremental approach across various government bureaus and departments (Legislative Council Secretariat, 2015a).

In practice, service scopes of community care programmes vary on a case-by-case basis and are subject to changes over time (Means, Richards, & Smith, 2008). For example, Murphy (1987) reported that the British community care policies served four overlapping groups of people, namely the aged with physical or mental problems, patients with mental handicap, those with chronically mentally illness, and physically disabled younger people. Sharkey (2007) suggested two decades later a broader perspective of community care to serve not only mental and physical health issues, but include at least three elements, namely people previously living in long-stay institutions, vulnerable persons such as the aged and the disabled with a preference of being cared in a community rather than in institutions, and volunteer support from carers like relatives, friends, and neighbours. In 2014, the UK government outlined a new multispecialty community care model in the "Five-Year Forward View for the NHS" (National Health Service of the UK, 2014), allowing general medical practitioners to work with other healthcare practitioners and social care providers to set up a cross-disciplinary community network to provide integrated out-of-hospital care.

COMMUNITY-BASED REHABILITATION

Developments of CBR

CBR is one of the models of community care (Chatterjee, Patel, Chatterjee, & Weiss, 2003). It has been attracting academic attention for decades, as reflected in the increased number of academic publications on CBR (Finkeflügel, Wolffers, & Huijsma, 2005; Cleaver & Nixon, 2014). At the international level, following the concept of managing health issues in the community as stipulated in the Declaration of Alma-Ata (1978; Article VII(2)) and the principle of making care accessible to all people in the community through their full participation and at affordable costs (Article VI), the WHO commenced the development of CBR strategies, with an aim to integrate rehabilitation, health care, and other development activities at the community level (WHO, 1994). Subsequently in 1979, the WHO published a CBR manual in collaboration with other United Nations agencies, and this manual was translated into thirty languages (Helander, Mendis, Nelson, & Goerdt, 1989). In the 1994, the WHO issued *Joint Position Paper on CBR* with the International Labour Organization ("ILO") and the United Nations Educational, Scientific and Cultural Organization ("UNESCO") to address the concept of CBR (ILO, UNESCO, &WHO, 2004). In 2003, these three UN specialized agencies worked with the International Disability and Development and developed a set of CBR guidelines (WHO, n.d.(b)). One year later, the same three

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UN agencies made further revisions to the aforesaid joint paper and issued *Joint Position Paper 2004*, describing CBR in the title of the paper as "a strategy for rehabilitation, equalization of opportunities, poverty reduction and social inclusion of people with disabilities" (ILO, UNESCO, & WHO 2004). In 2006, the United Nations General Assembly adopted the Convention on the Rights of Persons with Disabilities, where its Article 19 requires member states to recognize the equal right of all persons with disabilities to live in the community. Throughout these decades, CBR has been developed from a focus solely on rehabilitation to advocating people's access to education, employment, health care, as well as social services, and more than ninety countries in the world have optimized their CBR programmes (WHO & the Gulbenkian Global Mental Health Platform, 2015).

Concepts and Service Scopes of CBR

CBR is a concept subject to different interpretations (WHO & Swedish Organizations of Disabled Persons International Aid Association, 2002). It involves basically three components. "Community" in healthcare sense may refer to groups of people who are connected "through culture, occupation, conditions based on a common workplace, prognosis, stage in the care process, intensity of care needed, and more", and people having a particular disease is one of the examples of a healthcare community (Institute of Medicine, 2013, p. 206). The second component is "community-based care", which is in general described by the WHO (2004, p. 16) in the way below:

The blend of health and social services provided to an individual or family in his/her place of residence for the purpose of promoting, maintaining or restoring health or minimizing the effects of illness and disability. These services are usually designed to help older people remain independent and in their own homes. They can include senior centres, transportation, delivered meals or congregate meals sites, visiting nurses or home health aides, adult day care and homemaker services.

For the last component, i.e. "rehabilitation", CBR is more than the conventional understanding of functional or health-related rehabilitation, and it has been re-defined to incorporate a broader sense in accordance with the Convention on the Rights of Persons with Disabilities (2006) (Geiser & Boersma, 2013), where its Article 26 requires member states to "organize, strengthen and extend comprehensive habilitation and rehabilitation services and programmes, particularly in the areas of health, employment, education and social services". The WHO (n.d.(a)) considers CBR a multiparty strategy to satisfy the basic needs and promote the quality of life of the disabled and their families through the concerted efforts of various stakeholders in the areas of health care, education, vocational training, and social services, thus enhancing the public's access to rehabilitation services in the community and creating social integration and equitable opportunities for needy people for inclusion in the society.

CBR differs from the traditional institutional-based rehabilitation in that CBR is based in community settings, and programmes of which are planned and evaluated subject to the perceptions of the community (Sharma, 2007). CBR is not confined to people with disability but serves also the elderly as well, as the prevalence of disability increases, among other factors, with the rising number of ageing population (Paudel, Bhandari, & Bhandari, 2017). The scope of CBR covers, for example, social, educational and vocational rehabilitation, early interventions to geriatric care, disease and disability prevention, intensive individualized rehabilitation, and sports rehabilitation, etc. (Hoeman, 1992). Programmes under CBR include, for instance, training for the welfare of patients and families, educational assistance, improv-

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ing physical access, referral services, financial assistance, social and recreational support, as well as facilitating employments (Shrivastava, Shrivastava, & Ramasamy, 2005).

In Hong Kong, "Enhanced Home and Community Care Services" and "Integrated Home Care Services" are local examples of CBR (Lai et al., 2009). Both programmes materialize the concepts of "ageing in place" from a perspective of continuous care. The former caters for frail or ordinary elders' needs to allow them to age at home as well as to provide support to carers and to strengthen family cohesion (SWD, 2016(a)). The latter takes care of elders (assessed to be of moderate or severe level of impairment), people with disabilities, and families in need in a community by experienced and trained professional staff through a network of collaborative and supportive services in the community (SWD, 2016(b)), services of which include basic and special nursing care, personal care, home rehabilitation exercise, day care services, carer support services, day respite service, counselling services, 24-hour emergency support, environment risk assessment and home modifications, home–making and meals-on-wheels services, as well as transportation and escort services, etc.

A BRIEF ABOUT HONG KONG

Hong Kong runs a dual-track health care system consisting both public and private sectors (Hong Kong government, 2013). There is a significant imbalance between the two sectors, with the public sector shouldering 87% of total hospital beds and approximately 90% of in-patient services (Food and Health Bureau of Hong Kong ("FHB", 2013). Also, the public healthcare services in Hong Kong are heavily subsidized by tax and the government charges, for instance, only HK$100 per day of hospitalization for an acute general beds with a cost estimated at HK$4,910 in 2015/16 (FHB, 2015b).

Population ageing is a primary concern leading to reforms of health care and welfare provisions (Duff, 2001). Hong Kong is no exception as it is a society with very long life expectancy, if not the longest, in the world (Census and Statistics Department of Hong Kong ("CSD", 2016b). The proportion of people aged 65 or above in Hong Kong jumped from 8% in 1986 through 12% in 2006 to 16% in 2016 (CSD, 2016a), and it is further projected to rocket to 36% in 2064 (CSD, 2015a). To further exacerbate the situation, the reduction in fertility rate continues. The total number of live births per 1,000 women in Hong Kong is estimated to drop from 1,355 in 1994 through 1,234 in 2014 to 1,182 in 2064 (CSD, 2015a). The combined effect of an ageing population and continuously decreasing fertility rate leads to a rise of median age of the population from 39.6 in 2006 through 41.7 in 2011 to 43.4 in 2016 (CSD, 2016b).

The demographic changes make healthcare financing an imminent challenge in longer term in Hong Kong. It is projected that there will be fewer and fewer people paying tax in the future as a result of the ageing population with low fertility rate. Together with the heavy subsidy from the government (FHB, 2014 & 2015b) and the narrow tax base in Hong Kong (Financial Secretary of Hong Kong, 2015), these phenomena will affect the sustainability of its healthcare financing system (Tong & Fong, 2014), especially when the underlying principle of healthcare policy in Hong Kong is that "no person should be prevented, through lack of means, from obtaining adequate medical treatment" (section 4(d) of the Hospital Authority Ordinance). There is a genuine worry as elders in Hong Kong consume six times the inpatient bed-day resources (FHB, 2010) and nine times in general specialty bed utilization than non-elderly patients below the age of 65 years (Hospital Authority of Hong Kong, 2012). To give a further example, as far as residential services are concerned, as at 31 July 2016, there were a total of 34,749

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elders waiting for various subsidized residential care services and the waiting time may last for as long as 38 months (SWD, 2016(d)).

Hong Kong is keen on managing how to sustain its healthcare system arising from the ageing population due to increased longevity and low fertility, as well as other contemporary challenges such as escalating healthcare costs and rising public expectations (Tong & Fong, 2014). Demographic changes, together with the underlying principle of healthcare policy in Hong Kong, require the government to take care of the healthcare needs of people, especially those of the expanding elderly community, in a practical, feasible, and sustainable manner (Yip, Lee, & Law, 2006). In particular, long-term strategies for healthcare financing have been one of the burning challenges in Hong Kong and the government explicitly announced the impracticability to increase public healthcare expenditure indefinitely (Chief Executive of Hong Kong, 2007). The present strategies to tackle healthcare issues are diverse, including, for example, the establishment of a central health education unit with a vision to build a healthy society (Central Health Education Unit of Hong Kong, 2015), the development of reference frameworks for preventive care for children and the aged in primary care settings (Task Force on Conceptual Model and Preventive Protocols, Working Group on Primary Care, & FHB, 2012(a) & 2012(b)), promotion of preventive health screening services for well people like breast cancer (Cancer Expert Working Group on Cancer Prevention and Screening & Department of Health of Hong Kong ("DH"), 2016), the then controversial policy to encourage Mainland mothers to give births in Hong Kong to address the issues of low fertility rate and ageing population (Chief Secretary for Administration's Office of Hong Kong, 2012), as well as the enhancement of public-private partnership initiatives and a HK$200-billion ten-year blueprint for hospital development (Chief Executive of Hong Kong, 2016), etc. Furthermore, the government has also developed initiatives in the context of community care, though the supply of such services is limited.

Snapshots of the Current Status

The ageing population has called for the need of CBR. In an ageing society, there is a rising demand for care in connection with the elderly's losses of physical, functional, and mental abilities and such impairments will in turn enhance their reliance on others' assistances (Cox, 2005). In Hong Kong, the old aged persons have had common health problems in areas of dementia, stroke, bones and joints, cancer, digestive, urinary and sexual problems, hypertension, heart diseases, infections, and mental illness (DH, 2016a). A few observations arising from these common diseases are shared below.

Chronic Diseases and Disability

The increase in number of chronic patients and persons with disabilities is alarming. In 2013, there were about 1.38M persons with chronic diseases (19.2% of the total population), equivalent to a rise of 20% from 2007; and among them, 0.7M with hypertension (9.9% of the total population), 0.32M with diabetes mellitus (4.4%), and 0.14M with heart diseases (2%) (CSD, 2015b). Also, the number of persons with disabilities (excluding those with intellectual disability) in 2013 was estimated at approximately 0.6M (8.1% of the total population), representing an increase of 60% in comparison with the corresponding data in 2007; among them, 0.32M with restrictions in body movement (4.5% of the total population), 0.18M with seeing difficulty (2.4%), and 0.16M with hearing difficulty (2.2%) (CSD, 2015b). Woo and colleagues (1997) studied 1,902 recipients of the age and disability allowance schemes in Hong Kong

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and revealed that disease burden was the highest for arthritis, hypertension, cardiac disease, and peptic ulcer for people falling into the age group of 70-79.

Healthcare and Social Burden from Stroke Patients

In Hong Kong, it was estimated that stroke patients alone would require HK$1,900M in 2001 for treatments in hospitals owing to the insufficiently developed primary healthcare system (Woo et al. 1997). The direct medical expenditures (e.g. hospitalization, outpatient services, rehabilitation, and community allied health services) for stroke patients was projected to increase to HK$3,979M per annum by 2036 (Yu, Chau, McGhee, & Chau et al., 2012). The Hong Kong government also acknowledged that with longer life expectancy, the number of chronic patients with non-communicable diseases like diabetes mellitus, heart diseases, cancer, etc. has increasingly become a burden to patients themselves, their families, and the society as a whole (DH, 2008). CBR may help reduce the financial burdens and enhance patients' wellbeing, as reported by the study of Legg and colleagues (2004) that therapy-based rehabilitation services for selected stroke patients residing in the community could improve their daily-activity abilities and decrease the risk of further deterioration in ability.

Healthcare and Social Burden from Dementia Patients

An ageing population inevitably leads to a prevalent population of dementia patients (National Institute on Aging, National Institutes of Health, & WHO, 2011). In Hong Kong, the life expectancies at birth for male and female in 2016 were respectively 81.2 and 87.3 years old (DH, 2016b), and the number of mild dementia patients increased with age from 0.8% in people aged 60-64 to 19.1% in people aged 85 and above (Centre for Health Protection of the DH, 2012),. The number of dementia patients at 60 years old or above was projected from 103,433 in 2009 to 332,688 in 2039, representing a rise of 222% (Yu, Chau, McGhee, & Cheung et al., 2012).

In fact, dementia has been considered a healthcare and social burden in developed countries (Wimo, Jonsson, & Winblad, 2006). In a systematic review of 27 previous studies from fourteen healthcare systems, Schaller and colleagues (2015) estimated that the total costs for each dementia patient per annum may go as high as US$70,911, with an average annual total cost estimate per capita at US$30,554, and a significant portion of such costs come from informal costs arising from home-based long term care and nursing home care, instead of direct medical expenditures. Despite this review did not include Hong Kong, the financial burden of dementia patients arouses a real concern in Hong Kong as its public health services and social welfare are heavily subsidized by the government (FHB, 2014; Financial Secretary of Hong Kong, 2016(a)).). In another study, the number of people aged 60 or above with dementia in Hong Kong was estimated in 2010 to be 105,069 and the expenditure for their institutional care was at HK$ 1,624M, which was projected to rise to approximately HK$4,212M per annum for 273,449 elders with dementia in 2036; and the corresponding costs for informal care were estimated at HK$10,368M in 2010, with a projected increase to HK$27,000M by 2036 (Yu et al., 2010). Unfortunately, there is a general ignorance of this disease (Chan, 2012).

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OPPORTUNITIES

The Hong Kong government has made some improvements to pave the way for the future to tackle foreseeable healthcare and social challenges. A few examples are cited below.

Empowerment of Patients-Led Support Groups

The concepts of community care and CBR are not new to Hong Kong. Dating back to 1990, the Hong Kong government suggested in a key policy paper entitled *Health for All – The Way Ahead* to provide quality care in the community for the elderly (Working Party on Primary Health Care of Hong Kong, 1990). In 2000, the Hong Kong government articulated in another consultation document bearing a title of *Lifelong Investment in Health* to improve the outcomes and cost efficiency of health care through, among others, a community-focused, patient-centred and knowledge-based health care system (Health and Welfare Bureau of Hong Kong, 2000). The Hong Kong Society for Rehabilitation, a non-government organization ("NGO"), provided a good example of such a care system when it set up the Community Rehabilitation Network ("CRN") in 1994 (Poon, So, & Loong, 2014). There are six CRN centres in different regions of Hong Kong subsidized by the Social Welfare Department since 1997 (Hong Kong Society for Rehabilitation, n.d.). The CRN provides a very good linkage and resource support to most of the patients-led support groups in the society.

Centre-Based CBR in the Community

The Hong Kong government has made some initiatives for community-based care and CBR since the publication of a further consultation document in 2005, *Building a Healthy Tomorrow* (Health and Medical Development Advisory Committee of Hong Kong, 2005), which was considered the first attempt to outline a future healthcare model by better differentiating the roles of primary, secondary and tertiary care as well as home care and community support (Lam, 2005). For example, in his *2005-06 Policy Address*, the Chief Executive of Hong Kong (2005) announced the plans to strengthen community support services to the disabled and their family members, including, for example, transitional residence, day training, as well as nursing and support services for people with severe disabilities, continuous day rehabilitation and infirmary care for discharged patients with mental, physical or neurological impairments, and a new scheme for visiting doctors for the disabled residing in rehabilitation facilities, etc. Since 2007, the Social Welfare Department (n.d.) has also funded the development of four community rehabilitation day centres ("CRDCs"), aiming at providing goal-oriented and time-defined rehabilitation services for discharged patients from the Hospital Authority, with a view to enhancing their independent living in the community and social integration. The original idea of setting up CRDCs is good. With payments to services comparable to the charges of outpatient rehabilitation in public hospitals, the establishment of CRDCs aims at building up patients' physical functioning and self-maintenance abilities, reinforcing their domestic living and community living skills, and facilitating them to redesign a healthy lifestyle and productive life roles to assist their integration into the community; more than that, CRDCs provides respite care service and education for patients' families and caregivers to improve their quality of living (SWD, n.d.). In addition to CRDCs, following the direction stated in the *2008-09 Policy Address* to explore the use of community health centres to enhance primary care (Chief Executive of Hong Kong, 2008), the Hong Kong government set up the Tin Shui Wai (Tin Yip Road) Community Health Centre,

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which was built and designed based on the primary care development strategy and service model of the government, opened in 2012, and is a one-stop centre to provide comprehensive primary care services by multi-disciplinary primary care professionals in the community (Hong Kong government, 2012a).

Ambulatory Care and Support

Since 2009, an elderly healthcare voucher scheme has been launched (FHB, 2015a) under the concept of "money follows patients" (Elderly Commission of Hong Kong, 2009) to enable elders aged 70 or above to choose primary care services in the community (Chief Executive of Hong Kong, 2007), and this scheme has become a recurrent support programme and the vouchers can be used for rehabilitation services (Chief Executive of Hong Kong, 2014). The Chief Executive of Hong Kong (2015) further promoted the concepts of community care in his *2015 Policy Address* by, for instance, providing more choices for the elderly via other voucher schemes in the contexts of community care services and residential care services, building mutual help community networks among residents of new public rental housing estates, along with encouraging active ageing through senior volunteerism, a HK$2 public transport fare concession scheme, and residences and reverse mortgage programmes for the aged. The importance of developing an age-friendly city and promoting active ageing in Hong Kong and the use of community resources to improve home care services, elderly services, ambulatory care, primary care and community care were iterated again in his *2016 Policy Address* (Chief Executive of Hong Kong, 2016). In the *2017 Policy Address*, the Chief Executive (2017, paragraph 173) also reported that the public and different stakeholders in general supported the principle of "ageing in place as the core, institutional care as back-up" and recognized the need to strengthen community care services. To follow the Chief Executive's policy directions, the Financial Secretary of Hong Kong (2016(b)) announced a series of initiatives, e.g. the establishment of three new community health centres at the district level to provide additional 410,000 general outpatient attendances annually, and appropriation of additional recurrent budgets of HK$170 million and HK$17 million respectively in 2015-16 and 2016-17 for the provision of 1,600 and 160 extra places for the Enhanced Home and Community Care Services to strengthen the support for the overarching principle of "ageing in place". The Community Care Fund (2016) also provides pilot schemes on subsidy for people with severe disabilities, and living allowance for low-income caregivers of people with disabilities (SWD, 2016(c)).

CHALLENGES

The opportunities mentioned above have laid a foundation stone, but there are still barriers on the road to a nourished supply of community care. A few limitations are elaborated below.

Lack of a Longer-Term Policy

Social policy and healthcare policy serve as a mechanism to redistribute resources and make use of intersectional health actions to reduce inequities in health status (Baum, 2008). The resource allocation targets to meet a society's dominant values, which means in practice the underpinning values of the government of the day (Jamrozik, 2001). Without a longer-term policy, the current strategies used in community-based care and CBR may be changed subject to the values of the government of the day.

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This anticipated change is not theoretical but real, as exemplified by the development of private hospitals in Hong Kong. Mr. Donald Tsang, the second Chief Executive of Hong Kong, announced in his *Policy Address* for two years that the government had reserved four pieces of land to develop private hospitals (Chief Executive of Hong Kong, 2008; 2009). However, the direction of developing private hospitals has been changed after Mr. Tsang's stepping down from the government. Out of the four pieces of land, only the land in Wong Chuk Hang is used for building a new 500-bed private hospital, whilst the site in Tseung Kwan O is reserved for the construction of a self-financing public Chinese medicine hospital (Chief Executive of Hong Kong, 2014), and the land in Tai Po has been returned to the Development Bureau for other development purposes (Legislative Council Secretariat, 2015b). The use of the fourth piece of land in North Lantau is not clear. Hong Kong needs a longer-term community-based care policy.

Heavy Reliance on Public Hospital Services

As mentioned above, the most important principle of healthcare policy in Hong Kong is that no one is to be deprived of access to adequate medical treatment because of lack of means (section 4(d) of the Hospital Authority Ordinance). It is also projected that the number of taxpayers will be decreasing because of the ageing population and low fertility rate. In Taiwan, Lee (2002) projected that the supply of long-term care could not meet the ever-increasing demand and suggested expanding community care instead of continuing to rely on institutionalized care as well as Taiwanese government reviewing financing options and integrating various fragmented services. In fact, the Taiwanese government has recently launched a "10-year long-term care 2.0 plan" to facilitate ageing in place through a comprehensive community care service system (Executive Yuan of Taiwan, 2017). Hong Kong faces similar issues as those in Taiwan. However, rather than going to the direction of community-based services as per the basic principle of the elderly care policy that ageing in place should be the core with a back-up by institutional care (LWB & SWD, 2014), it seems that the government continues to rely on public hospital services which are heavily subsidized by tax payers' money (FHB, 2014), as shown by the allocation of HK$200 billion for hospital development in the ten years up to 2026, on top of other hospital development projects already in the pipeline such as the expansion of the United Christian Hospital and the re-development of Kwong Wah Hospital (FHB, 2016). The study of Tin and colleagues (2016) further supports the authors' viewpoints about the Hong Kong government's reliance on hospital services, where they found that the expenditures for rehabilitative and extended care as a percentage of the total health expenditure in Hong Kong in the period of 1989/90-2012/2013 increased from 2.3% in 1989/90 to a peak at 4.2% in 2003/04 and then gradually reduced to 3.5% in 2012/13, and similar pattern of ups-and-downs was also observed in the expenditures for long-term care in the same period of time, with the lowest share at 2.3% in 1998/90 and the highest at 5.5% in 2002/03 before it dropped to 4.5% in 2012/13, whilst the corresponding expenditures in hospitals were 28.2% of the total health expenditure in 1989/90 to 46.8% in 2002/03, with subsequent reduction to 42%-44% in the period 2005/06-2012/13. A significant proportion of the total health expenditures in the past few decades were spent in hospitals and less than 10% were allocated for rehabilitative and extended care and long-term care. It seems that this trend will continue as discussed above.

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Attitude of the Hong Kong Government

Attitude of the Hong Kong government may be an issue. In 2007, the Rehabilitation Advisory Committee published a document entitled *Hong Kong Rehabilitation Programme Plan*, setting out two major strategic directions for rehabilitation services to establish (a) individual capacity of persons with disabilities and their family members through social investment, and (b) an appropriate environment socially, economically and physically to facilitate full integration of these persons into community; and among proposed specific measures, one was to provide a barrier-free environment for access and transport services for full integration of persons with disabilities into the society (Health, Welfare and Food Bureau of Hong Kong, 2007). However, as a result of ineffective implementation of this special transport measure, a number of people in need took unauthorized rehabilitation transport services, and pursuant to the Ombudsman Ordinance, the Ombudsman of Hong Kong (2014) subsequently conducted a direct investigation into it. In early 2017, the Ombudsman (2017) pointed out explicitly the passive attitude of the Hong Kong government in carrying out this measure, as reflected in the following observations: (a) the LWB setting no timeframe to implement the policy of "Transport for All"; (b) treating the policy of "Transport for All" as a concept by the LWB and the Transport Department; (c) the failure of the Transport Department in proactively and professionally supporting the subvented rehabilitative vehicle services, i.e. the Rehabus services; and (d) the failure of the Transport Department in adjusting its mentality about the demand for special transport services. In the investigation report, the Ombudsman (2017) made a few findings: (a) serious under-supply of the Rehabus; (b) government's failure in seriously assessing the demand and setting targets for the special transport services; (c) government's failure in making full coordination for effective use of the special transport services; and (d) government's failure in adequately managing the issues of unlicensed rehabilitation vehicles. The Ombudsman recommended that government continue to introduce wheelchair accessible taxis and minibuses and make more efforts in publicity and public education.

In response, the government expressed that it has been promoting "Building a City for All" by providing barrier-free access in public transportation and pedestrian pathways to every destination. The Hong Kong government (2017b) issued a press release with a headline of "Ombudsman recommendations noted" and stated that the LWB and the Transport Department would enhance the rehabilitative services for the physically repaired accordingly. In another press release issued on the same day, the LWB iterated its commitments to develop barrier-free transport for persons in need, particularly the Rehabus under government subvention, and would examine the investigation report of the Ombudsman seriously and make a new rehabilitation programme plan including the long-term strategy for special transport services when the Elderly Commission has formulated the elderly services programme plan in the second quarter of 2017 (Hong Kong government, 2017a). As mentioned before, success of community-based care and CBR depends on multi-sectoral collaborations, not just confined to healthcare providers but also the assistance of stakeholders in other fields such as education, vocational training, social services, communities, concerned government departments, and NGOs, etc. (WHO, n.d. (a); Iemmi et al., 2013). The findings of the Ombudsman shown above illustrate the importance of the multiparty strategy in community-based care as advocated by the WHO (n.d.(a)) and the significant roles played by the Hong Kong government.

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Coordination of Inter-Sectors in the Government

The Hong Kong government may wish to review its policies in health care and elderly care, which are now managed respectively by two bureaus, and strike an optimal balance between hospital developments and community-based care. To facilitate the aged to live and function less dependently in the community as far as possible requires multi-sectoral cooperations among, for instance, people with disabilities, family members, communities, concerned government departments, and NGOs in the fields of health care, education, career development, and social services, etc. (Iemmi et al., 2013), and one of the underlying principles of community care is its flexibility in implementation, so as to cope with local contexts and take into account any local chances and limitations (Davies & Challis, 1986). In the UK, for instance, Bernard and Phillips (2000) advocated an integrated social policy to take care the broad needs of an ageing society in contrast to those narrowly defined services for specific age groups or cohorts with particular problems or stigmas. In fact, Hong Kong attempted to formulate a central policy about ageing services in the 1980s and 1990s but the difficulty in making inter-departmental coordination made issues of ageing focus on health and personal social services and become the responsibility of the then Health and Welfare Bureau (Chan & Phillips, 2002). After the changeover of sovereignty from the UK to China, the government machinery responsible for health and social welfare issues in Hong Kong has changed a number of times. The "Health and Welfare Branch" before 1997 was restructured to establish the "Health and Welfare Bureau", which was subsequently re-named the "Health, Welfare and Food Bureau" in 2002 under the Principal Officials Accountability System (Ma, 2007). In 2007, it was further re-named the "Food and Health Bureau" and the welfare function was transferred to the "Labour and Welfare Bureau" (FHB, 2008). In accordance with the CBR strategy developed by ILO, UNESCO and WHO (2004) to consider collectively rehabilitation, equality of chances, poverty reduction and social inclusion, these hierarchical changes in the government structure could not help improve the inter-departmental coordination for community-based care, not to mention CBR.

In recent years, it appears that the government has realized the importance of inter-departmental coordination and participation by different parties, as illustrated by a government setup with a name of "Energizing Kowloon East Office", which was set up in 2012 to coordinate the work of relevant departments in the government machinery and more importantly, to play the role of place-maker, and to serve as a platform for all walks of life to work together to generate innovate ideas for the optimal use of public space and environmental improvement in the Kowloon East region of Hong Kong (Hong Kong government, 2012b). As reported in a panel of the Legislative Council, "Energizing Kowloon East Office" serves as an advisor and facilitator for development projects of both public and private sectors in Kowloon East, and it has so far provided one-stop advisory and coordinating services among all concerned government department for over sixty private development projects and has had extensive engagements and cooperations with the public and different stakeholders at various stages of initiatives and projects (Development Bureau of Hong Kong, 2016). Another example is the establishment of a tripartite platform to mend the broken relationship between the government, doctors, and patient advocates after the failure of the Medical Registration (Amendment) Bill 2016 to pass through the Legislative Council in July 2016 (Hong Kong government, 2016). In rehabilitation services, the government has proposed to upgrade the rank of and strengthen the role of the Commissioner for Rehabilitation (Chief Executive of Hong Kong, 2014), who is responsible for making rehabilitation policy for the disabled persons and enhancing coordination with other government bureau and departments, public organizations and NGOs in the provision and formulation of rehabilitation services (LWB, 2014). The realization of better coordination

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of inter-sectors, particularly the role delineation of the FHB and the LWB in rehabilitation, may help break down the current compartmentalization and fragmentation of health care and community care.

Domiciliary Services

In 2014, only 1.05% of persons aged 60 and over in Hong Kong lived in institutions including homes for the aged, care and attention homes, and nursing homes (The Hong Kong Council of Social Service, 2017). Given that most of the elderly live with their families and not in institutions, the ageing-in-place concept has been advocated by the Hong Kong government in recent years to enable older people to remain living in a familiar and preferred environment. Ageing-in-place is a world-wide trend that even vulnerable older people can live in their own domestic housing with community-based in-home support services and innovative housing designs to meet their needs when they become aged and frailer (Chui, 2008). At present, clients of both "Enhanced Home and Community Care Services" and "Integrated Home Care Services" have to be assessed and arranged by the Standardized Care Need Assessment Mechanism (SCNAM) for Elderly Services through multidisciplinary teams consisting of accredited assessors from various professional disciplines such as nurses, social workers, occupational therapists, and physiotherapists, etc. who have gone through training and accreditation on the use of assessment tools (SWD, 2017). The SCNAM teams also serve as a gatekeeper to cover applications for residential services such as admissions to homes for the aged, care and attention homes, nursing homes, day care centres for the elderly, enhanced home and community care services, and integrated home care services (for disabled and frail cases). There are only 5 SCNAM teams in Hong Kong and the current level of manpower and resources may not be enough to serve the increasing number of elders in the population, which may increase the waiting time under the Central Waiting List, particularly for those who are in urgent health and care needs.

Centre-Based CBR in the Community

With regard to the CRDC project, it still operates on a trial basis since its inauguration a decade ago. At present, there are only four CRDCs in four districts (Kwun Tong, Wanchai, Shatin, and Tuen Mun) funded by the Social Welfare Department (n.d.) since 2007, the services provided are far less than the demand of people with disabilities. There are no district centres in the Kowloon West and the Central districts, for instance, and each existing centre may not be able to cope with the demand of rehabilitation needs from people with chronic diseases and physical disabilities. To cite an example, most of the clients visiting the CRDCs are stroke survivors, and this is not surprising as the incidence of stroke cases increases in an ageing population as the risk of stroke increase with age (Sheppard & Ko, 2009). In Hong Kong, there was an average of 25,247 people yearly suffered from stroke in the period of 2008-12 and among them, there was an average of 21,813 survivors per year with a survival rate about 86% (Hospital Authority of Hong Kong, 2014). Most of them might end up with various degrees of sensorimotor impairments, physical and cognitive disabilities, and require varying degrees of rehabilitation. It is not difficult or unreasonable to infer that services offered by only four CRDCs are insufficient. As regards other subsidy schemes from the Community Care Fund for people with severe disabilities, they are also on a pilot basis.

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Self-Management of Chronic Diseases by Patients

The Chronic Disease Self-Management Programme ("CDSMP") facilitates patients with chronic diseases to gain self-management skills and behavior based on the theory of self-efficacy, social learning, mastery of skills, and problem-solving (Bodenheimer, Lorig, Holman, & Grumbach., 2002), and is a 6-week standardized programme to help participants to join in self-management skills training and set up health action plans (Chan, Siu, Poon, & Chan, 2005). However, to the best knowledge of the authors, there has been no plan to implement the CDSMP in the long run. The Hospital Authority has also partnered with NGOs since 2010 to offer a patient empowerment programme as a pilot public-private-partnership project, mainly for patients with diabetes mellitus and high blood pressure with an aim to enhancing their disease specific knowledge and self-care capabilities, and an enhanced model with more emphasis on personalization has commenced since April 2016 (Hospital Authority of Hong Kong, 2016). There is no indication either as to whether such a pilot project would become recurrent in the near future.

NGOs' Running CBR Programmes on a Project Basis

In addition to the call for enhanced coordination within the government, there is also a need to strengthen the coordination of NGOs which are playing an important role in the provisions of community-based care and CBR. The Hong Kong government allocates resources to NGOs in accordance with the Lump Sum Grant Subvention System, which was introduced in 2001 and is considered as a "a major revamp of the public funding and management" of NGOs in the social welfare sector (Lump Sum Grant Independent Review Committee, 2008). In terms of community care, sustainability is a concern. There may not be empirical studies on the number of self-financed community-based services in Hong Kong, and according to the authors' personal observations, a number of community-based programmes run by NGOs in Hong Kong are operated on a project or self-financed basis, e.g. self-financing day care centres for elders with dementia (SWD, 2012), and when budget is exhausted, the programmes concerned have to put a stop to provisions of services. The authors argue that because of the sustainability concern, NGOs may see other counterparts as competitors rather than partners, and this has created a further stumbling block to the development of community care in Hong Kong.

CONCLUSION

Ageing population has been challenging governments to give new initiatives and policies in the provision of care (WHO, 2013). This requires linking comprehensive and consistent policies, services, and other supports together (Cox, 2005) in a sustainable manner. Hong Kong is no exception.

To enable healthy ageing and reduce the number of chronic patients, the Hong Kong government must reduce the reliance on hospital and institutional care and considers increasing community care in the long run for frail aged persons (Chu & Chi, 2006). Although there have been some social programmes by NGOs and public healthcare programmes in place in Hong Kong, CBR and other community-based services are still limited and fragmented, as exemplified by the facts that there is a lack of a longer-term policy of community-based services, that the Hong Kong government continues to rely on public hospital services, that there is still room to improve coordination of inter-sectors, and that NGOs are running community-based programmes on a project or self-financing basis, the services of which are susceptible

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to termination when funding is exhausted, not to mention the need to strengthen inter-departmental coordination within the Hong Kong government (Chan & Phillips, 2002), interagency coordination between the government, the Hospital Authority, the Social Welfare Department, and NGOs, and, last but not least, inter-NGOs coordination.

Hong Kong goes in a similar direction of community care as other contemporary societies, but without a longer-term policy in Hong Kong, the so-called guiding principle of "ageing in place as the core, institutional care as back-up" (LWB & SWD, 2014, paragraph 2) is far words more than action. The authors suggest that the Hong Kong government make community-based care a longer-term policy which is free of interruptions because of changes of government leaders, and for the sake of long-term sustainability of Hong Kong, review the present heavy reliance on public hospital services and revamp the existing financing model to optimize the imbalance between hospital care and community care. In practice, to strengthen the Hong Kong government's coordinating role, in addition to the upgrade of the rank of the Commissioner for Rehabilitation, the authors further recommend that the government make reference to the success of the "Energizing Kowloon East Office" (Hong Kong government, 2012b) and establish an appropriate coordination mechanism among different policy bureaus to allow different stakeholders like practitioners in the health care and community care fields, NGOs, and patient advocates, to join hands to discuss and improve the longer-term planning in community care to rectify the current fragmented approach. Once an appropriate context of community-based care is in place in Hong Kong, the authors are confident that there should be no doubt as to the quality of care provisions, as evidenced by the very long life expectancy of citizens (CSD, 2016b).

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Chapter 51
Career Counseling for International Students:
Using the Framework of Social Cognitive Career Theory

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ABSTRACT

International students are a group with diverse career needs and concerns. The challenges international students face (e.g., psychological and sociocultural adjustment issues, language barriers, sense of loss, financial problems, getting used to a new educational system) when they come to study in the United States, as well as their expectations of coming to a new country, may significantly influence their career needs and decision-making processes. In this chapter, the authors suggest social cognitive career theory (SCCT) as a framework for working with the undergraduate and graduate international student population by emphasizing intervention strategies and making specific recommendations.

INTRODUCTION

This chapter examines the use of the Social Cognitive Career Theory (SCCT) as the framework for engaging career counseling interventions and strategies for international students in U.S. undergraduate and graduate education. The term *international student* refers to students who study at an educational institution in a country other than their country of citizenship (Paige, 1990). Several colleges and universities in the U.S. may have seen their highest number of enrollments of international students in academic year 2016-2017 with an overall total of 1,078,822 (Institute of International Education, 2017). This figure represents a 3.4% increase in the total number of international students over the previous academic year.

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The growing number of international students suggests that there is greater diversity of career needs and interests to which U.S. institutions must respond. The Institute of International Education reported that in 2017 of the total number of international students, 40.7% were in undergraduate studies, 36.3% were in graduate studies, 16.3% were in optional practical training, and 6.8% were in non-degree programs. Considering that moving to another country to pursue undergraduate or graduate education is an important career decision, there is need for greater understanding of the role of career counseling in international students' success. Therefore, the authors present SCCT as a framework for better understanding and addressing the career needs of international students.

International Students' Career Needs and Challenges

Coming from different cultural groups, international students represent a heterogeneous group of people with diverse career needs and concerns (Paige, 1990; Yang, Wong, Hwang, & Heppner, 2002). First, international students face the immense challenge of cultural and emotional adjustment when they come to study in the U.S. (Bulgan & Çiftçi, 2017; Cozart & Rojewski, 2015; Nilsson & Anderson, 2004; Wang, et al., 2012; Wei et al., 2007). Previous studies have indicated that international students' common difficulties include lack of social support, sense of loss, culture shock, language barriers, financial problems, and adjusting to a new educational system (Arthur, 2016; Carr, Koyama, & Thiagarajan, 2003; Kilinc & Granello, 2003; Lee, Koeske, & Sales, 2004; Mori, 2000; Russell, Thomsom, & Rosenthal, 2008).

Second, taking into account that the choice of studying in another country is a significant career decision, international students need support to deal with their career needs and goals. Fortunately, studies addressing the career-development needs of international students are increasing in number (Cozart & Rojewski, 2015; Nunes & Arthur, 2013; Popadiuk & Arthur, 2014). Specifically, international students need to make sure that their academic and vocational training in the U.S. will be of use to their future status either in the U.S. or in their home country (Leong & Sedlacek, 1989). Thus, career counseling will prove useful in guiding their choices.

Third, international students face numerous vocational challenges like language and cultural barriers in job search and legal requirements and bureaucratic procedures for employment in the United States (Spencer-Rodgers, 2000; Spencer-Rodgers & Cortijo, 1998). Spencer-Rodgers (2000) found that vocational needs of international college students are focused on getting work experience, overcoming interview barriers, and developing job-search skills. In another study, international students felt that they need help with preparing for careers of interest and exploring job opportunities (Manese, Leong, & Sedlacek, 1985). In addition, Leong and Sedlacek (1989) found that career needs of international students are different from those of American students. Particularly, international students are more interested and in need of vocational guidance compared to American students. The career needs of international students become more complicated since they consider employment in the U.S., in their country of origin, or even other foreign countries (Shen & Herr, 2004; Spencer-Rodgers, 2000). In other words, international students' career development needs tend to focus on the U.S. or on foreign job markets (Spencer-Rodgers, 2000). Given their future plans, they require different steps for the counseling process.

Fourth, career needs of international students also vary due to their developmental stage and level of career planning and preparation (Arthur, 2016; Shen & Herr, 2004). Shih and Brown (2000), in a study on undergraduate and graduate Taiwanese international students in the U.S. found that age and acculturation levels were important predictors of vocational identity. Specifically, older students were more likely to have a clearer understanding of their career interests, abilities, and goals (Shih & Brown,

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2000). For graduate international students, Shen and Herr (2004) found that the factors influencing students' future plans regarding employment in the U.S. ranged from individualism (e.g. chances of career promotion) to collectivism (e.g., needs of the home country). More specifically, participants discussed the need to be with family and relatives (e.g., parents needing them to stay) and need to advance their career individually in the U.S. with more possibilities and resources. Thus, on one hand, if international students' vocational needs are focused on employment in the U.S., their career concerns would include the need to get practical training in the U.S., prepare an American-style resume, and obtain the necessary rules and regulations for work as a foreigner (Spencer-Rodgers, 2000). On the other hand, going back to one's own country or to another foreign country would require culturally sensitive career planning, that is, developing country-specific curriculum vitae, or obtaining permanent employment in the selected country. Further, Shen and Herr (2004) found that work experience—internship, teaching assistantship—in the students' fields as well as general career services—training in resume writing and American style interviewing skills—helped improve the students' career foundation. However, international students, especially those in need of assistance with returning home, criticized campus career services as mostly U.S. in focused.

International students coming from countries that do not have an established career counseling systems that function will have limited career exploration, search, and planning experiences (Singaravelu, White, & Bringaze, 2005). Furthermore, some international students may feel the need to reassess their career choices and majors, particularly if there is incongruence among their interests, abilities, and cultural and parental expectations (Singaravelu, White, & Bringaze, 2005). Cultural and parental expectations may be prioritized for some international students rather than their personal interests and goals. For example, Tang, Fouad, and Smith (1999) in a study on Asian American college students found that parental preferences and self-efficacy beliefs were the major components of career choices rather than students' interests.

Considering different career development concerns, career counseling for international students may be challenging (Spencer-Rodgers & Cortijo, 1998). In this chapter, Social Cognitive Career Theory (SCCT; Lent, Brown, & Hackett, 1994) is used as the approach to offer career counseling to international students at undergraduate and graduate levels.

Social Cognitive Career Theory

Lent, Brown, and Hackett (1994) developed SCCT as a framework of career development to explain (a) the development of academic and career interests, (b) the performance of career related choices, and (c) achievement of performance outcomes. Social Cognitive Career Theory is mainly based on Bandura's (1986) general social cognitive theory, with a focus on self-efficacy, expected outcomes, and personal goals and how they connect to other personal, contextual, and learning factors (Lent, Brown, & Hackett, 1994). In other words, SCCT is based on the idea that personal attributes, the environment, and overt behaviors influence each other while working together. Social Cognitive Career Theory also highlights the role of proximal and distant factors that can be either supports or barriers for the individual's career development.

Bandura (1986) defined self-efficacy beliefs as "people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances" (p. 391). According to the social cognitive view, self-efficacy beliefs are dynamic and specific to certain performance domains (Lent, Brown, & Hackett, 1994). They provide answers to questions related to if individuals can

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perform specific tasks. For example, "Can I defend this dissertation?". Individuals' self-efficacy beliefs are important in the career decision-making process. For example, people move toward occupations for which they think they possess the required capabilities and move away from those for which they think they lack the necessary capabilities (Niles & Hartung, 2000).

Next, outcome expectations are beliefs regarding the outcomes of performing certain behaviors (Lent, 2005). They involve imagined consequences of certain courses of action (e.g., What job opportunities will I have if I get a degree in sociology?). Self-efficacy beliefs and outcome expectations are related to each other in the sense that individuals expect to receive positive outcomes in performing tasks for which they feel competent (Lent, 2005).

Finally, personal goals, which are a person's determination to engage in particular activities that lead to certain outcomes, influence career behaviors (Niles & Hartung, 2000). Setting goals help individuals organize, direct, and maintain their behavior over long periods of time even without external reinforcement (Lent, 2005; Lent, Brown, & Hackett, 1994). According to SCCT, people's personal goals are significantly influenced by their self-efficacy beliefs and outcome expectations (Lent, 2005). Personal inputs (e.g., age, gender, education level) interact with contextual factors (e.g., culture, family) and learning experiences to affect self-efficacy beliefs and outcome expectations, which in turn form interests, goals, actions, and achievements (Niles & Hartung, 2000).

Due to the fact that the preparation and implementation of career choices are generally associated with late adolescence and early adulthood (Lent, Brown, & Hackett, 1994), international students at the university level were selected as the target population of the current chapter. When working with international students in the career counseling process, it would be important to take into account the students' cultural factors and how these factors might influence their career choices. Depending on where the student is on the continuum of individualism to collectivism, his/her needs and expectations might have different levels of influence on his/her career choices. Social Cognitive Career Theory emphasizes the influence of the individual's inputs in addition to his/her background contextual factors (Lent, Brown, & Hackett, 2000), which makes it relevant to use with the international student population. The following section will explain how to use this theory on the career needs of the international student population.

SOLUTIONS AND RECOMMENDATIONS

Application of Social Cognitive Career Theory to Counseling International Students

Career counseling is a significant intervention that helps guide international students in planning their current and future career options (Shih & Brown, 2000). Social Cognitive Career Theory has been successfully applied to unique career needs of diverse populations such as first-generation college students (Gibbons & Shoffner, 2004), immigrants and refugees (Yakushko, Backhaus, Watson, Ngaruiya, & Gonzalez, 2008), and female offenders (Chartrand & Rose, 1996). Although there have been research studies using SCCT as the framework for studying the international student population such as Korean-Americans (Chang, 2005) and Asian-Americans (Tang, Foaud, & Smith, 1999), applied studies focusing on SCCT for counseling international students are lacking in the literature. Therefore, this chapter aims to highlight some important points for counseling international students for career development needs.

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To begin with, it would be important to include a strong cross-cultural component to the counseling process while working with international students (Paige, 1990). The cross-cultural component for international students could be thought as part of the clients' contextual factors in SCCT. While working with international students, it would be helpful for the counselor to be aware of the different counseling needs of this diverse student population as well as ways to reach these students. Therefore, being aware of the basic propositions of Multicultural Counseling and Therapy (Sue, Ivey, & Pedersen, 1996) such as both the counselor and the client having multiple identities at the individual, family, group, and cultural levels; cultural identity playing a major role in one's attitudes toward self and others; the importance of taking into account the client's culture while working with him/her; and respecting clients with different cultural backgrounds are important. Establishing good rapport and working alliance with the international student is also important for better understanding his/her needs and expectations (Gysbers, Heppner, & Johnston, 2003).

Considering the basic components of SCCT, counselors could help clients with assessing their level of self-efficacy, evaluating their outcome expectations, and looking at their actual and perceived supports and barriers concerning their goals (Wachter, Shoffner, & Newsome, 2009). For an international college student who is indecisive about his/her major, focusing on career interests, exploring different career options, and setting short- and long-term goals could be helpful. After getting the necessary information regarding the client's goals and expectations of the counseling process and of the counselor, the client could be given an interest inventory to help understand his/her interests better. After getting a sense of the client's interests, different career occupations could be explored with the client. During discussion of different career options, it is also important to take into account whether or not the client's abilities and skills are in line with his/her interests. While walking through the steps with the student, it is important to consider his/her values (i.e., cultural, parental, and personal), especially whether or not his/her personal values are congruent or conflicting with his/her parental and cultural values. The student's indecision could be due to conflicting value systems that s/he may not even be aware of. For example, for an undergraduate international student who is studying in a field that is not aligned with his/her interests but with his/her family's expectations of him/her, exploring personal and familial value systems and conflicts could be very helpful. If the client is a graduate student, his/her career needs might be different because of his/her developmental stage, which requires a different focus on career planning and preparation (Arthur, 2016; Shen & Herr, 2004). For example, a graduate student might be struggling with career indecision about job opportunities after graduation. More specifically, s/he may want to stay in the U.S. for a couple of years after graduation but is not sure how to go through the process and may be struggling with the status of being an international student–visa, work permits (Buchanan & Lee, 2008). Two student examples (i.e., an international male undergraduate student and an international female graduate student) will be used to explain different intervention strategies discussed in the following section.

Intervention Strategies Based on SCCT Components

The counselor could assess clients' needs within the systematic thinking process of SCCT by focusing on their self-efficacy beliefs, outcome expectations, goals, as well as their supports and barriers (Brown & Lent, 1996; Lent, Brown, & Hackett, 1994). In other words, the counselor could assess clients' self-efficacy level due to its importance in the decision making process. The client might have low self-efficacy because of going through some challenges as an international student. However, it is important for the

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counselor to keep in mind that international students also have strengths such as strong motivation for learning and working, global perspectives and experiences, international connections, and adaptability (Fuhrman, Lee, & He, 2007). It would be beneficial for the counselor to be able to use these and the client's personal strengths to increase the client's self-efficacy level. An intervention strategy that career counselors could use to help increase clients' self-efficacy beliefs is asking the client to create a lifeline that includes significant past experiences and anticipated future events (Chartrand & Rose, 1996). This lifeline could be used to explore the strengths and accomplishments in the client's life and could provide further discussion. The graduate student in our example might have low self-efficacy beliefs such as "I will not be able to manage the job application process." or "I cannot go through the bureaucratic paperwork all over again.". After drawing the lifeline and exploring it with the counselor, the client may come to realize that she has accomplished so much in life than she thought she had and feel motivated to plan her career. After the intervention strategy is successfully implemented the client's self-efficacy beliefs could increase to the level that she would say "I will be able to manage the job application process because this is what I want to do and I have done similar things in my life before." or "I can go through the bureaucratic paperwork once more.". As seen in the example, this strategy could help increase self-efficacy beliefs and motivate the client to take further steps in career planning (Chartrand & Rose, 1996).

Outcome expectations could also be evaluated with the client. Some of the negative outcome expectations for international students thinking about changing majors could be staying for an additional year, financial strains, disapproval of their family members, and additional paperwork to stay in the U.S. for an extra year. On the other hand, some positive outcome expectations could be enjoying the career to be pursued, having higher levels of work and life satisfaction as well as psychological well-being. The counseling process should be built on ways to help the client reach positive outcome expectations. Some of the interventions that could be used are identifying the client's coping mechanisms to deal with negative outcome expectations (Wachter, Shoffner, & Newsome, 2009), discussing pros and cons regarding different academic majors and career options, focusing on the strengths of the client, and looking at the big picture including the personal and contextual factors of the client together.

Let us turn back to our undergraduate student example at this point. The international student at the undergraduate level who is undecided about his major and is considering changing majors could have negative outcome expectations such as "I might have to stay for an additional year if I switch majors." or "My parents will probably disapprove my decision to change majors.". An intervention strategy that could be helpful in this situation is creating a career genogram (Gibson & Taylor, 2017; Okiishi, 1987) and talking about family members' career paths and their worldviews. Because the client has brought up the probable parental disapproval regarding his decision to change majors, this intervention could help the client explore parental and cultural values, which could be influencing his career options. While going through the genogram, the counselor and the client could talk about what careers the client's relatives have, how they view education and work, and how gender roles are perceived as in the client's culture. After discussing these and similar topics in detail, the client could come to the realization that the biggest thing which is holding him back from changing his major is the internal conflict of personal and parental values and aspirations and that he actually wants to change majors. This intervention strategy could make a change in the client's outcome expectations. For example, the client might be able to say "Staying for an additional year will make me happy and satisfied with my major and future career, so it is worth it." or "My parents will eventually understand and approve my decision to change majors because this is what I want to do in life.". However, the client might not change his negative outcome expectations directly to positive ones. In that case, the counselor could help the client realize some positive outcome

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expectations that he has and at the same time could work on ways to recognize coping mechanism (e.g., the client's strengths) that could help deal with negative outcome expectations. As counseling is a process, the client will be able to change his negative outcome expectations to positive as he continues to gain self-awareness and feel understood and supported throughout the counseling process.

Furthermore, it is important to identify the client's perceived supports and barriers along the way. Some of the support systems for the graduate student who wants to stay in the U.S. for a few years after graduation could be future job opportunities, possibility of higher income, quality of life, professional network opportunities, supportive family members, friends, and any environmental resources (Han & Appelbaum, 2016). Some of the barriers could be family (depending on whether or not they are supportive), alternative job opportunities in her home country, bureaucratic paperwork, and legal issues. The counselor could help the client overcome the barriers and identify further support systems that could guide the client through the decision making process. A way to do this could be simply writing down the barriers and supports in the client's life and discussing how the barriers could be dealt with and even turned into supports (e.g., finding appropriate ways to talk with family members and being able to explain the client's point of view could change an opposing family into a supportive family). The counselor and the client could brainstorm alternative ways to cope with the barriers in the client's life. It is important for the counselor to work on helping the client discover her strengths and resources, and to build on them for dealing with the barriers. Arthur (2017) in her recent paper talks about the power of fostering three types of social resources for international students, which are academic faculty, counselors, and local students. Talking to faculty members could help international students learn about their experiences with career decision making, job search and recruitment processes; getting help from counselors could increase their self-awareness, which would lead to making decisions that are more aligned with themselves; and having local students as friends could be supportive in their experiences with the U.S. educational and employment systems as well as having social and emotional support. Making use of these and similar resources could help the client feel even more supported. The counselor could also give constructive feedback and continuously empower the client through counseling.

Throughout the counseling process, the counselor and the client could work on setting short-term goals that could help the client reach his/her long-term career goals. For instance, some of the short-term goals for the graduate student who is U.S. employment focused could be identifying job openings from the internet, updating his/her resume, writing a cover letter for a job opening s/he is interested in, and getting information about the bureaucratic paperwork that needs to be done for extending his/her stay in the U.S. If the counselor could help the client set realistic short-term goals and follow him/her up in terms of achieving those goals, things that need to be done in order to reach the ultimate goal may seem less burdensome for the client. It is important to go step-by-step and achieve relatively simple and short-term goals that will lead to the client's long-term goal.

It is important that the counselor spends time and energy to build and maintain a trusting and supportive relationship with the client. Having a good working alliance and trusting relationship will let the client explore his/her conflicts and/or emotions regarding the decision making process. Another point to keep in mind is that it is important to incorporate the client's personal inputs, cultural background, past and present experiences, important life events, and current life situation in SCCT (Chartrand & Rose, 1996) to get the whole picture and interactions among different variables. Different intervention strategies explained throughout this chapter could be used through the counseling process to help explore and provide discussion as well as to give an idea and help generate new interventions in working with international students. Whatever strategies are used as tools in counseling, it is important to keep

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in mind that clients need to be continuously encouraged to explore, think about, and discuss different issues that could be relevant to their career needs during the counseling process.

FUTURE RESEARCH DIRECTIONS

Future research could focus on examining the current state of career counseling services provided for international students in the U.S. How international students perceive the career counseling services, what they find most useful for them, and how these services could be further developed to better meet their needs could be studied. Researchers could also focus on investigating the effectiveness of different career counseling strategies used with the international student population. Continuing to conduct studies on international students studying at the undergraduate and graduate levels would enable career counselors to better understand and help these students with their specific career needs.

CONCLUSION

Career needs of international students could be further complicated due to the challenges they face in the United States. The current chapter focused on some intervention strategies that could be used within the framework of SCCT for addressing the career developmental needs of international students at the undergraduate and graduate levels. It is important that career counseling focuses on empowering these students by concentrating on their strengths to increase self-efficacy beliefs, which in turn may change their perceptions of outcome expectations, supports, barriers, and goals.

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Chapter 52
More Than Achievement:
Grit as a Key Component of Positive Psychology

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ABSTRACT

The last decade has witnessed an extraordinary interest in the concept of grit (i.e., "perseverance and passion for long-term goals"). Grit has garnered widespread attention in both the research and public spheres due to its association with lifetime educational and professional achievement. However, research indicates that grit has more far-reaching implications than simply educational and professional achievement; in fact, the literature suggests that grit is a key component of positive psychology, which aims to promote well-being more broadly. The current chapter will explore grit in the context of the positive psychology by reviewing the literature that supports grit as an important component of positive psychology. This chapter will also highlight the limitations of our current understanding of grit, discuss how these limitations implicate the field of positive psychology, and discuss next steps for grit research in light of these limitations.

INTRODUCTION

The last decade has witnessed an extraordinary interest in the concept of grit; i.e., "perseverance and passion for long-term goals" (Duckworth et al., 2007, p. 1087). This burgeoning fascination initially stemmed from intelligence researchers seeking to address why certain individuals accomplish more in life than others with equal intelligence (Duckworth et al., 2007, p. 1087). Although measures of effortful persistence (e.g., conscientiousness) have long been recognized as important components of success, grit has garnered specific attention in both the research and public spheres because it is suggested to predict lifetime outcomes above and beyond traditional measures of effortful persistence. In fact, research suggests that grit accounts for an average of 4% of the variance in success outcomes (Abuhassan & Bates, 2015, p. 2; Duckworth et al., 2007).

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Indeed, numerous studies have found that grit is predictive of educational success (e.g., first-year grade point average [GPA] in college; Akos & Kretchmar, 2017; Duckworth et al., 2007; Duckworth & Quinn, 2009; Strayhorn, 2013) and this effect has been found to be predictive above and beyond IQ, standardized test scores, and high school grades (Akos & Kretchmar, 2017; Duckworth et al., 2007). Angela Duckworth, the foremost researcher on grit, noted in an interview that grit "beats the pants off of IQ, SAT scores, physical fitness, and a bazillion other measures to help us know in advance which individuals will be successful in some situations" (Scelfo, April 8, 2016).

In addition to educational success, grit has been found to be predictive of professional success later in life. For example, in a series of six studies, Duckworth et al. (2007) found that grit is an important predictor of professional success after college. Specifically, individuals with higher levels of grit not only attained higher levels of education and scored higher GPAs, but also reported making fewer career changes when surveyed at age 25 or older. Beyond basic educational and professional measures of success, grit has also been found to predict cadet retention at West Point and competitor ranking in the Scripps National Spelling Bee (Duckworth, Kirby, Tsukayama, Berstein, & Ericsson, 2011).

However, the implications of grit are farther reaching than simply predicting educational and professional success. In addition to these metrics, grit has been linked with personality traits (i.e., lower levels of neuroticism and higher levels of extraversion; Duckworth & Quinn, 2009), as well as positive affect, happiness, and life satisfaction (Singh & Duggal Jha, 2008). Indeed, grit is among the widely discussed soft or non-cognitive skills (i.e., "personality traits, goals, motivations, and preferences," Heckman & Kautz, 2012, p. 2). These soft skills (e.g., conscientiousness, self-control, trust, attentiveness, self-esteem, and self-efficacy) have been shown to foster hard academic skills as well as a diverse array of meaningful life outcomes across a range of domains (Diris, ter Weel, & Borghans, 2014; Kautz & Heckman, 2012).

In fact, grit has been found to be an important quality to consider in the field of positive psychology. Positive psychology is "the scientific study of positive experiences and positive individual traits, and the institutions that facilitate their development" (Duckworth, Steen, & Seligman, 2005 p. 630). Broadly speaking, the field of positive psychology aims to shift the emphasis of psychology away from pathology (Seligman & Csikszentmihalyi, 2014) toward building "human resilience, strength, and growth," as a means to achieving well-being, or other desired outcomes (Gable & Haidt, 2005, p. 107). Given this focus, it is clear that the construct of grit aligns well with the goals of positive psychology. As a result, it is a fruitful endeavor to look toward positive psychology as a framework to understand predictors of and associations with grit. In doing so, we can better understand how grit can be cultivated as well as the implications of grit more broadly.

The current chapter will review grit in the context of positive psychology in order to address the overarching goal of this textbook to utilize positive psychology as a means to offer best practices and practical ingredients for living a positive, happy, meaningful, and fulfilled life. Specifically, this chapter will address the following aims:

1. To discuss how grit is defined and conceptualized;
2. To review empirical and theoretical literature that supports grit as an important component of positive psychology; and
3. To highlight the limitations of our understanding of grit, discuss how these limitations implicate the field of positive psychology, and discuss next steps for grit research in light of these limitations.

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BACKGROUND

Defining Grit

Grit has been broadly defined in the literature as "perseverance and passion for long-term goals" (Duckworth et al., 2007, p. 1087). To better understand grit, there have been numerous efforts to precisely differentiate grit from conceptually related constructs, including resilience (i.e., the ability to bounce back from, or have a positive response to, failure or adversity, Perkins-Gough, 2013), self-control (i.e., "the capacity to regulate attention, emotion, and behavior in the presence of temptation," Duckworth & Gross, 2014, p. 4), conscientiousness (i.e., "being hardworking, responsible, self-disciplined, and thorough," John & Srivastava, 1999; Muenks et al., 2017, p. 602), and work ethic (i.e., "a multidimensional set of values reflecting the importance of work in an individual's life," Meriac, Slifka, & LaBat, 2015, p. 401). Although grit has been found to be associated with many of these constructs (e.g., conscientiousness, Duckworth et al., 2007), grit is unique in its emphasis on "the tenacious pursuit of a dominant superordinate goal despite setbacks," and often requires "working assiduously toward a single challenging superordinate goal through thick and thin, on a timescale of years or even decades" (Duckworth & Gross, 2014, pp. 1-2). Simply put, grit is distinct in its "emphasis on stamina" (Akos & Kretchmar, 2017, p. 165).

Measuring Grit

An important consideration for defining grit is how it is measured in the empirical literature. Duckworth's laboratory developed the twelve-item (Grit-O) and eight-item (Grit-S) self-report scales and these are the primary measures of grit applied across the most recent research studies. Factor analysis procedures with these measures have identified that grit is comprised of two components, or factors (Duckworth et al., 2007). The Grit-S (i.e., the Short Grit Scale) retains this two-factor structure with four fewer items and improved psychometric properties (Duckworth & Quinn, 2009).

The first factor, consistency of interests, has been defined in the literature as goal- and action-oriented long-term behavior, rather than an individual or situational interest (Muenks et al., 2017). Consistency of interests is assessed via six items on the Grit-O, each measured using a five-point Likert scale: 1) I often set a goal but later choose to pursue a different one; 2) New ideas and new projects sometimes distract me from previous ones; 3) I become interested in new pursuits every few months; 4) My interests change from year to year; 5) I have been obsessed with a certain idea or project for a short time but later lost interest; and 6) I have difficulty maintaining my focus on projects that take more than a few months to complete.

The second factor, perseverance of effort, is conceptualized as the tendency to continue working toward a particular goal (Muenks et al., 2017). Perseverance of effort is also assessed via six items on the Grit-O, each measured using a five-point Likert scale: 1) I have achieved a goal that took years of work; 2) I have overcome setbacks to conquer an important challenge; 3) I finish whatever I begin; 4) Setbacks don't discourage me; 5) I am a hard worker; and 6) I am diligent.

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EXPLORING GRIT IN THE POSITIVE PSYCHOLOGY FRAMEWORK

Given the importance of grit and the widespread interest in defining, measuring, and understanding grit, researchers have called for the need to investigate the extent to which it is associated with conceptually overlapping constructs (e.g., resilience, conscientiousness, etc.). A deeper dive into the constellation of constructs that comprise positive psychology, a field that theoretically aligns with grit, allows us to better understand this important concept.

Positive psychology can be defined as "the scientific study of positive experiences and positive individual traits, and the institutions that facilitate their development" (Duckworth, Steen, & Seligman, 2005 p. 630). The roots of positive psychology are based in the Humanistic perspective on psychology (Maslow, 1962), which seeks to address the questions, "What is the good life?" and "When are individuals at their best?" as well as "How can we encourage growth in ourselves and others?" (Duckworth, Steen, & Seligman, 2005, p.632). Over the past two decades, researchers have proposed a range of ways to effectively measure central components of positive psychology, beyond measures of happiness or well-being which are less conducive to empirical study. For example, Carol Ryff (1989) proposed a model based on self-acceptance, personal growth, life purpose, environmental domain, and positive relationships. Duckworth, Steen, and Seligman (2005) described the pleasant life (i.e., positive emotions about the past, present, and future); the engaged life (i.e., the use of one's strengths of character and talents to meet challenges); and the meaningful life (i.e., serving positive institutions).

Indeed, the field of positive psychology has evolved substantially over the last two decades, in part spurred by the work of Martin Seligman, a key pioneer in the field of positive psychology. According to Seligman, the best measure of well-being is flourishing (i.e., achieving an existence of greater meaning) (Scorsolini-Comin, Fontaine, Koller, & dos Santos, 2013). In turn, the goal of positive psychology is to increase flourishing (Seligman, 2012). Flourishing, according to Seligman (2012) is based on five pillars: 1) Positive emotions; 2) Engagement; 3) Positive relationships; 4) Meaning; and 5) Accomplishment (i.e., the PERMA model). This section will investigate grit in the context of the PERMA framework proposed by Seligman (2012) in order to better understand the correlates of and sources from which grit is derived (Hill, Burrow, & Bronk, 2014), as well as to further conceptualize grit as a key concept in positive psychology.

The purpose of this section is not to provide an exhaustive review of empirical and theoretical research in these domains; rather, it is to highlight research that demonstrates the relationship between grit and positive psychology constructs. Importantly, many of the studies that will be discussed do not specifically measure grit—rather, they assess conceptually related constructs that can inform our understanding of grit. This limitation should be considered when evaluating these research findings. In addition, the studies outlined below represent research with a range of populations and methodologies, so research findings should be interpreted with appropriate caveats.

Grit and Positive Emotions

The first pillar proposed by Seligman (2012), *positive emotions*, includes an emphasis on constructs such as satisfaction, contentment, fulfillment, pride, serenity, optimism, hope, confidence, faith, and trust (Seligman, 2002). Positive emotions may have important implications for understanding grit because they have been recognized as key components of conceptually similar constructs, including resilience (Cohn, Fredrickson, Brown, Mikels, & Conway, 2009).

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As an example, Cohn et al. (2009) investigated the broaden-and-build-theory—that is, the idea that positive emotions represent "evolved adaptations that function to build lasting resources…" (p. 2). In other words, the broaden-and-build theory posits that positive emotions are, in essence, the building blocks for resilience. In the context of this particular study, the authors investigated 86 college students' every day experiences of positive emotions (e.g., amusement, awe, compassion, contentment, gratitude, hope, interest, joy, love, and pride) and their role in facilitating resilience. Daily positive emotions were assessed via the completion of online daily emotion reports, which consisted of the Differential Emotions Scale (mDES, Fredrickson et al., 2003). In this questionnaire, participants rated their strongest experiences of 18 emotions in the past day on a 5- point scale (0 = not at all, 4 = extremely). Resilience was assessed via the ER89 (Block & Kremen, 1996), which consisted of fourteen Likert scale items assessing responses to challenging and shifting circumstances, e.g., "I enjoy dealing with new and unusual situations." Findings from this research demonstrated that individuals who were experiencing more daily positive emotions had higher levels of resilience. The authors interpreted these results by concluding that individuals with more positive emotions were better equipped to deal with challenges in their lives.

Indeed, other studies have yielded consistent results, also finding that resilient individuals experience more positive emotions. For example, resilient college students tested before and after the September 11, 2001 terrorist attacks reported experiencing gratitude, interest, love, and other positive emotions (Fredrickson et al., 2003). Additional findings with college students suggest that experiencing positive emotions contributes to an individual's ability to achieve efficient emotion regulation and find positive meaning in negative circumstances (Tugade & Fredrickson, 2004). These studies focus on resilience, which is conceptually akin to the perseverance of effort dimension in grit (e.g., "setbacks don't discourage me"), so they offer a useful lens into understanding the potential role of positive emotions in explaining grit. Thus, from the broaden-and-build perspective, research on resilience among college students suggests that the experience of positive emotions on a daily basis may be an important factor in promoting grit.

Grit and Engagement

The second pillar proposed by Seligman, *engagement*, is a "multi-dimensional construct that is associated with being deeply involved in an activity" (Muenks et al., 2017, p. 602). The notion of engagement is grounded in research from Mihaly Csikszentmihalyi on flow (i.e., a state of being completely absorbed in, and concentrating on, a challenging activity ((Csikszentmihalyi, 1991). In an interview with Csikszentmihalyi, he notes that engagement is a broader concept than flow, and is often manifested through flow (Beard, 2014). Specifically, engagement focuses on the question, "how do you find positive ways to relate to your environment and the opportunities of life?" (p. 357). In this interview, Csikszentmihalyi explains that experiencing flow is an important skill that promotes achievement because it facilitates working intentionally toward a particular goal. Indeed, survey research suggests that flow may be a strong predictor of job satisfaction among employees with a range of jobs (Maeran & Cangiano, 2013). Further, preliminary research suggests that engagement is a predictor of job success. For example, case study research has highlighted the role of flow for an educational administrator in closing a district's school achievement gap (Beard, 2015).

Researchers have begun exploring the relations between engagement and grit. For example, Von Culin, Tsukayama, & Duckworth (2014) explored how individual differences in grit may be explained by distinct approaches to pursuing happiness. The researchers conducted two cross-sectional studies with adults recruited over the internet to address their research question. In both samples, individuals with

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higher levels of grit tended to seek happiness through engagement, a relationship driven primarily by the perseverance of effort component of the Grit-S. This finding is consistent with additional studies that suggest that those with a higher level of educational and professional success are more likely to endorse engagement as a path to overall happiness (Schueller & Seligman, 2010). Indeed, grit and engagement have been explored in additional contexts with consistent results. For example, Martin, Byrd, Lewis Watts, & Dent (2015) investigated a sample of wheelchair basketball athletes and found that those reporting the highest levels of grit and resilience tended to be the most engaged in their sport. Taken together, research suggests that individuals with higher levels of grit may have higher levels of engagement in a particular activity, and may, in turn, derive more satisfaction from being highly engaged in activities.

Grit and Positive Relationships

The third pillar in the PERMA framework focuses on seeking out and maintaining positive relationships. As stated above, grit has more far-reaching implications than simply predicting educational and professional achievement. Indeed, researchers increasingly conceptualize success not only in terms of hard skills, but also in terms of soft skills, including the capacity to develop and maintain social relationships (Heckman & Kautz, 2012). In fact, research reveals that social relationships are intricately connected with physical and mental well-being (e.g., Holt-Lunstad & Smith, 2012).

As an example of the literature that suggests grit and social relationships are related, Feeney and Collins (2015) present a theoretical model on thriving (i.e., "flourishing [growing or developing vigorously], prospering [being successful; gaining wealth or possessions], and progressing toward or realizing a goal despite or because of the circumstances", p. 114). In this model, the authors highlight two contexts that are conducive to thriving: 1) "coping successfully with life's adversities," and 2) "actively pursuing life opportunities of growth and development"—both of which are conceptually related to grit.

In this theoretical model, the authors propose that thriving is promoted by social support, particularly by way of "well-functioning close relationships." Specifically, the authors note that an individual's relationships not only serve as protective factors in stressful situations, but also facilitate the individual's capacity to flourish in the face of adversity. In addition, our social relationships advance our capacity to engage in opportunities to promote well-being. Specifically, close relationships allow individuals to "fully embrace life" and thrive (Feeney & Collins, 2015, p. 116-119). If we apply the theoretical model from Feeny and Collins (2015) toward understanding the relationship between positive relationships and grit, we can postulate that positive relationships bolster an individual's capacity to harness grit. Empirical research is needed to further explore this theoretical model.

Grit and Meaning

The next PERMA pillar focuses on the notion of meaning, which in positive psychology refers to "belonging to and serving something that you think is bigger than you are" (Seligman, 2010, p. 234). There are two components to meaning: 1) the presence of meaning in life (i.e., the current attribution of meaning in one's life) and 2) the search for meaning in life (i.e., motivation toward finding meaning in life, Steger & Shin, 2010; Vela, Lu, Lenz, & Hinojosa, 2015). There is limited research that explores whether individuals with greater presence of or search for meaning also have higher levels of grit.

As an example of this research, Vela, Lu, Lenz, and Hinojosa (2015) explored several positive psychology constructs, including presence of meaning in life, search for meaning in life, hope, and family

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importance among 128 Latina/o college students, with a particular eye toward the relationships between these constructs and grit. Presence of and search for meaning in life were assessed using the self-report Meaning in Life Questionnaire (Steger, 2006), which includes ten Likert-scale statements assessing presence of meaning (e.g., "I understand my life's meaning") and search for meaning ("I am always looking for my life's purpose").

Findings revealed that search for meaning in life was a significant predictor of grit, such that higher levels of search for meaning in life negatively predicted grit. In other words, those who reported a greater search for meaning had lower levels of grit. The authors posited several interpretations of this finding. One such interpretation is that students who search for meaning in life may have lower levels of grit because individuals with inadequate meaning in life may possess fewer resources to cope with stressful situations. As a result, the authors recommended that a presence of meaning in life should be fostered in this population, which may, in turn, enhance grit. However, the authors found no relationship between presence of meaning and grit, suggesting that future research is needed to better understand these relationships.

Grit and Accomplishment

The final PERMA pillar is accomplishment, which refers to the motivation to "achieve, to have mastery, and to have competence," (Seligman, 2010, p. 234). Importantly, there is a distinction in the PERMA model between achievements for extrinsic versus intrinsic value, with an emphasis on the latter. Seligman uses the example of playing bridge to demonstrate this distinction, noting that "great bridge players divide into two categories: those who, when they play, are engaged and happy, and those who just play to win." (Seligman, 2011, p. 234).

Generally speaking, accomplishment and achievement have been the most widely discussed constructs in relation to grit. As previously mentioned, grit initially gained widespread attention because of its associations with a diverse range of achievement outcomes across various populations and contexts (e.g., Duckworth et al., 2007; Duckworth & Quinn, 2009). However, not all studies have yielded consistent findings with respect to the predictive role of grit in educational performance (e.g., Maddi et al., 2012). For example, Credé, Tynan, and Hams (2017) note that there are several potential moderators to the relationship between grit and future performance, including the nature of the performance domain. The authors posited that grit may not predict performance on certain tasks, particularly those that are easy, do not require substantial grit, or those that require creativity, flexibility, or other qualities beyond grit.

As a result of the inconsistent findings, there are still ongoing efforts to better understand the role of grit in predicting achievement. For example, Muenks, Yang, and Wigfield (2017) investigated the two components of grit (i.e., consistency of interests and perseverance of effort), and how they overlap with future-oriented motivation (i.e., motivation that reflects an "ability to imagine or consider the future," p. 3) among high school students. The authors also investigated how grit relates to other motivational variables, e.g., self-efficacy (i.e., "individuals' beliefs that they can accomplish a given activity," p. 4), task values (i.e., the extent to which students find tasks interesting and "important or useful") and goal orientations (i.e., "approaches students take to [meet] their learning [goals]," p. 4), as well as how grit predicts achievement. The authors conducted exploratory factor analyses to investigate these variables. Findings revealed that perseverance of effort was strongly associated with self-efficacy, task values, and goal orientations, and was a significant predictor of end-of-semester grades. The authors interpreted these

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findings by concluding that the perseverance of effort component of grit is a key component not only of achievement, but also of motivation, and this component is more predictive than consistency of interests.

LIMITATIONS AND NEXT STEPS FOR THE FIELD

As is evident throughout the current chapter, research on grit and related constructs has significantly expanded over the past two decades. At the same time, there are clear limitations to our current understanding of grit. The following section outlines some of these limitations and proposes next steps for the field.

Conceptualizing the Theoretical Foundations of Grit

As grit has gradually received increased attention in the research and public spheres, it has also received critiques on its fundamental theoretical foundations. One such critique is that grit and related constructs minimize the influence of structural injustices in society that impede an individual's ability to attain success (Scelfo, April 8, 2016). This critique is parallel to a broader critique of positive psychology, namely that positive psychologists fail to sufficiently recognize the role of societal factors (e.g., inequality) in predicting life outcomes (Gable & Haidt, 2005). For the most part, limited research has been conducted to address whether grit is, in part, a byproduct of broader contextual factors. As an example of this research, Akos and Kretchmar (2017) statistically controlled for gender, race, and first-generation college student status in their analysis of grit. Although they found no differences in total grit scores between racial minorities and non-minorities, they found that racial minorities rated themselves lower on the perseverance of effort scale relative to non-minorities. The finding that minorities may rate themselves lower on grit should be further investigated in additional research studies, particularly in light of the self-report nature of the Grit-O and Grit-S. In a recent interview, Duckworth responds to some critiques of grit by noting, "That's not message…It's not that poverty or racism doesn't matter, it's just that hard work does matter" (Scelfo, April 8, 2016). In other words, although grit is an important factor to investigate, it should not be analyzed without consideration of broader contextual factors.

Critiques on the theoretical foundations of grit also suggest that the study of grit minimizes the importance of additional influences on development, including genetics and IQ scores (Brown, May 7, 2016). As a result, research has been conducted to determine the utility of taking these factors into account when assessing the predictive role of grit. For example, Abuhassan and Bates (2015) conducted structural equation modeling among 494 adults to assess whether grit does indeed predict achievement over and above personality and IQ scores. The authors examined several metrics of achievement, including school grades and overall life-course accomplishment, which included a self-report measure capturing a wide variety of domains in achievement the U.S. Indeed, this work supported that all three factors (i.e., grit, IQ, and conscientiousness) predicted achievement. Specifically, conscientiousness and IQ predicted school grades and the perseverance dimension of grit predicted higher life-course achievement. Taken together, findings indicate the need for future research to examine grit in the broader social and developmental context.

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Investigating the Measurement of Grit

In addition to theoretical critiques, there are also empirical critiques of grit. For example, grit is primarily measured using either the twelve- or eight-item self-report scales, which are subject to the limitations of other self-report assessments (e.g., response bias, memory bias, and internalized prejudice). As a result, it has been recommended that researchers consider other methodologies for assessing grit, including informant reports, diaries, structured interviews, or other alternatives to self-report questionnaires (Akos & Kretchmar, 2017; Duckworth, Steen, & Seligman, 2005). As an example of an attempt to expand on existing methodology, Akos and Kretchmar (2017) tested undergraduates' self-report grit scores against informant grit scores (i.e., grit ratings from teachers, parents, guidance counselors, employers, etc.) as a means to understanding potential self-report bias. The researchers found differences between the self- and informant-report grit data, with informant-report data yielding generally higher total grit scores. However, the two measures of grit were highly correlated with one another (i.e., below-average self-report scores tended to coincide with below-average informant-report scores). Future research should continue to test the utility of using an informant approach as a means to account for potential bias derived from self-report.

In addition to the self-report bias as a potential measurement limitation, researchers generally cite the need to expand on cross-sectional findings with longitudinal and experimental designs. These designs would allow researchers to determine whether grit is a stable characteristic that persists across the lifetime. Current research suggests that, as is the case with several of the non-cognitive skills, grit is likely not a fixed characteristic. For example, Duckworth et al. (2007) found that older individuals tend to be higher in grit than younger individuals. The authors interpreted these findings to suggest that grit may increase across the lifespan (Eskreis-Winkler, Gross, & Duckworth, 2016). Researchers have called for more rigorous research designs in order to further investigate grit over time. This research would clarify the directional influences of grit and other positive psychology constructs. Further, more rigorous research designs would allow researchers to rule out potential confounds and explore interaction effects (Von Culin, Tsukayama, & Duckworth, 2014).

Investigating Approaches to Enhance Grit

Understanding the importance of grit immediately calls into question whether or not grit can be fostered through interventions or other educational approaches. There is clear utility to this line of research; if grit can be cultivated over time, can we improve outcomes in educational, professional, and interpersonal domains? Indeed, several research studies with different populations have lent support to the potential benefits of developing such interventions. For example, among college students, Vela, Lu, Lenz, and Hinojosa (2015) recommended interventions to increase Latina/o students' meaning in life and grit. They propose several possible interventions to explore, including positive interventions, which are techniques that seek to build pleasant, engaged, and meaningful lives (Duckworth, Steen, & Seligman, 2005). Also in development are interventions or educational approaches that would enhance PERMA qualities associated with grit. For example, Seligman and Csikszentmihalyi (2000) argue that flow should be fostered in schools and other institutions. This work is well underway, with research focused on developing ways to assess behavioral engagement, i.e., "effort exertion, persistence, attention, and concentration" among elementary school students (Muenks et al., 2017; Skinner et al., 2009, p. 10).

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Despite these ongoing efforts, Angela Duckworth herself cautions against the widespread applications of grit in educational or policy contexts, particularly in light of the preliminary nature of much of the research on grit. For example, in a recent interview she notes that emphasizing grit in the classroom may be "another reason to blame kids for not doing well, or to say that we don't have a responsibility as a society to help them." She notes that "kids need to develop character, and they need our support in doing so" (Dahl, 2016). In order to ensure that her research on grit is appropriately translated into educational contexts, Duckworth is initiating collaborations among teachers and scientists to translate the evidence into practical applications for the classroom (Dahl, May 9, 2016). As research continues to emerge that speaks to the potential relevance of grit, careful consideration of how to apply research findings in practice and policy will be increasingly important.

Understanding Grit Across Cultures

Several research studies have investigated whether the aforementioned findings on grit hold true in different cultural contexts. In these efforts, research findings were not always replicated across cultures, suggesting that the findings discussed throughout this chapter may not apply universally. For example, Suzuki, Tamesue, Asahi, and Ishikawa (2015) investigated grit among a sample of working adults in Japan. This research found that orientation toward meaning, rather than engagement, was more strongly related to grit. However, consistent with findings from the U.S., this research also found grit to be a strong predictor of both work and academic performance (Suzuki, Tamesue, Asahi, & Ishikawa, 2015). Along these same lines, Datu, Valdez, and King (2016) investigated the relationship between grit, education, and well-being outcomes among Filipino high school students. The authors found that the two dimensions of grit were not significantly correlated, which is generally inconsistent with the Western body of literature. These findings call into question the universality of Western findings on grit and suggest that there may be untapped cultural differences that should be explored in future research.

CONCLUSION

The current chapter discussed how grit is defined and conceptualized and subsequently reviewed empirical literature that supports grit as an important component of positive psychology. In concluding, this chapter highlighted the limitations of our understanding of grit, discussed how these limitations implicate the field of positive psychology, and suggested next steps for the literature on grit in relation to positive psychology in light of these limitations.

In reviewing grit in the context of positive psychology, this chapter summarized the relationship between grit and key positive psychology constructs, namely positive emotions, engagement, positive relationships, meaning making, and accomplishment (i.e., PERMA; Seligman, 2010, 2011). The research on grit in a positive psychology context suggests several general trends. First, grit may be promoted or facilitated through daily experiences of positive emotions, positive relationships with others, and a sense of meaning or purpose in life. Second, individuals with higher levels of grit tend to have higher levels of engagement in a particular activity, and may, in turn, derive more satisfaction from being highly engaged in activities. Finally, grit may strongly predict performance in certain contexts, but not in others, and the two grit components may differentially predict outcomes.

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Although there have been great strides in research on grit over the last decade, researchers should seek to address the gaps in the research moving forward. There is a particular need to further investigate grit in the context of broader socioeconomic, developmental, and cultural factors. Additional measurement techniques, including informant reports, may elucidate any measurement biases due to self-report. Longitudinal analyses will be particularly fruitful for studying grit; evaluating change over time will help disentangle the utility of grit relative to conceptually related constructs, clarify the extent to which grit predicts long-term outcomes, and provide information on how grit changes over time. This type of work will also provide insight into the feasibility and utility of grit-focused interventions or educational programming.

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Chapter 53
Psychotherapy in Indigenous Context Psychotherapy in Indigenous Context:
A Ghanaian Contribution towards Provision of Culturally Competent Care

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ABSTRACT

This chapter posits that the science of psychotherapy is a culturally defined art. Psychological theories must, of necessity and efficacy, be adapted and responsive to the context within which they are practiced. The Ghanaian cultural context is deeply spiritually-oriented. Socio-religious beliefs in this cultural context define the Ghanaian concept of health, ill health, and health-seeking behaviours. Therefore, effective psychotherapy and culturally competent care must be context specific and suited to the needs, norms, practices and beliefs of the indigenous people. Yet, it is not unusual to find clinicians who practice in one cultural context but were trained in another; a situation that sometimes hinders effective service delivery. The chapter discusses some of the challenges faced by Ghanaian psychotherapists, practicing in Ghana, who were trained in a non-African cultural context. Excerpts of clinical case studies are used to illustrate these issues and suggestions for culturally competent care conclude the chapter.

INTRODUCTION

Many clinicians will agree that the practice of psychotherapy is both science and art (Yalom, 2002). The science of psychotherapy is well established in the numerous empirically validated treatments bequeathed to the field. However, the delivery of these in the actual client-therapy encounter is an intricate art; and

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the efficacy of it is moderated by the clinical skills, flexibility, and sensitivity of the practitioner to the context-specific needs and best treatment options for clients (Wendt & Gone, 2011). Attentiveness to cultural effects facilitates the development of a therapeutic alliance, one of the most important ingredients in any psychotherapy. Establishing rapport with clients relies partly on culturally determined effective communication, which entails negotiation of differences and nuances in language, communication style, and non-verbal expressions (Yalom, 2002). Challenges notwithstanding, these nuances can be better negotiated by indigenous therapists even though the indigenous therapist may have an added hurdle of combining indigenous knowledges with his or her western knowledge and skills.

In this chapter authors examine some of the challenges inherent in the 'art' of the practice of psychotherapy and focus specifically on how indigenous therapists trained outside of own cultural context can be effective in their service delivery. Authors' insights, shared here, come from own struggles and reflections over years of clinical practice in Ghana having been trained in a western cultural context. Wrestling with questions of application and how to 'unpack' western acquired knowledge and skills for the Ghanaian cultural context brought on a somber realization that there are more questions than ready answers and a strange sense of alienation in own country. These reflections motivated the authors to examine cultural competence challenges of 'foreign-trained-local' clinicians; that is, indigenous therapists who were trained in western contexts but are practicing in own cultural context.

The method of phenomenology, rooted in Husserl & Heidegger's philosophical traditions (Reiner 2012), as an inductive qualitative research, guides this discourse. According to Heidegger's interpretive hermeneutic approach, considered suitable for this discussion, it is impossible to negate own experiences about a phenomenon under study (Giorgi 2007). Therefore, the authors' experience as 'foreign-trained-local' clinicians are not 'bracketed'. Thus, experiences of the authors are presented and exemplified with selected cases, and interpreted to highlight challenges within the Ghanaian cultural context.

Psychotherapists who return to own country after training elsewhere face the challenge of re-acquainting self with indigenous knowledge of health and illness in order to adapt acquired knowledge to own context for meaningful culturally competent service delivery for which a good knowledge and understanding of own cultural context is necessary (Nsamenang, 1995; Mpofu, 2002). The need for awareness, support, and discussion around the issue of alienation and other challenges experienced by some African health professionals who were educated and trained outside their cultural context when they return to practice in own cultural environment cannot be underestimated (Idemudia, 2004; Nsamenang, 1995) and particularly so in this day and age when migration to greener pastures is the norm (Hagopian, Ofosu, Fatusi, Biritum, Essel, Hart & Watts, 2005). Yet there is a paucity of literature on the experiences of 'foreign-trained-local' health practitioners to inform clinical practice in a way that promotes indigenous knowledges and context-specific interventions.

Therefore, the objectives of this chapter are twofold: first, to highlight some of the cultural beliefs that affect psychotherapy in the Ghanaian context and second, to examine challenges experienced by Ghanaian psychotherapists who were 'foreign' trained but who have returned and are practicing in the country. Three steps are taken to actualize these objectives. One, some culture-specific health-related beliefs within the Ghanaian context relative to the practice of psychotherapy are discussed. Two, culturally embedded challenges faced by Ghanaian psychotherapists trained abroad are highlighted with excerpts from selected case studies and finally, implications of findings for the provision of culturally competent care are discussed.

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BACKGROUND

An understanding of the practice of psychotherapy, and its related challenges, in Ghana necessitates a good grasp on the people's concept of health and illness since these are culture bound (Azuma, 1984; 2002; Mpofu, 1994; Nsamenang, 2006; Sarpong, 1991; Harley, 2006; Hewson, 1998; Jahoda, 1979; Moylan, 2009; Mji, 2009; Ofori-Atta & Linden, 1995; Tseng, 2006). Likewise, culture determines what is acceptable, what is forbidden, and what is perceived stressful (Sarpong, 2002). Western definitions of these concepts, treatment options, and or expected responses to stress are not necessarily applicable in other cultural contexts (Tempany, 2009).

Relatedness theory appropriately contextualizes this discussion of psychotherapy in the Ghanaian society. The three components of the theory – ways of knowing, ways of being, and ways of doing – are central to the understanding of behaviours in indigenous cultural contexts (McGinty, 2012). A people's world view, and the consequent inherent beliefs, determine to a large extent their cultural practices as well as the ways in which they relate among themselves and with the environment (Moylan, 2009). In predominantly communal cultural contexts, levels of relatedness have been associated with growth, health, and or ill health (Hagerty, Lynch-Sauer, Patusky, and Bouwsema, 1993). In such contexts the concept of health is defined as biopsychosocial, spiritual, and environmental health. In other words, good health is neither merely the absence of illness nor simply physical wellbeing of the individual but also refers to the social, emotional and cultural wellbeing of the whole community (Moylan, 2009; Shai-Mahoko, 1996; Campbell-Hall, Peterson, Bhana, Mjadu, Hosegood & Flisher, 2010).

In Ghana, health and wholeness are anchored in relationships and essentially associated with being 'truly human' ("*nnipa*"). A 'human being' relates; and has good relationships with others that foster health and wholeness. Initiating and maintaining meaningful social networks and relationships are therefore believed to be very important to harmonious living and good health. Among the Akan of Ghana, for example, a person referred to as "*nnipa*" ('a human being') is one who lives in right relationship with self, others and the environment. Someone who has no regard for others, self or the environment, is rightfully referred to as an "*aboa*" (an animal!). Therefore, in the Ghanaian cultural context, like some other African contexts (Harley, 2006; Mji, 2009; Campbell-Hall et al., 2010), it is not unusual to associate ill health with 'broken' relationships – with self or others.

The Ghanaian cultural worldview, like other African cultures, is communal and spiritually oriented (Lambo, 1974; Osei, 2001; Sarpong, 1991, 2002). Life is understood and lived from perspectives that reflect beliefs in oneness, interdependence and interconnectedness; a universe perceived in unities, not opposites, one in which there is no clear distinction between the sacred and secular, the natural and supernatural, the living and the non-living. The invisible is believed to be just as operative as the visible and the non-living as influential as the living (Sarpong, 1991, 2002). In this 'spiritually charged' cultural context, there are no 'accidents'. Everything happens for a reason. Therefore, causal attributions for events are essentially influenced by the people's understanding of wholeness and illness (Ae-Ngibise, Cooper, Adiibokah, Akpalu, Lund, & Doku, 2010); just as the choice of treatment for illness, particularly mental illnesses, is similarly culture determined (Berry & Crowe, 2009; Shai-Mahoko, 1996; Tempany, 2009; Ae-Ngibise et al., 2010).

The perception of the etiology of illness (physical or mental illness) expands beyond the biological to include moral, social, and spiritual dimensions (Ae-Ngibise et al., 2010; Harley, 2006; Lauer, 2006; Nelms & Gorski, 2006; Ross, 2008; Tanner, 1999). Breach of socially acceptable behaviours are not only believed to be morally wrong but punishable through misfortunes and ill health (Sarpong, 2002).

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The punishment can extend beyond the culprit to the one's family as well as generations unborn. Influence of evil machinations, witchcraft and hostile ancestral spirits are also believed to be possible causes for ill health (Sarpong, 2002). Aside moral and supernatural causes, etiology of ill health might be attributable to disturbance in social relations and improper conduct (Harley, 2006; Osei, 2001; Sarpong, 1991); hence the intimate link between cultural constructions of etiology of mental illness and treatment seeking behaviors (Osei, 2001).

Use of traditional and faith healers is popular and wide spread not only because of their availability and affordability, but also because "people think mental illness is not physical, but spiritual and they [clients] believe these [spiritualists and traditional healers] are the custodians of spiritual issues so they go to them" (Ae-Ngibise et al., p. 561). This practice, of seeking traditional healing for illness, is not only common in Ghana (Foster, 2012) but also observed in other African countries (Campbell-Hall et al., 2010; Berry & Crowe, 2009; Tempany, 2009; Babb, Pemba, Seatlanyane, Charalambous, Churchyard, & Grant, 2007; Lauer, 2006; Mpofu, 2006; Idemudia, 2004; Adele, 1998; Hewson, 1998; Shai-Mahoko, 1996;) and even among Africans in the diaspora (Harley, 2009).

As culture changes with time so too does the 'foreign-trained-local' professional who returns after years of being away from home environment. The intrapersonal changes add to the initial feelings of alienation, and frustration that accompany the struggle to adapt knowledge and skills to context. The realization, for example, that within own cultural context unlike place of training treatment is not solely the prerogative of orthodox facilities and professionals but includes consultation of faith healers and traditional medicine men and women can be initially disparaging.

In effect, within the Ghanaian cultural context it appears that 'westernized' conceptualizations of health and wellbeing, and psychotherapeutic interventions arising out them are inadequate when solely used for responding to treatment of Ghanaian mental health problems. Could it be that western therapeutic interventions whose underpinning values are primarily secular, individualistic, and materialistic do not fit congenially into a cultural context underpinned by philosophical values that are communal, spiritual, inter-related, and ecological as suggested by Moylan (2009)? Or are professionals trained in the western individual-centered theories, even when indigenous, poorly equipped to comprehend and effectively respond to the complexities of mental health issues in communal cultures? What can be gleaned from the experiences of the 'foreign-trained-local' to inform better context-specific therapeutic approaches? These are complex, multifaceted questions; and possible answers are yet to be delineated and empirically validated through research.

UNDERSTANDING THE GHANAIAN CULTURAL CONTEXT

The authors practice of psychotherapy is situated in the department of psychiatry in a general hospital. This is not unusual as the few psychologists in the country are mostly not in private practice but are affiliated with hospitals. The practice of psychotherapy in Ghana and its related challenges would be better understood against the backdrop of the history of psychiatry practice in the country.

The history of the practice of psychiatry in Ghana is relatively recent. While general hospital psychiatry began in 1728 and 1902 in Great Britain and the USA respectively, the then Gold Coast was in the early 1900s beginning to respond to the need to provide for its mentally ill citizens some form of care under the then new system of custodial segregation for the mentally ill which led to the establishment of the Accra Psychiatric hospital in 1906. For many years the entire West Africa sub-region suffered a

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paucity of psychiatrists and other mental health care professionals including psychologists. This paucity of specialists in this field reflected the general negative and stigmatized attitude held toward psychiatry, as it was locally shrouded in witchcraft, juju, taboos, religious cults, and fetish influences (Lambo, 1959). Therefore, treatment for mental ailments had been in the hands of spiritualists, pastors, and herbalists.

In recent years, there has been a gradual positive change of attitude towards the mentally ill, the field of psychiatry and related disciplines. However, the function of the fetish priests, pastors and spiritualists continues to exist. Sometimes after a patient has been discharged from hospital recovery is regarded as only partial, becoming complete only after the performance of certain customary rites or prayers and vice versa. It is not uncommon for a patient to be unceremoniously removed from hospital by a relative in order to consult a traditional or spiritual healer because of a widely held belief that supernatural evil forces cause psychiatric illness that can best be banished by traditional medicine. This is the reality in which psychiatric practice has existed for a long time in Ghana (Foster, 2012) and the context within which many cases for psychotherapy are referred in the general hospital setting.

The American Psychological Association (APA) and the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) define psychotherapy as *specific* and specialized efforts/actions directed towards or taken for the purpose of *positively* influencing the human mind, feelings and behavior with the objective of promoting good mental health and wellbeing. If psychotherapy is essentially aimed at the promotion of human wellbeing, carried out through a variety of institutionalized processes, then within the Ghanaian cultural context it is intricately woven with the people's way of life and the *sine qua non* in all activities in which human suffering or distress is alleviated and wellbeing restored. Most cultural activities are ritualized and these span relatively simple occasions like child-naming ceremonies, burial and funeral ceremonies, to complex rituals of cleansing, appeasement, and purification observed during festivals such as the *Akwasidae* or *Homowo* festivals. Thus, though the indigenous practices may not be so termed as 'psychotherapy', it is very clear that before the advent of westernized forms of psychotherapy the Ghanaian people have practiced effective psychotherapeutic interventions that restore health, celebrates life, and promote wellbeing.

In the rural and traditional settings, therapy is practiced by women and men who are greatly respected in the community and who, through their long years of training, meditation, self-disciplined way of life is believed to possess mystical powers in the practice of healing art. These include the '*odunseni*' ('medicine man'), the '*okomfo*' (the 'fetish'), '*osofo*' (the pastor/spiritualist) or simply '*opanin*' (wise 'elder'). The diagnosis of psychological or emotional disorder within this cultural context often involves several processes, socio-communal and interpersonal, though the individual is at the center of it all, to determine immediate and remote cause of illness and to inform the action to be taken or therapy to be followed.

In this highly spiritual oriented culture attribution of cause for every happening is just as important as the happening itself and people readily attribute illness to supernatural causes when the physical/biological fail to provide satisfactory explanation for the condition. The perception is that there is and should be some spiritually remote reason or answer to just about any happening where physical explanations cannot be fathomed. This way, many therapists are confronted with the constant and persistent question from clients "and so what actually caused this illness you describe as depression", for example. This would usually occur after the therapist has taken the time to explain the biopsychosocial factors bringing about the illness. The recurrence of this kind of question throughout the therapeutic encounter tells the therapist that the client is not settled in his/her mind about the 'true' cause of illness and thus does not believe in the prescribed mode of treatment; sometimes leading to defaulting in treatment or abandoning therapy all together.

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Therefore, in the quest for explanation and healing from illnesses, many 'players' are consulted: traditional healers, pastors and spiritualists, and 'western' trained medical personnel at hospitals. It is not uncommon that the hospital or 'western medicine' is not the first consulted (Ae-Ngibise, et al., 2010; Laugharme & Burns, 1999). Even where it may be the first consulted, many abandon it for the traditional and faith-based healers. Mental health patients sometimes remain in the care of traditional healers for several weeks before they are seen at a hospital. At the Komfo Anokye Teaching Hospital (KATH), one of the tertiary hospitals in Kumasi, Ghana, nearly 70% of all mental health patients seen at the psychiatric unit had been to a traditional healer, pastor, or spiritualist before coming to the hospital (Ae-Ngibise et al., 2010; Laugharme & Burns, 1999). Many of those who present at KATH either do not adhere to the treatment and or vascillate between traditional healers and the hospital. It is noteworthy that this challenge, of adherence to treatment, is not only found in Ghana but also observed in other contexts (Beach, Eboni, Gary, Robinson, Gozu, Palacio, Smarth, Jenckes, Feuerstein, Bass, Powe & Cooper, 2005)

PSYCHOTHERAPY PRACTICE WITHIN THE GHANAIAN CULTURAL CONTEXT: CHALLENGES AND PROSPECTS

Ghanaian cultural beliefs and practices present unique challenges to the practice of psychotherapy. These challenges are more pronounced when the psychotherapist has been trained in a culture alien to own and faces the arduous task of reacquainting self with own culture and also having to seek ways of 'translating' knowledge and theories of psychotherapy for a meaningful application within the indigenous context. However, the rudiments in the practice of psychotherapy per se are arguably not that different from any elsewhere.

The American Psychological Association (APA) broadly defines psychotherapy as the process by which a person seeking personal growth or desiring to relieve symptoms or resolve problems in living enters into an implicit or explicit contract to interact in a prescribed way with a trained person (i.e. psychotherapist). In the same way, Ghanaians seeking therapy from the traditional or unorthodox health professionals enter into a contractual relationship with implicit or explicit understanding of the rules of engagement. What differs, from observation and practice, are *patient factors* (e.g. patient beliefs about cause of illness, adherence to treatment, frequent defaulting attitude, level of acculturation to another culture), *treatment options and methodology* (e.g. use of eclectic treatment methods; that is, complexity of cases that do not readily lend themselves to the use of one method of treatment; individual focused or communal focused treatment, suitability of choice of treatment by health professional and patient), *process and outcome* (e.g. how treatment proceeds, premature termination, and whether or not treatment is effective), all of which are influenced by cultural dictates. Selected clinical cases, actually seen by authors, are used to highlight some of the issues and challenges existent in the practice of psychotherapy in Ghana. These cases were selected because they are illustrative of *patient factors, methodology, process and outcome* that influence the practice of psychotherapy in Ghana. However, as already noted, the challenges exemplified in these cases may not be particular to the Ghanaian society but present in other cultural contexts as well. In the narratives, the words 'client' and 'patient' are used interchangeably.

Case A: *A 39 years old mother of two, tested positive for HIV but refused to enlist on the government sponsored antiretroviral treatment program and also declined psychotherapy. Instead she was determined to go to her hometown to perform the necessary rituals that would "unbuy" her illness*

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convinced that it had been spiritually "bought" for her by enemies even though her husband had died a couple of years earlier from symptoms suggestive of HIV/AIDS.

Once this client knew her HIV/AIDS status, she became less open to the government sponsored treatment being provided in a hospital setting plus the free psychotherapy that would go with it because of her beliefs about the etiology of the illness even though the evidence pointed to a clear mode of transmission through husband. It was frustrating to observe client's tenacious decline of necessary treatment. Yet her strong belief in the traditional rituals that would '*unbuy*' the illness could not be denied. Her belief was rooted in a cultural belief in evil machinations in the onset of illness for which 'spiritual' remedy is believed to be most efficacious. Client's beliefs about the etiology of illness influenced her decision to seek treatment elsewhere and her lack of adherence to the treatment offered her in the hospital. Her choice of treatment option was consistent with the culturally accepted belief that "nothing happens out of nothing" and that spiritual explanations exist for every happening. This case illustrates culture-bound paranoia that is pervasive and cuts across social and educational classes; a belief that somehow an enemy or someone is behind the spiritual 'workings' aimed to 'do the client in'. Whether or not her choice of treatment was effective could not be ascertained since she did not return to the hospital for a follow up.

Aside the challenge of patients choosing alternate forms of treatment that may, in the psychotherapist's professional opinion, is inappropriate for the presented problem, an eclectic treatment approach that has respect and validation at the core is often effective. Client's receptivity and response to treatment is enhanced by a sense of 'being heard' and validated. Respect for client's views and beliefs is most essential for cooperation with the therapeutic process and for a positive treatment outcome as illustrated by the next case.

Case B: *A 47 years old mother of three and a wife to same husband for close to 20 years presented with 'unidentified' and generalized stomach pains, significant weight loss, and depression. There was no organic cause for the observed symptoms and for months she had experienced no relief from pharmacological treatments. She strongly believed that the pains were "dancing balls" placed in her stomach by a woman with whom the husband had had an affair and who she believed to be a witch. Patient dated the onset of her symptoms to a time she had confronted her rival who had threatened to 'harm' her. Patient's belief in the effect of witchcraft was strong and initially impacted her response to therapy.*

This case demonstrated the influence of cultural beliefs in symptom presentation and a clear example of culture-bound paranoia which influenced patient's view of illness onset and duration. An eclectic approach that included power of suggestion, elements of cognitive behavioural therapy (CBT) and Interpersonal therapy (IPT) in the context of strong therapeutic alliance greatly influenced the positive outcome obtained in this case. Respect for and validation of her views, however irrational, greatly contributed to her improved mental and physical wellbeing and in her words: "*I am glad that someone believes me…and doesn't think am crazy"*. By the fourth session, her symptoms of depression had abated, and the pains from the 'balls' in the stomach had also subsided and her vegetative behaviours were much improved. In a short time, patient had regained weight and was looking much better.

Inclusion of significant others in the therapy process is not uncommon. Sometimes individuals or entire community may be involved to bring proper resolutions to presenting complaints. Patients and

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therapists sometimes struggle with a belief that a combined method of formal psychotherapy and traditional rituals would be most efficacious for some conditions. The two cases following are examples.

Case C: *A 27 years old man presented with erectile dysfunction secondary to severe depression and anxiety. His condition appeared psychosomatic since several tests showed no physical cause. Patient later disclosed that some years back he had impregnated a former High School girlfriend and denied responsibility for fear of his parents. This offense, he believed, was the root cause of his presenting problem. He believed that the young lady had cursed him. Reconciliatory efforts with offended party were accompanied by significant symptom relief in patient.*

A belief that 'right' relationships is essential to health and wholeness is evident these cases. Offenses committed against another, blatant or inadvertent, are believed to affect health and wellbeing. Hence the belief that restoration of relationships is necessary for recovery from illness, particularly in mental or emotional illnesses. The cultural belief in the unity and influence of the non-living on the living makes restoration of 'broken' relationship a two-tier exercise, physical and spiritual; an exercise in which the traditional healer or spiritualist is often perceived to be more adept. Psychotherapeutic intervention would be part of the physical aspect while forgiveness and reconciliatory rituals, for example, would be considered spiritual. This dichotomy of symptoms into physical and spiritual can influence how much information a client gives the psychotherapist, believing that matters of spiritual origin and nature are not understood by the 'western' trained professional who dwells in the physical only and therefore must be told to the spiritualists instead and vice versa.

Authors also observed that patient's willingness to seek traditional and spiritually inclined treatment intervention is influenced by their level of acculturation. Having lived outside the cultural context, in a 'westernized' society might predispose one to consider traditional forms of treatment as 'primitive' and superstitious while at the same time believing that the cause of illness is 'spiritual'. Such situations create a state of cognitive dissonance in the patient. This case is illustrative of such conflict.

Case D: *A 45 years old man, and an eldest son in a large family, presented with bipolar depression and unspecified schizophrenic tendencies. Three other siblings reportedly suffered similar disorders. Even though both patient and family members believed that illness was an ancestral punishment for misappropriation of the extended family lands by patient's nuclear family, they were hesitant to engage in the traditional rites that had been prescribed earlier by a traditional practitioner because having lived most of their lives outside Ghana in the United Kingdom they were quite acculturated and conflicted about obliging traditional treatment.*

For positive outcome, a collaboration between traditional cleansing rites and aspects of interpersonal therapy were employed. These cases underscore some of the challenges psychotherapists encounter in working within the Ghanaian context. The influence of patients' beliefs on their conceptualization of illness and their symptom presentation is clear. Beliefs also influence patient's choice of treatment and increases or decreases the likelihood of adherence to treatment; a challenge that is not unique to the Ghanaian setting (Beach et al., 2005).

Belief in supernatural forces to effect illness is common in Ghana (Ae-Ngibise et al., 2010; Osei, 2001; Foster, 2012) and among other indigenous peoples (Berry & Crowe, 2009; Babb et al., 2007; Harley, 2006). When patient believes that the cause of illness is supernatural, he or she is more likely

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to seek treatment from a spiritualist than from a hospital. Likewise, those who seek treatment from a hospital readily oscillate between 'western' treatment and traditional treatments believing that both types of treatment are needed for complete recovery (Ae-Ngibise et al., 2010). This sometimes has detrimental effects on the progression of illness and adherence to treatment, particularly hospital prescribed treatment regimen. In Ae-Ngibise et al., (2010), for example, mental health patients sought indigenous methods of healing because of the general perception of the spiritualist or traditional healer as more understanding of presented issues, less costly, and readily available than 'western trained' health professionals.

Patient's level of acculturation to other cultures influences choice of and response to treatment with mixed effects. Sometimes acculturation to other cultures creates conflict within patient – traditional beliefs about etiology of illness coupled with hesitancy to consult traditional healers. Other times, it facilitates adherence to western psychotherapies since patient would not oscillate between traditional and hospital treatment. Patients of certain social class and literacy respond well to structured therapies such as cognitive behavioural therapy (CBT) (Danquah, 1982). CBT has been found effective for building resilience among indigenous, less acculturated, communities in Ghana (Offori-Attah, 2015). In other words, the so called western methods, when appropriately adapted, do and can work in indigenous cultural context when acculturative effects are minimal.

Differences in patient's developmental stage needs, education, religion, social class, and life experiences warrants a tailoring of choice of treatment to patient's unique characteristics, aware of the existence of diversity even within a seemingly homogenous cultural context. Proliferation of Pentecostal churches in Ghana, for example, influences health seeking behaviors. More and more patients seek treatment and counseling for emotional problems from pastors and prayer camps (Ae-Ngibise et al., 2010; Laugharme & Burns, 1999; Ofori-Atta & Linden, 1995). Therefore, sensitivity to the specific needs of patients as individuals within a certain cultural context is essential for efficacious outcome in therapy.

IMPLICATIONS FOR PROVISION OF CULTURALLY COMPETENT CARE

So what can be gleaned from these experiences of the 'foreign-trained-local' health professionals for improved mental health care delivery? In this section, authors attempt to address this question. Authors acknowledge that their experience is specific to Ghana. However, since many of the challenges observed are not unique to the Ghanaian cultural context, they submit that the insights from their experience may inform the practice of psychotherapy in other cultural contexts.

The practice of psychotherapy in a culture such as Ghana, with its complex belief systems and a generally spiritual worldview, presents unique challenges as well as rich learning opportunities. Collaboration with traditional healers is an opportunity with great learning opportunities. The role of traditional healers in the restoration of health in indigenous communities is recognized and accepted in many cultures as a necessary adjunct to western oriented interventions (Adele, 1998; Babb et al., 2007; Campbell-Hall et al., 2010; Harley, 2006; Hewson, 1998; Jahoda, 1979; Janse van Rensburg, 2009; Mpofu, 2006; Nelms & Gorski, 2006; Shaikh, Haran & Hatcher, 2008; Ross, 2004). Challenges exist (Mills, Singh, Wilson, Peter, Onia & Kanfer, 2006; Sorsdahl, Stein & Flisher, 2010; Tanner, 1999), but despite these challenges a clarion call for collaboration between modern and traditional health practitioners cannot be ignored. For effective work with patients who believe in and freely consult traditional healers, a respectful understanding of their perspectives and its impact on treatment is important. Ghana has taken a step towards

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ensuring this collaboration and has been recognized and provided for by Ghana's new and modern mental health law, Act 846 of 2012 whose implementation is still on going.

Keen awareness of and sensitivity to diversity and plurality even in a seemingly homogenous and collectivist culture is another insight worth noting - 'one size does not fit all'. The experience, understanding, expression and expectations of patients about their psychological symptoms differs to the extent that they are influenced by these variables. Patients' own unique explanatory models of illness and therapist's understanding of this can provide insight into how patient formulates and or contributes to own problems. Therefore, patient is to be considered as both a member of the cultural group and also as a unique individual. Therapist's perceptiveness about cultural issues affords a richer and deeper understanding of patient beyond the concepts and formulations afforded by the dictates of formal training in western traditional psychotherapies.

Understanding patient as member of a cultural group can heighten awareness and sensitivity to patient nuances. However, over attribution of presumed causes to cultural factors may overlook other psychological factors that underlie presenting problems. Experience has shown that process-oriented techniques, and an eclectic approach to therapy, with sensitivity to cultural influence on patient's understanding of the etiology of presenting problems allows for flexibility in the direction and goals for therapy suited to patient's needs.

Equally important is flexibility in handling issues of boundaries. Without violating ethical conduct, in a culture in which relationships are highly valued, particular attention must be paid to sensitivities in the patient-therapist relationship to avoid inadvertent offense and or behaviors that suggest lack of care. Therapist needs to be aware of the ways persons in the culture communicate care and concern which may be different in the culture in which one was trained. Home visits, for example, in the Ghanaian context would communicate care but could be frowned upon in other less communal cultural contexts. Similarly, rigid application of guidelines on boundaries, such as touch, may not always work.

Genuine respect for and validation of patient's cultural orientation, indigenous beliefs and practices, as well as attentiveness to differences facilitate the development of a therapeutic alliance which is important to treatment outcome. Core to the art of connecting with patients is effective communication which enhances patient's perception that he or she is being 'heard' and validated. Validating a patient's experience or belief does not necessarily mean agreement. It means, however, that patient is respected enough to ascribe same valence to what patient deems real or important to the self. Trust is essential to the art of effectively convincing patient of the efficacy of proposed treatment or different perspective on a problem. Related to trust is respect for patient's beliefs and perspectives even if therapist does not subscribe to same. In effect, genuineness and good rapport are particularly important to treatment adherence and outcome in a cultural setting such as Ghana where patients value meaningful relationships and freely oscillate between traditional and 'modern' mental health services.

A posture of 'expert-learner' by the therapist is essential to effective practice. To learn, one must reflect on own experiences and be modified by them. Interactions with patients provide growth and learning opportunities for both patient and practitioner. This is particularly important for the 'foreign-trained-local' therapists. Though equipped with knowledge and valuable skills through years of training, a constant self-reflection that facilitates experiential learning is necessary if one is to be effective. That is, the culturally competent care provider must constantly examine the appropriateness and suitability of 'imported' knowledge and skills to the specific needs of the people served.

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DIRECTIONS FOR FUTURE RESEARCH

Insights shared by the authors from the Ghanaian context has implications for cultural competency training. However, the literature on cultural competency has mixed findings. There is evidence to suggest that cultural competency improves quality of service delivery (Beach et al., 2005). Other findings from some review studies suggest that lack of methodological rigors in evaluating cultural competency training limit the evidence for the impact of its efficacy on the quality of health care delivery (Price, Beach, Gary, Robinson, Gozu, Palacio, Smarth, Jenckes, Feuerstein, Powe & Cooper, 2005). Treatment adherence still eludes trained culturally competent professionals (Beach et al., 2005). It appears that more knowledge is needed to know and delineate *what* aspects of cultural competency techniques are effective (Brach & Fraserirector, 2000). The '*when*' and '*how*' of '*what*' works must be informed by context-specific knowledges such as what is shared from the Ghanaian experience. 'Foreign-trained-local' practitioners must document their experiences and insights obtained clinical practice. This would be a step in the right direction.

Research on the efficacy of 'adapted' methods of psychotherapy within an indigenous cultural context such as Ghana is impeded by clients' premature termination, failure to adhere to treatment, and vacillation between the therapist and traditional healers or pastors. These challenges make systematic or longitudinal study of positive therapy outcome variables difficult. Future research focusing on the efficacy of collaborative treatment between traditional or indigenous healers and pastors on the one hand and western trained psychotherapists on the other would, for example, be in the right direction since such studies would better elucidate 'what treatments' are effective for 'what presenting problems' within the Ghanaian cultural milieu. Interest in research in this area, that is collaboration between traditionalists and 'western' therapies ought to be encouraged among practitioners across the African continent since similar challenges exist in many countries.

In depth qualitative multiple case studies may be the way to go. Existing published studies from other settings and also qualitative multiple case studies from Ghana and parts of Africa, reinforce the intuition that a lack of attention to cultural issues leads to less than optimal health care, and that addressing these concerns or using certain cultural competence interventions leads to improved outcomes. However, the intricacies of the '*how tos'* are yet to be delineated. To advance a cultural competence research agenda involves many tasks. Specific research questions need to be identified and availability of funds ensured. Specific questions, for example, in the area of developing a working consensus on the parameters and specifics of cultural competence interventions for the purposes of conducting such health care delivery and health outcomes research. Additionally, a cadre of indigenous and non-indigenous researchers may need to be networked for such research to explore novel methodologies. The creativity needed for this kind of research requires a willingness to 'think outside the box' of the usual ways of conducting research. This way, more information can be gathered to boost awareness about the efficacy of eclectic culturally sensitive interventions.

Most importantly, the results of research once completed must be made widely disseminated and made available to practitioners and policymakers. While no single study is definitive and additional research is always needed to confirm the validity of initial studies, better awareness of, and coordination of efforts, could advance critical areas of research more efficiently.

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CONCLUSION

In summary, this chapter brings to the fore some of the challenges and opportunities in the provision of culturally competent care in Ghana; embedded in the experiences of 'foreign-trained-local' health professionals. Observations and suggestions made are most likely applicable to other indigenous cultural contexts. The art of the science of psychotherapy must be culturally sensitive to be effective because culture influences mental health in various ways, from the formation of a disorder (*pathogenic effect*), its clinical manifestation (*psycho-plastic effect*), frequency of occurrence (*psycho-facilitating effect*) to what is deemed appropriate coping response or health seeking behaviours (*psycho-selective effect*) (Tseng, 2006). Therefore, 'imported' knowledge, skills, and methods cannot be applied 'wholesale' and without some adaptation to the needs of the people served especially in cases where therapist is a 'foreign-trained-local'. Respect for indigenous beliefs and practices, and a critical examination and indigenizing of 'foreign' concepts and methods cannot be overemphasized. Hopefully, these insights from the clinical practice of authors add to and enrich existing literature on the subject.

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KEY TERMS AND DEFINITIONS

Client or Patient: Someone seeking therapy.
Culture: The customs, beliefs, and social behaviour of a particular group of people.

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Cultural Competence: A set of congruent behaviors, attitudes, and policies or generally recognized and accepted procedures among professionals that enables them work with effectively in cross-cultural settings or situations.

Culturally Competent Care: Provision of culturally sensitive and context-specific care that takes into consideration the cultural norms, beliefs, needs, of persons being served.

Foreign-Trained-Local: Natives of a certain culture and locality who have received formal training in a context different from own.

Indigenous: Originating from or native to a particular place.

Psychotherapy: Process by which a person seeking personal growth or desiring to relieve symptoms or resolve problems in living enters into an implicit or explicit contract to interact in a prescribed way with a trained person (i.e. psychotherapist).

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Chapter 54
Prison Environments

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ABSTRACT

This chapter deals with the historical development of prison environments, linked to the context of inmate development. Since early days, the prison environment has always accounted for some form of inmate development. New-generation prisons have brought a more profound influence in the area of inmate development. However, there has been a larger emphasis on security in the prison environment, compared to inmate development. In addition, the inmate subculture has a fundamental influence on the interaction between the prison environment and inmate education and development. With this in mind, the chapter provides an overview of prison environments through the ages up to post-modern times. It constantly addresses the interaction between environment and education from the perspective of the relevant era of prison evolution.

INTRODUCTION

People react differently to their living environment. One often-neglected living environment is the prison environment. Prisons are microcosms of society (Holvey, 2005) and can be classified as physically aggressive, the result of adaptations for survival and retention of physical existence (Hartmann, 1936). Individual responses to prison environments include dependence, helplessness, exploitation, masculinity, withdrawal, isolation, and loneliness (Singer, 2012).

Nelson Mandela (1995) observed that prison robs you of your freedom and identity. It is authoritarian and tolerates no independence and individuality. These words applied to Apartheid prisons, but echo approaches to incarceration in most modern-day prisons. According to Mwende and Pasha (2016), African imprisonment originates from colonial roots, inflicting cruel punishments with little rehabilitation. Even (post)modern prisons are not utilized for rehabilitation. Luyt (2008) emphasizes how South Africa, for example, fails to optimally utilize new-generation prisons to benefit inmates. Instead of utilizing two private prisons to pursue development these facilities became maximum security prisons. Through it the system indicates that security has higher priority than rehabilitation.

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The aim of this chapter is to give insights into the factors that create prison environments including the history of prison, the ethical context of prison and other dynamics.

BACKGROUND

There is reason to believe that correctional education reduces recidivism (Davis et al., 2013). Inmates who receive correctional education improve chances of employment. There is a negative relationship between correctional education and prison environments, as prison environments impede on successful completion of educational programs.

The prison environment is one of learning, but does it educate? Gendreau and Goggin (1999) identify three schools of thought. Firstly, prisons suppress criminal behavior. Unpleasant prison life and negative stigma serve as deterrents to criminal behavior. Secondly, prisons increase criminality. Inhumane conditions make offenders more likely to recidivate. Thirdly, prison effects on inmates are minimal. Offenders enter prison with antisocial attitudes/behavior that remains during incarceration. According to Coates (2016) education should be more important in prison systems, as it is the engine of inmate rehabilitation.

ISSUES

It is impossible to discuss the complete history of prisons here, but the reader must obtain an overview of the influence of different prison systems on education during incarceration. Selected historically familiar prison systems that have made a contribution to learning ideologies are highlighted here.

Imprisonment has not always been common as punishment. Physical punishment and social ostracism were historically common. Major transitions, from physical punishments to imprisonment occurred in the eighteenth century. Factors that facilitated the shift from bodily harm to institutional interventions are complex (Sellin, 1930). At first, incarceration was meant to detain people until sentencing could occur. Allen and Simonsen (1995) maintain that the purpose of imprisonment as punishment is to avoid cruel punishments. The first two prisons that illustrate humane correctional aims are the Hospice of San Michelle (Neser, 1997) and the Maison de Force (Delierneux, 1931).

Incarceration as punishment developed from the concept that restricting liberty would be significant retribution when aligned to the severity of the crime. Imprisonment gained increased favor over corporal punishment and prisons are increasingly erected in Europe.

MAIN INFLUENCES ON PRISON DEVELOPMENT

The Hospice of San Michelle, the Maison de Force, English developments, and the Pennsylvania, Auburn and Elmira systems have been influential on prison development and are now discussed.

The Hospice of San Michelle

Inhumane treatment is reported to be an awful chapter in the Roman history. Cruel primitive conditions trigger humanitarianism and growing revolt against absolutism. A distinct movement to educate offend-

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ers during punishment originates in the sixteenth century. In this movement, the House of Correction in San Michelle Hospice fulfils an important role. Wider application of the practices at the House of Correction is later found, but the initial focus is on the education of a group of young men (Sellin, 1930).

John Howard brings the House of Correction to the attention of the English-speaking world. It detains 200 inmates who study different trades. San Michelle has played an important role in inmate education. Sellin (1930) reports that inmate education covers a variety of trades. Inmates are later assisted to set up business in acquired trades.

The Maison de Force

The Maison de Force was erected in 1775 to replace corporal punishment. It is an advanced workhouse cited by Howard as a model institution and is the inspiration for the American Auburn system. The Philanthropist (1817) reports that at last there was a prison for education and incarceration. Paid work is introduced here for the first time (Tennant, 1841). Many elements from the system are still observed in modern prison environments. Napoleon and disastrous economic conditions result in the closure of the Maison de Force (Delierneux, 1931).

English Developments

Around 1776 England experienced extreme prison overcrowding. Abandoned ships are regarded as an immediate solution. The English Government enacts the Hulks Act of 1776 (Silverman, 2001). Old navy ships (hulks) are used to house offenders for 82 years (legislation intends to use hulks for two years only). The hulks are themselves characterized by overcrowding, poor sanitation, harsh discipline, and lacking education. Diseases cause high inmate death rates. Prison reformers demand changes to stop inhumanity. England starts transportation to Australia and America as the discovery of new worlds contributes to the demise of the hulks (Victorian Crime and Punishment, 2006). Today, a few prison ships still exist, like the educationally unproductive Vernon Bain Correctional Centre in New York (Stango, 2014). Both history and modern-day practice show that prison ships do not contribute to inmate education.

The hulks were replaced by goals like Millbank prison. Inmates receive religious education and perform work (Victorian Crime and Punishment, 2006). Continued development results in larger institutions, including Pentonville, Portland (1848), and Dartmoor (1850). These institutions adopt colonial type labor regimes where inmates perform pointless work (Victorian Crime and Punishment, 2006). Little education features in these prisons. Today, very little has changed. The Prison Reform Trust (2015) reports that in modern-day Pentonville 20-30% of inmates have learning difficulties and 47% have no qualifications.

The Pennsylvania System

Pennsylvania becomes the leader of penal reform in the USA as penal thought departs from revenge-based arguments. The death penalty is abolished for robbery, burglary, and sodomy and replaced with imprisonment (Bradford, 1972). Bodily punishments like branding are abolished (Barnes, 1972). By 1820 most penal codes reflect the classical school principle, which suggest that the punishment must fit the crime (see key terms) (Blomberg & Lucken, 2000; Seiter, 2005).

Public humiliation in punishment vanishes through increased imprisonment. Pennsylvania originates (Sellin, 1970) as a system of prison discipline characterized by solitary confinement and commonly known

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as the separate system. Inmates are confined to cells and only have contact with staff (Sellin, 1970). Education focusses on moral education and inmate behavior (Historical Society of Pennsylvania, 2006).

The Pennsylvania philosophy influences Europe. Dickens (Free Encyclopedia, 2016a) concludes that Pennsylvania is cruel, because daily brain tampering is worse than bodily torture. The idea of redemption in solitude becomes punishment in itself. The separate system becomes difficult to maintain. Intended to hold 300 inmates, incarceration has increased to 2000 by 1920. In 1913 the separate system is discontinued (Woodham, 2008) and the penitentiary officially closes in 1971.

Pennsylvania would permanently influence future prisons. Traces of draconian Pennsylvania hardships remain today. One example is Nigeria, where the 1917 Prison Regulation prescribes admission, custody, treatment and classification. These processes are not geared towards treatment of inmates, but represent containment policies (Orakwe, 2016). Despite the 1999 Special Prison Reform Program (Orakwe, 2016), Nigerian Vice-president Osinbajo reports in 2016 that prisons are draconian and without reform (PUNCH, 2016). The Howard League (Wright, 2016) argues that the more draconian security measures are, the more violence is present and the less development takes place.

The Auburn System

The Auburn system is established in 1817. It is renowned as the congregate or silent system. The system aims to rehabilitate offenders through industry, obedience, and silence (Randol, 2014). The system uses individual cells and workshops, rigidly enforced silence and harsh punishments. Inmates are identified by a number, a practice that still subsists today in some systems. A military-style discipline is the cornerstone of inmate/staff interaction (Free Encyclopedia, 2016b). Strict routines are omnipresent. Inmates work, eat and pray together but return to solitary cells at night (Capo, 2011).

The Auburn system is considered weaker than Pennsylvania. It is prevalent in America, while the Pennsylvania system is favored in Europe (Capo, 2011). Over time abuses occur, including corporal punishment, assaults, rape, and slave-labor practices. These abuses influence penal reforms that give rise to the Elmira Reformatory (Randol, 2014).

The influence of Auburn on humane conditions can still be observed. For example, South Africa introduced beds to sleep on in 1993 in all prisons, even though inmates are still racially segregated and oppression remains part of the system (Luyt, 1994). Additionally, while continuing with certain forms of artisan training and educational programs, various inmate labor practices are abandoned, which gives origin to increased humanity.

The Elmira Reformatory

The Elmira system delivers the most remnants still observable in modern prison systems. Examples include the use of professionals, classification, and parole. The Reformatory Movement gave origin to Elmira (Colvin, 1997). It is designed around the recommendations in the Declaration of Principles at the Cincinnati Conference. At Elmira inmates are studied, classified and treated. "Changing" inmates becomes dependent upon the knowledge of experts. Terminology becomes part medical and part educational. Inmates are addressed as students or patients (Blomberg & Lucken, 2000). Outcomes are measured and inmate-release is linked to self-regulated discipline and evidence of reformation. Inmates perform paid work and vocational training. All modern systems utilize psychologists, teachers, social workers, and medical practitioners to enhance rehabilitation, all remains of the Elmira system.

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Elmira hallmarks classification (Blomberg & Lucken, 2000), another feature still observed in modern systems. Grading occurs according to participation/performance in educational activities. Three grades exist. Inmates start at the middle grade, allowing for promotion/demotion. Conformation for six months results in upgrading with more privileges (Blomberg & Lucken, 2000). The main difference between work in reformatories and prisons is economic incentive to instill industrial labor discipline (Simon, 1993). Classification systems have since developed and today influence decisions about the future of individuals.

Elmira officially gives origin to indeterminate sentencing (Blomberg & Lucken, 2000), as recommended in the Declaration of Principles at the Cincinnati Conference. Intermediate sanctions are punishments that are more severe than probation or suspended sentences, but less severe than imprisonment. Intermediate sanctions are useful for keeping non-violent offenders in the community.

Intermediate sanctions are important for three reasons. They provide:

- Sentencing options in which the severity of punishments is scaled to the seriousness of crimes;
- Punishments for offenders for whom incarceration is too severe and ordinary probation is inappropriate, and
- Effective ways to deal with violations of conditions. For example, a more restrictive intermediate sanction can be imposed rather than ignoring the violation or revoking the sentence and incarcerate violators (Tonry, 1997).

Common intermediate sanctions are intensive probation, house arrest, electronic monitoring, and fines. It can be run as front-end or back-end programs. Entry into front-end programs is controlled by judges and precedes imprisonment. Prison authorities control entry into back-end programs (Tonry, 1997). Probation officers can increase/decrease the level of severity, depending on the response to rehabilitation. In worst cases, offenders can be re/incarcerated.

Because of indeterminate sentences the Elmira system has become instrumental in modern-day parole development. A typical sentence is a minimum of one year incarceration without a maximum time indicated. Reformatory boards indicate when inmates may be released. Credits gained/lost in the reformatory for work participation and education contributes to earlier release. Other factors are also considered.

Schmalleger (2005) argues that although Elmira was not entirely successful, its principles remain in practice today. The influence of Elmira resurfaces strongly, for example, after the death penalty was declared unconstitutional in South Africa. Parole of inmates sentenced to life imprisonment is directly influenced. Even though the period at which most correctional systems consider release from life imprisonment has increased from ten to twenty-five years (life imprisonment seldom results in spending the rest of your life in prison), release on parole after the minimum period of incarceration is not guaranteed, but is decided by a parole board.

Indeterminate sentences have become the new norm for punishment. Few inmates have certainty about release from incarceration. Therefore, the Elmira influence is alive today.

PRISONS IN ETHICAL CONTEXT

Law is important in criminal matters. Law is mainly cast in concrete, because it must be followed as prescribed. Ethics are different. One could argue that ethics is more important than law in correctional environments. Law is a learned profession (Kimmelman, 2015), but ethical conduct requires integrity,

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wisdom, and life experience. Like law, ethics should be integral to successful prison systems. Unlike law, ethical conduct is inherently expected, rather than prescribed. Ethics is the result of proper upbringing and acceptance of societal and occupational responsibility.

The use of imprisonment in sentencing has an influence on prison management. Countries like the USA have incarceration rates exceeding 650 per 100 000 of the general population. European countries generally have rates below 100. India has a rate as low as 33 (Walmsley, 2015). Prison crowding has a direct influence on inmate and staff behavior and the ethical approach followed in the prison environment.

Ethical issues are considered from the design phase of modern prisons. Jiang and Fisher-Giorlando (2002), Homel and Thompson (2005), Muntingh (2009), and Luyt et al. (2010) have documented how prison design promotes ethical conduct, and reduces violence and recidivism. Architects today ensure that prison designs promote rehabilitation and peaceful coexistence (Kimmelman, 2015).

Concerning design, Stott (2014) asked the legitimate question whether buildings designed to facilitate human rights violations can amount to violation itself. The problem with most prison systems is that old structures still dictate the approach to various ethical issues. For example, less than a decade ago some Scottish prisons were still "slopping out", a system where no modern toilets exist. Large dormitories promote overcrowding, sexual misconduct and negative influences on development programs.

The United Nations Human Rights Committee declares in 2016 that South African correctional centers are overcrowded, violent and unsanitary (Savides, 2016). Allegations of torture are reported, an aspect regarded as the worst possible form of unethical conduct in prisons. While human rights are universal, it is especially significant for prison officials, because sentenced people do not lose their human rights. Imprisonment influences how inmates exercise their rights, but cannot deprive them of these rights. Their rights may be limited but not taken away (Luyt et al., 2010). Therefore, special measures are needed to ensure ethical conduct is maintained in prisons.

Prisons and education have different purposes and desired outcomes (Whitehead, 2013). These differences create conflict between education and security in prisons. Ethical environments with ethical employees are essential. Career ethics for educators is unlike criminal justice ethics. Also, there is no formal code of ethics for correctional educators. These differences in ethical approaches create conflict and may contribute to distortion in prisons as educational environment.

Whitehead (2013) argues that some elements of ethical formalism, utilitarianism and the ethics of care are aligned to the theories of education. An ideal correctional education code of ethics would incorporate the practical elements of ethical systems, along with informational, occupational, recreational, and political typologies. The role of ethics in prison education is important, because educators can guide students to crime-free lives (Whitehead, 2013). Therefore, a holistic positive ethical environment in prisons is essential.

Sarkin (2008) argues that ethics in African prisons are considered the worst, but many other prison systems are worse off regarding violence, overcrowding and development. Rehabilitation and successful reintegration remain the most elusive and controversial aims of imprisonment (Sarkin, 2008), while education has a positive impact on recidivism and reintegration (Munoz, 2009).

In Africa South Africa, Uganda, and Botswana have improved rehabilitation, notwithstanding a variety of challenges. Focus is on education/vocation, psychology, religion, and reintegration. African countries like Gambia, Cameroon, and Namibia have also sought to promote human rights legislation. Successful ethical and program commonalities include employment, individual needs, ongoing monitoring, collaboration, restorative justice, and minimum program durations (9-12 months) (Sarkin, 2008). Ethically, incarceration should allow for productive sentences.

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PRISONS AS DYNAMIC INSTITUTIONS

Prisons contain large numbers of stimuli that impact on inmate/staff attitudes/behavior (Bradford, 2006). Wright (1985) groups stimuli into universal dimensions of inmate concerns, including structure, privacy, support, activities, freedom, relations, and safety. They represent intervening variables between person and environment. They are influenced by organizational structure, and influence organizational behavior (Wright, 1985).

The dimensions are dynamic factors, because they address interaction between inmates and staff. These are not the only dimensions that influence prison dynamics. Architecture type, for example, is static, but it influences inmates' behavior dynamically. Although Coyle (2002) suggests that the prison environment may be regarded as static because of its autonomous operation and its hierarchical organizational structure, many prisons experience constant instability and therefore a number of dynamic situations. Many changes influence prisons directly, firstly because prisons detain political inmates (think of Nelson Mandela). Secondly, prisons often form part of security services and have to review their mandate when political conditions change. Thirdly, human rights are more important than ever before. All prison systems are overwhelmed with dynamic factors and complexities in prison management that necessitate change.

Historically, prisons have changes since San Michelle. Today, constant change is still experienced. While daily working conditions may largely be static, prison management remains dynamic, as witnessed throughout history. Prison (over)crowding, the abolition of the death penalty, an increasing number of long-term sentences, HIV and AIDS, and political and societal expectations are all influencing the dynamic nature of prison environments. Coyle (2002) maintains that prison management must take account of its political and cultural environment. As a result, prison management focuses on creating mechanisms to influence individual inmates to change their behavior.

Courts express the necessity of prison environments to develop with the times. In the English judgement *Raymond vs Honey* Lord Wilberforce (1982) determines that a convicted inmate retains all civil rights that are not forfeited expressly or by necessary implication. Consequently, the following factors strongly influence the dynamic nature of prisons:

- Maintenance of human dignity.
- Proper health care.
- Personal safety of all.
- Contact with the outside world.
- Access to activities like work, education, cultural activities, physical exercise, and religion.
- Legal representation.
- Respecting the needs of special categories (women, youth, elderly, minorities).

Significant factors have proven to be indicators of poorly managed prisons, including bad physical environments, inhumanity, poor communication, and the frequency of complaints. Efforts to sustain a specific environment inside prisons include physical coercion. Physical coercion is a socially structured and highly organized form of unacceptable guard behavior (Marquart, 1986). More positive intervention alternatives exist, for example dynamic security and education as a form of rehabilitation.

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DYNAMIC SECURITY

Dynamic security differs from the dynamic environment described previously. Dynamic security is a unique form of security within prison environments. Basic security starts with physical security. Physical security includes the architecture, the strength of walls, the types of bars, specifications of the perimeter barrier, and watchtowers. It includes locks, cameras alarm systems and metal detectors (UNODC, 2015).

Today, security increasingly depends on staff/inmate interaction. Members are expected to know inmates they are responsible for, to develop positive inmate/staff relationships, and to have general awareness about prison matters. Fair treatment and constructive/purposeful activities are essential. This active interaction is described as dynamic security and is increasingly being adopted globally (UNODC, 2015).

Dynamic security has the benefits of engaging individual inmates, and gaining intuition, insights, information and material into real-time events. Dynamic security fosters positive relationships, fairness within firmness, professionalism, understanding, and collecting and exchanging information. Implemented effectively, dynamic security contributes to inmates feeling comfortable when approaching staff members with problems. Staff members take every opportunity to interact directly with inmates without suspicion.

Through regular contact with inmates, staff members are responsive to situations outside the norm. In this way staff members are able to prevent escapes and security-breaching incidents. Dynamic security also contributes to improved inmate development. The nature of relations between staff and inmates remains important in dynamic security. It contributes positively to maintain dignity and the legitimate concern about security in prisons.

EDUCATION AS A FORM OF REHABILITATION

A study into the impact of education on rehabilitation in the Westville Correctional Centre shows that educational programs have a positive impact on inmate rehabilitation (Ngubane, 2007). Sentenced and ex-inmates that participate in educational programs experience positive transformation and have positive attitudes towards their families, communities and life in general.

According to Jones (2010) successful rehabilitation is when individuals discover new directions, making crime no longer their only option. Education remains important for inmate rehabilitation (Coley & Barton, 2006). According to Linden and Perry (2008) education programs are common in prisons. They suggest that these programs succeed if they are intensive, can establish an alternative community within the prison, and if they offer post-release services. All three of these areas are problematic. Dedicated prison schools and post-release services hardly exist, while low intensity of programs set inmates up for failure.

Inmates who receive education are less likely to return to prison after release and are more likely to find employment than peers without such opportunities (Davis, 2013). Research suggests that prison education programs are cost effective ($1 investment in prison education reduces incarceration costs by $4 to $5 during the first three years post-release) (Davis, 2013).

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PHYSICAL PRISON ENVIRONMENTS

Whether the dynamics are positive or negative, it will be enforced within the physical prison environment. The physical prison environment originates from architectural design.

According to Redding (2004), the physical structure of prisons is important, as they contribute to keeping inmates safely inside. The physical layout directly contributes to security. Traditionally, security is mainly vested in design, in the building itself. The more secure the building, the higher security classification is assigned to it. In many instances, it is not possible to discern the differences between a maximum and medium security institution, based on design and the physical security features of the building. This security classification of the building will determine the type of inmate to be housed therein.

A different type of classification, inmate classification, is the tool to ensure appropriate institutional placement. Similar offenders (based on crime and sentence length) are crowded into one space. Each institution becomes a space where housing arrangements, security features, and the perceived security threat from inmates become the most important security factors. These factors inform institutional characteristics, or the physical prison environment (Bradford, 2006).

This physical prison environment has a direct influence on inmate well-being. The influence can be positive (as experienced within new-generation prisons to be discussed later), or it can be negative. Older-design prisons are still used all over the world and deliver various negative influences. Structural layout, poor management, overcrowding, and violence are major contributors of negative influences. Poole and Regoli (1983) argue that prison violence is a direct result of the combination of traditional structural characteristics and personal inmate characteristics.

Over time inmates adapt to the physical environment. This adaptation is termed prisonization (Clemmer, 1940), the process of adapting to the culture and social life of the prison society and dominant prison subculture (Naderi, 2014). Clemmer (1940) emphasizes that sentence length is positively related to adoption of the norms and values of the prison subculture. Although good environments will ensure positive adaptations, and vice versa, the length of time under incarceration becomes the most important prisonization factor. The longer inmates are exposed to the prison environment, the harder it would be to avoid prisonization. Haney (2001) argue that these adaptations represent individual survival mechanisms.

Rotman (1998) describes prisons as closed organizations with specific norms requiring constant adaptations. The physical prison environment strongly influences adaptation, mainly because inmates are exposed to it for long periods. Excessive time is spent inside cells (sometimes 23 hours) and a prison routine is enforced. The physical environment influences become stronger than the influences from available programs and inmate/staff interaction. For this reason, more inmates conform to the prison subculture than to rehabilitation and reintegration.

THE DEPRIVATION AND IMPORTATION MODELS IN THE PRISON ENVIRONMENT

Clemmer (1940) argues that the higher the degree to which inmates internalize prison values, the more immune they become to the influences of conventional value systems. Several factors influence internalization, including:

- Susceptibility and personality of inmates.

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- Nature of relationships outside prison.
- Membership of primary groups inside prison.
- Placement inside prison (section, cell and who cellmates are).
- Acceptance of prison culture and codes.

Wheeler (1961) supports the prisonization concept. The degree of prisonization varies according to the phase of sentence where the inmate is at. Inmates are more receptive to values from the outside world during the first six months of incarceration and six months before release. During the middle period, inmates respond more to institutional factors. The middle phase is called the prison career phase. Wheeler (1961) suggests that it should be included as variable in the prisonization theory.

Since Wheeler's prisonization theory is studied with new vigor, two models, namely the deprivation and importation models now form part of theoretical explanations of the inmate subculture (Reid, 1981).

The Deprivation Model

Sykes (1958) refers to the effects of deprivation of liberty as the pains of imprisonment and theorizes that the inmate subculture originates through adaptation to deprivations. Losses caused by incarceration can be mitigated through inmate social interaction (Sykes, 1958). Inmates unite for mutual cooperation, or they withdraw into self-satisfaction. Both reactions are adaptations to deprivation.

Exchanged favors, security in numbers, and cooperation minimize the pains of imprisonment. Isolation is avoided and protection is obtained through favors (Reid, 1981). The system feeds on itself to replace deprivations. Inmates believe that high-valued scarce material possessions can be obtained from connections, rather than work. Cooperation leads to better distribution of available wealth among deprived inmates (Reid, 1981).

Conditions of deprivation are not limited to male inmates. Women are also affected. Slotboom et al. (2011) find that the deprivation factors regime type, discrimination, bullying, and family separation induce stress and suicide risks among females. Jiang and Winfree (2006) conclude that incarcerated women experience more social support from co-inmates than incarcerated men.

Prison officials are viewed as objects that deprive inmates and threaten their self-esteem. Slotboom et al. (2011) conclude that the most important deprivation factors are staff treatment and environmental stress. Trammell and Rundle (2015) report that staff ignore/disregard inmates. Haney (2001) states that factors that influence inmate adaptation, including the staff factor, form part of natural and normal adaptations to the unnatural conditions of inmate life. The fact that staff members are inherent to the system makes them to be regarded as integral to deprivation.

The Importation Model

Irwin and Cressey (1962) argue that not all inmate behavior result from the prison environment, but scientists have over-emphasized internal influences to explain prison subculture. There is a clear difference between prison subculture and the criminal subculture. Inmates are divided into three categories:

- Those oriented toward a criminal subculture, due to values inherent to dimensions of the professional thief/career criminal.

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- Those oriented toward the prison subculture, inmates who seek positions of influence, power and sources of information.
- Those oriented toward a legitimate subculture. They are not part of the criminal or thief subculture before entering prison and also reject involvement in the prison subculture while incarcerated.

A combination of the thief and career criminal dimensions gives origin to the prison subculture. Although these two subcultures are conflicting, in some areas they share values. Irwin and Cressey (1962) argue that it is not known how much the first two subcultures influence the third (legitimate subculture), but they hypothesize that all three subcultures import patterns of knowledge, skills and attitudes from past experience into the prison.

The importation model regards the unique characteristics and prior experiences of inmates as critical components of adaptation to conditions inside prison. These characteristics include demographic factors like age, ethnicity, education, and income as well as personal factors like prior incarceration, offence type, and family life (Reid, 1981). The inmate culture is nothing other than adjustment to these three subsystems within the larger system of deprivation and control (Irwin and Cressey, 1962).

Integration of the Deprivation and Importation Models

Several researchers (Lahm, 2002; Jiang & Fisher-Giorlando, 2002; MacDonald, 1999) find support for both the deprivation and importation models. Schwartz (1971) mentions that pre-prison experiences must be considered, but that embedded situational behavior also influences reaction to the physical environment. Akers et al. (1977) conclude that inmate culture varies from one institution to the next according to differences in the organizational environment. Inmates do not conform to staff norms, because the inmate subculture is stronger.

Akers (1989) remarks that integration of theories without considering compatibility is pointless. There can be tendencies to read into a theory and misinterpret the intention of the original author (Burke, 2001). Cheeseman (2003) argues that integrated theories have offered new understanding of the crime phenomenon.

Both the deprivation and importation models influence the dynamics within the physical prison environment. For example, South African prison gangs have largely been limited to the prison environment. During the 1990s a new phenomenon occurred. Prison gangs started to function outside the prison environment. These new gang activities are largely limited to the Western Cape (Roloff, 2014). This occurrence gives origin to what the author coins the exportation model, where the prison environment executes typical prison-like influence on society. With this new development, there is little doubt about the influence of the prison environment on society.

REHABILITATION AND PUNISHMENT

Security and dignity in prisons are interdependent (Coyle, 2010). Security and control are best ensured in environments that respect the inherent dignity of inmates. To achieve inherent dignity, there needs to be a balance between rehabilitation and punishment.

The Standard Minimum Rules for the Treatment of Prisoners (United Nations, 2015) dictate prison regimes should utilize classification for two purposes, namely:

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- To separate inmates by reason of criminal records or characters.
- To divide inmates into classes to facilitate treatment and rehabilitation.

Most think of prisons as institutions where offenders are punished and deprived of freedom. However, imprisonment is also intended to rehabilitate inmates. The initial idea of rehabilitation was that an inmate will never want to return to prison. Unfortunately, high recidivism rates show that imprisonment is unsuccessful to rehabilitate. Therefore, rehabilitation must be applied more rigorously to achieve the holistic aims of punishment.

The consequences of incarceration represent significant impediments to post-prison adjustment (Haney, 2001). These consequences interfere with transition from prison to society, impede successful reintegration, and compromise the ability of incarcerated parents to resume family roles. Institutionalization, untreated mental illness, and improperly addressed developmental disabilities are all consequences of inadequate rehabilitation efforts.

Camp and Gaes (2005) ask whether prisons are criminogenic or rehabilitative. A total of 561 male inmates whose admission classification scores indicate that they pose the same risk to commit institutional misconduct were included in research. Half of them were assigned to the lowest security level prisons in California, while the other half were assigned to the second highest security level. If prisons are criminogenic at different security levels, then the probability of misconduct should vary with the security level.

Camp and Gaes (2005) conclude that inmates were equally likely to commit misconduct regardless of the security level they were assigned to. The analysis provides evidence that the types of inmates who are housed together may not be as important as often thought. A main concern is that the prison environment itself may be punishment above and beyond the effects of incapacitation and removal from society (Camp and Gaes, 2005).

Terzi (2015) argues that prisons remain effective in punishing inmates, but ineffective at rehabilitation. Rehabilitation programs are sharply criticized. For example, the New York State Governor Andrew Cuomo was forced to abandon plans to use State funds for inmate college education. Education is pivotal in preventing relapse into crime, but the notion outraged citizens. The solution must be found in the fact that the focus of American prisons must change from punishment to rehabilitation (Terzi, 2015).

The focus of most prison systems does not benefit inmates. Benson (2003) confirms this by stating that most prison systems are so punitive that it is difficult to develop effective rehabilitative programs. Gilligan (2012) reports that an intensive re-educational program with violent San Francisco male offenders completely eradicated violence for a year at a time. Participation in this program for four months reduces the frequency of violent reoffending after release by 83%, compared to a matched control group without intervention.

There is enough evidence to believe that there are alternative ways to develop a substantial number of inmates through rehabilitation programs. The rehabilitation versus punishment debate is not only influenced by programs. Crowding and design are two further fundamental influences.

THE INFLUENCE OF CROWDING ON PRISON ENVIRONMENTS

There is a difference between crowding and overcrowding. Crowding refers to the number of inmates that can be legally and humanely housed in a specific space. Crowding is determined by the design ca-

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pacity of the prison and can be measured objectively in several ways, including floor space per inmate, inmates per living unit, and the institutional population relative to design capacity. Design capacity is the bed space allowed for in the original design. Design capacity is different from operational capacity, or the physical number of beds available. The rate of crowding is calculated in percentage. Prisons that are occupied at half of the design capacity would have 50% crowding, while one that is fully occupied will be crowded at 100%.

Overcrowding occurs when the demand for space (number of inmates) exceeds the design capacity. Overcrowding is defined with reference to the occupancy rate and the official capacity. A prison designed for 100 people while housing 200 people is 100% overcrowded, but crowded at 200%. Operational capacity normally contributes to overcrowding, mainly because prison management makes provision for more beds than the design capacity allows. Occasionally, operational capacity may be less than design capacity, for example when a part of the prison is closed for maintenance.

Prison capacity planning involves:

- Forecasting future trends, based on current crime and incarceration trends.
- Developing long-term strategies to meet forecasted demand.
- Responding to short-term capacity shortfalls (Pearson, 2012).

The expansion of prison capacity without adding supporting infrastructure compounds the influence of overcrowding and simultaneously reduces access to rehabilitation.

Penal Reform International (2012) reports that overcrowding largely contributes to poor prison conditions. Data suggests that overcrowding is experienced in at least 117 countries. Apart from compromising basic human needs like healthcare, food, and accommodation, the effectiveness of rehabilitation programs, education, and recreation are affected negatively.

Gaes (1985) and García-Guerrero and Marco (2012) argue that overcrowding correlates with an over-use of imprisonment This is regarded as not entirely true, as the link between imprisonment rates and overcrowding is rather weak for Europe (Albrecht, 2011). Africa is regarded as being particularly exposed to overcrowding (Albrecht, 2011).

There are various negative effects associated with overcrowding. Overcrowding exposes inmates to severe levels of stress, deprivation, degradation, and danger (Haney, 2012). Overcrowding introduces complexity, instability, and collective frustration. There are signs of enforced idleness, deprivation, isolation, and psychological challenges in overcrowded prisons.

The Criminal Justice Alliance (2012) emphasizes that additional pressure originates with overcrowding. The rehabilitation of inmates is severely undermined. The Criminal Justice Alliance (2012) propagates urgent steps to limit the unnecessary use of imprisonment, ensuring it is reserved for serious, persistent and violent offenders for whom no alternative sanction is appropriate.

Although many reasons exist for increasing inmate populations, many of these reasons fall outside of the control of prison administrators. There is little doubt that overcrowding has a pervasive negative impact on inmates and staff alike. What are more important for this discussion are the effects of overcrowding. These effects have a holistic negative influence throughout prisons (Criminal Justice Alliance, 2012). The following effects should be scrutinized more intensely by prison regimes:

- Strain on staff to maintain safe and rehabilitative environments.
- Deterioration of living conditions.

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- Lack of access to education/training/work.
- Increased mental health problems and decreased treatment thereof.
- Lack of holistic and specific health services.
- The increased risk of reoffending.
- Negative financial implications.

These negative effects manifest in the following experiences:

- Insufficient officials to escort inmates to appointments/classes. Inmates cannot improve post-release skills.
- Longer waiting lists for education, counselling, and work.
- Inmate transfers, causing course interruptions and disrupted resettlement plans.
- Double bunking in single cells.
- Higher stress levels and tension.
- Longer in-cell times.
- Less family involvement.
- More referrals (Criminal Justice Alliance, 2012).

Prison systems cannot build their way out of overcrowding. It is time to re-evaluate who should be imprisoned and what we can realistically expect prisons to achieve. All avenues should be exhausted to get people out of the system. Inmate participation in education and rehabilitation should be an indicator of who could be released.

PRISON DESIGN

The discussion below addresses the evolution of prison design. Prison activities are influenced through design, architecture and physical layout. Design sends a message to everyone entering the designed space. Prisons are the same. Design is crucial in creating an environment in which inmates are able to live without the risk of institutionalization. The space must provide opportunity for visits, work, education, and relaxation. Prisons are microcosms, complete societies outside of society.

Antiquity in Design and Its Influence on Modern Times

A large number of different prison designs have come and gone. Some have had more influence than others. New designs differ from traditional designs. Prisons are not erected for short-term use. Many outdated structures (regarding design and penal philosophy) are still operational. Many are mega-structures with detrimental effects on humanity, healthcare, and efforts to develop/rehabilitate. These structures are costly and staff-consuming for security purposes. They do not contribute optimally to inmate education, but cannot be declared redundant due to large overcrowding in most prison systems.

Many of the structures mainly contribute to inhumanity. For example, Bentham describes the Panopticon (a 1917 design that survived until the 1990s) as a new mode of obtaining power of mind over mind in a quantity hitherto without example (Bowring, 1943). These observations of Bentham contributed to the continued use of harsh inmate treatment. Bentham was, after all, the father of utilitarianism and

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a legal reformer who regarded human rights as less important (Geis, 1972). After World War II human rights received new emphasis, influencing prison design and the way inmates were to be treated.

The New-Generation Environmental Design and Beyond

Architecturally, four generations of prisons are discernible (Siegel & Bartollas, 2014). Each generation is influenced by the physical prison design. The first-generation building is designed to provide linear and intermittent surveillance. Inmates are observed and supervised from time to time when linear designed cellblocks are visited. The second-generation prison allows for indirect remote surveillance in podular units. Where first generation prisons rely on intermittent surveillance, second generation prisons are characterised by constant remote/indirect surveillance. A critical feature of these prisons is the physical separation of inmates and staff. Control remains the over-emphasising philosophical approach (Wortley, 2002). Inmates suffer from program shortages, overcrowding, inadequate physical separation between different types, and physical maintenance problems (American Correctional Association, 1991).

Third generation prisons evolved from the podular design and are known as new-generation prisons. They entail a direct-supervision model where the prison design and layout also contribute to improved services. Each unit inside the prison is self-contained and provides all services. They offer a softer, human-friendly physical environment through architectural features (Luyt et al., 2010; Wortley, 2002). The new generation concept is currently applied widely throughout the world, including South Africa and Namibia. More than 500 new-generation prisons exist in the USA alone.

Third generation prisons have the unit management philosophy at their core. Luyt et al. (2010) define unit management as a decentralised approach to inmate management that divide prison populations into small, manageable entities to improve control through direct supervision, foster good relationships and inmate development, and to deliver effective services. Unit management adheres to all the needs emanating from prison environments. The most important contribution from new-generation prisons is holistic inmate development, including education.

The fourth-generation prison is largely still limited to America. It aims to eliminate inmate rape after the implementation of the Prison Rape Elimination Act in 2004. Supervision teams are located centrally in high-strength mirrored glass control centers with 100% panoramic surveillance of all inmate areas (Siegel & Bartollas, 2014).

HUMAN BEHAVIOR AND INMATE RIGHTS IN THE PRISON ENVIRONMENT

Homel and Thompson (2005) observe that prisons are abnormal environments that assemble troubled humans into confined spaces against their will, many with histories of violence and victimization. Concerning human behavior, Howells (2000) mentions that the inmate subculture acts antithetical to the goals of rehabilitation. Instead of promoting participation in rehabilitation, the prison environment mandates avoidance. This is also the case for inmate rights, which are under constant threat.

Some inmate rights are more exposed to infringement (Luyt et al., 2010). For example, the right to privacy is more at risk than the right to citizenship, because the prison environment can exercise more power over the right to privacy. Human rights can be limited under certain conditions. No right is absolute. Limitation of rights must be reasonable and justifiable, which is not always the case inside

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prisons. Many reports confirm large-scale human rights violations inside prisons. Tucker (2014) calls imprisonment a violation of human rights.

Sarkin-Hughes (2008) reveals that human rights reforms in prisons are under way across African nations. Imprisonment does not justify fewer human rights. Inmates have the same rights as any other citizen. In other words, inmates do not have fewer rights than other citizens, but their rights do not extend as far as those of other citizens (Luyt et al., 2010). Human rights cannot be terminated or removed because of imprisonment. Prison officials cannot limit inmate rights at will. They can only execute such limitations as provided for by enabling legislation (Luyt et al., 2010).

Prisons have two main objectives, namely, keeping inmates in safe custody, and contributing to their development and reintegration. Jonker (Luyt et al., 2010) argues that prison officials executing the powers granted by legislation to ensure safe custody of inmates are in fact executing a limitation on the rights of inmates. The rights of inmates are indirectly limited through the execution of powers granted by legislation. Such limitation is not a result of the initiative of officials or the absence of powers granted by legislation. If this were the case, it would be an infringement of human rights, and not a limitation.

Although human rights may be limited, such limitation must be in accordance with strict legal requirements, clear boundaries and defined purposes. The main aims in protecting human rights are to recognize and affirm human dignity by protecting the individual against the collective powers of the state. Prison officials (in their relationship with inmates) represent the state. Inmate rights (representing the individual) must be protected against the power of correctional officials (representing the powers of the state). Prison officials have a duty and moral obligation to maintain a balance between keeping inmates in safe custody and protecting their rights (Luyt et al., 2010).

This should include access to education as basic human right. Education should be compulsory for young offenders and illiterates. Prisons are closed environments, but the Standard Minimum Rules for the Treatment of Prisoners dictate that the community should be actively involved in prison education (United Nations, 2005). The UN Prison Special Rapporteur on the right to education (Munoz, 2009) reports that major infringements on the right to education in prisons include courses being unfairly interrupted by prison staff, long waiting lists for programs, limited/no access to information technology training, dated-paths-to-nowhere vocational courses, and withdrawal of educational rights as punishment.

Females particularly suffer from infringed educational rights. Women are generally young, poor, and unemployed with little education. In many countries, the quality/quantity of programs is inferior to those for men. Programs often cover inadequate traditional female roles, like sewing and handicrafts. Child inmates receive inadequate education. After incarceration, more than two thirds of them do not return to school (Munoz, 2009).

Luyt et al., (2010) argue that the main differences between countries that protect human rights are in their limitation of rights. Consider the following examples:

- In the USA, the death penalty still exists in certain states. In South Africa, it has been declared unconstitutional. In both countries, the right to life is protected, but there is a difference in the grounds for limitation of the right.
- The Canadian Charter of Rights and the South African Bill of Rights contain a separate limitation clause, but this is not the case in the USA, where it is left to the courts to develop limitation standards.

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Inmates do not have fewer rights. Their rights may be exercised to a lesser extent. Their rights are not less in quantity but may be so in quality. Human rights contribute to the protection of human dignity (Luyt et al., 2010). The right to education should not be limited inside prisons, because it fundamentally contributes to human dignity.

The prison guard subculture jeopardizes inmate rights (Kauffman, 1988), a phenomenon that creates an ethical dilemma where most prison officials view inmates as worthless, untrustworthy, and manipulative (Irwin, 2005). Irwin (2005) argues that the subculture leads to underreported employee misconduct, including the denial of the right to education.

ALTERNATIVE ENVIRONMENTS

Alternative environments exist in the management of criminal justice. These environments include private prisons and community settings. Approaches to inmates may differ in these environments.

Private Prisons

Many prison systems operate private prisons. Private prisons originate for a number of reasons, including rapidly rising inmate numbers and overcrowding in public prisons. Other reasons include failure of the public prison system to rehabilitate offenders and the high costs of imprisonment (Austin and Coventry, 2001).

South Africa, as an African example, also follows the privatization route. Two private prisons are managed by two different private companies. They differ in philosophy and operations, but are obliged to function according to legal and contractual mandates. Private prisons create an alternative environment for prison operations. Sometimes these alternative environments are positive. Other times the negative influence of privatization cannot be ignored.

The USA is the largest privatizer of imprisonment. The Bureau of Justice Assistance has funded a nationwide study to investigate various issues pertaining private prisons. The study concludes that American private prisons over time were only 1% cheaper than public prisons (instead of 20% savings projected). Privatization has a positive effect on prison administration, is more responsive to rehabilitation and provides improved quality of service (Austin and Coventry, 2001). Studies report that private prison management problems can be linked to poorly drafted contracts, lack of oversight, and transferring risk (through inmates with high security classification levels instead of rehabilitation potential) (Luyt, 2008; Austin and Coventry, 2001).

In August 2016, the US Federal Department of Justice announced that all private Federal prisons will be phased out, citing excessive levels of violence, lack of rehabilitation and extensive costs as reasons. Less than 1% of the American inmate population is affected, as most inmates in private care are incarcerated in State prisons and local jails (Kilgore, 2016).

Private prisons remain controversial. Opponents argue that:

- Inmate care ought to be a State responsibility.
- The profit motive incentives are inappropriate/unethical practices.
- There is a lack of transparency due to contract confidentiality (Tanner, 2013).

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The operation of private prisons has more or less stabilized world-wide (very few new prisons become operational). The future of private prisons remains stable to uncertain. The decision to discontinue US Federal prisons may become a watershed moment for the future of private prisons.

Community Corrections and Inmate Development

The 1980s witnessed the rapid development of home detention, electronic monitoring, and intensive community supervision (King, undated). Through this a philosophical position emerged that contains elements of risk control and risk reduction as two separate approaches to offender management.

Risk control has become popular in correctional management. It allows for discretion from correctional managers to concentrate resources on high risk offenders. Risk is controlled through a range of mechanisms, including electronic monitoring; urine analysis; breathalyzer tests; intensive supervision; home detention and curfews. These mechanisms do not so much control the risk, but rather present a deterrent effect (King, undated).

Risk reduction counter-balances the risk control philosophy. Risk reduction emphasizes the need for staff to become involved in social policy development and rehabilitation. The risk reduction philosophy advocates rehabilitation based on offender needs, adult literacy, and intensive employee training (King, undated).

Inside prisons the risk control factor is enhanced by the prison structure. In community corrections, risk cannot be prevented by high walls or steel gates. Community corrections is more reliant upon risk reduction. Through risk reduction offenders have to bear more responsibility to prevent relapse into crime. Therefore, community corrections provide a positive platform for change and resumption of offender responsibility for own development.

RECOMMENDATIONS

Prisons are not static environments. It is possible to change an environment without changes to the physical structure. In other words, even though the physical structure contributes to the prison environment, management interventions and operations can be used to improve perceptions about the environment and the environment itself.

Solutions for Overcrowding

Recommendations for overcrowding should differ from one system to another. Generic areas exist, allowing for lessons to be learnt from other systems. For example, the Netherlands have reduced the number of active prisons without a real reduction in the number of inmates. Historically the country made use of single cells, but then decided to double-bunk. Through this, millions of euros were made available for alternative use, like inmate education and reintegration. To address overcrowding, we have to think smarter within the parameters of our individual systems, while also learning from others. Consider the following:

- Sentence fewer people to imprisonment for drug crimes. Instead, adopt harm reduction strategies.

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- Allow for wider sentence reduction policies through credit for good behavior, in particular successful completion of education programs.
- Release the elderly.
- Transfer foreign inmates to their own countries through bilateral agreements.
- Divert minor cases.
- Prevent pre-trial incarceration.
- Implement non-custodial alternatives.
- Decriminalize selected offences.
- Review sentencing policies without negating the punishment-must-fit-the-crime principle.
- Amnesties/pardons.
- Divert mentally ill offenders to community structures.
- Reduce sentence lengths and do away with the minimum sentencing policies.
- Develop and maintain parole and community corrections alternatives to get offenders out of the system at the earliest possible opportunity.

Offender Development

Offender development remains a neglected area of imprisonment. One only needs to think about the amount of resources allocated to it to realize that prison systems are not educating inmates optimally for successful reintegration. Consider the following:

- Avail more money for offender development.
- Appoint and retain development specialists. Many systems appoint rehabilitation specialists, but frustrate them with administration.
- Broader use of community structures, faith-based organizations, non-governmental organizations and other resources to benefit development.
- Provide financial incentives for progress in education programs.
- Rejuvenate prison labor programs to benefit inmates– not all labor can be regarded as slavery. Instead, extensive idle hours in locked cells is more inhumane than work.
- Explore/use more alternatives that would keep offenders employed (day fines, periodic imprisonment, victim compensation).
- Design a classification flow matrix to move inmates into and through programs. Classification instruments should be development-focused, not security-focused.
- Intensive societal employment programs after release.
- Intensify sentence plans through structured days.

The lists above are not exhaustive. The reader should realize that alternatives can improve both the prison environment and inmate development.

FUTURE RESEARCH DIRECTIONS

Prisons remain breeding grounds for research initiatives. Certain areas for future research can be recommended. The idea is not that only academics engage in this research, but criminal justice functionaries

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should contribute with the aim of improving prison systems from the inside. The areas below can be considered.

Minimum Sentencing Reform

Minimum sentencing laws are overly punitive and impose excessively long sentences (Law Enforcement Leaders, 2016). Most systems using this form of sentencing already experience growing overcrowding and pressurized physical prison environments.

Non-Governmental Organizations and Inmate Services

There is reason to believe that organizations outside prison departments have more success with certain inmate rehabilitation programs. More research must be done, particularly in the area of education and its influence on recidivism tracked over a prolonged period of time. Systems should open up to accept the assistance of organizations that can contribute to more acceptable physical prison environments and positive outcomes on the future of inmates.

Extended Provision of Prison Education

Systems do not do enough to implement and sustain prison education. Even child and youth systems struggle to reach this aim, particularly in Africa. More research needs to be done in this area.

Warehouse or Reform: What the Future Holds

Luyt (1999) remarks that all prison systems are confronted with two groups of inmates. One group can only be warehoused for security purposes, because the possibility of reform is extremely low. The other group has the potential for partial/complete rehabilitation. Prison managers are not doing enough to distinguish between these two groups scientifically. Resources are not actively applied to benefit the second group. This area is underdeveloped.

Fourth Generation Prison Design

More research is needed to determine how successful the fourth-generation design is.

CONCLUSION

Prison environments influence inmates. The more violent the environment, the less rehabilitation occurs. It is important to consider the varying circumstances that exist within different prisons, across security levels, and in different countries. Circumstances like violence, theft, insecurity, and boredom exercise fundamental influence over inmate emotions, safety, social structure, privacy and freedom.

Presence of these dimensions often negates and sometimes destroys the rehabilitation ideal. The function of a particular prison also impacts on efforts to rehabilitate. The higher the security classification the less the emphasis will be on rehabilitation. Rehabilitative ideals become even more difficult through

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public demands for longer sentences, harsh sentencing conditions, and little or no recreational activities, while they simultaneously demand successful rehabilitation and reduced recidivism.

After nearly 300 years of imprisonment, prisons are still plagued by the same demons. The prison environment still does not allow for proper education. The prison subculture exercises the same negative influences that prevent proper inmate development. These factors are compacted by negative staff attitudes, too little resources, and a lack of trained specialists to fulfill the required duties.

Resources have to be applied to the individual inmate, rather than the total inmate population. Those who aspire to improve themselves should be the ones who benefit (with caution about manipulation of the system). Attention should be directed towards prisons that are designed for certain rehabilitation efforts (like new generation prisons), rather than towards those designed for security. Resource availability should be built on a hierarchy that demands resources and attention being placed where they are most needed.

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KEY TERMS AND DEFINITIONS

Auburn System: A 19th century penal system where sentenced offenders worked in groups during the day, but slept in solitary confinement at night, with enforced silence at all times.

Classical School Principles: A school of thought known as the classical school of criminology originated during the Enlightenment. It emphasizes the ideas that people make choices to commit crime and that punishment should prevent crime. There are five principles; rationality (people have free will and select to commit crime), hedonism (people seek pleasure and avoid pain), punishment (informed by the consequences of hedonism, punishment must fit the crime), human rights (before the classical school punishment was harsh and horrific), and due process (including presumption of innocence).

Community Corrections: The supervision of sentenced offenders in the free population, as opposed to incarceration in prison. The two main types of community corrections supervision are probation and parole.

Crowding: Crowding in prisons refers to the number of inmates that can be legally and humanely housed in a specific confined space. Crowding is determined by the design capacity of the structure and can be measured objectively in several ways, for example in terms of the floor space per inmate, inmates per living unit, and the institutional population relative to the stated design capacity. The rate of crowding is calculated out of 100 per cent. A prison that is occupied at half of the design capacity would have 50% crowding.

Deprivation Model: A model that states that prison subcultures develop as a response to a number of deprivations that originate from inside prison. There are five deprivations; liberty, goods and services, heterosexual relationships, autonomy, and security.

Dynamic Security: The actions of staff members during interaction with inmates that contribute to a safe working and living environment for staff and offenders, and a key tool to assess an offender's adjustment and stability.

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Elmira System: A system of penology based on the indeterminate sentence with possible commutation. The system classified and separated various types of inmates, gave them individualized treatment emphasizing vocational training and industrial employment, used indeterminate sentences, rewarded good behavior, and paroled inmates under supervision.

Importation Model: The model states that prison subcultures are formed from what inmates bring into the prison. Prison subculture codes, languages, roles and values are from pre-prison characteristics of the inmates, rather than the deprivations caused by incarceration.

Incarceration: The state of being confined in prison, also known as imprisonment.

Intermediate Sanctions: Intermediate sanctions are conceptualized as punishments on a continuum between prison and probation. They are more intrusive and burdensome than standard probation. Intermediate sanctions are likely to save money or prison beds only if they are used primarily for offenders who otherwise would have been imprisoned.

New-Generation Prisons: The New-generation approach to prison management seeks to manage human behaviour positively, consistently and fairly. New-generation prisons allow for continuous observation of inmates.

Overcrowding: Overcrowding in prisons is a social phenomenon occurring when the demand for space in prisons exceeds the design capacity for inmates in the space. Overcrowding is generally defined with reference to the occupancy rate and the official capacity of prisons. Overcrowding refers to the situation where the number of inmates exceeds the official design capacity. The rate of overcrowding is defined as that part of the occupancy rate above 100%. A prison that holds double the design capacity would be 100% overcrowded.

Pennsylvania System: Also known as the separate system, Pennsylvania encouraged solitary confinement for inmates. It was designed to keep inmates separate at all times, even when they worked, to keep them from being distracted and impeding their repentance.

Prison: A building to which people are legally committed as a punishment for a crime or while awaiting trial.

Private Prisons: A private prison is a place where offenders are incarcerated by a third party that is contracted by the State through a specific Government agency or department.

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Chapter 55
Community-Based Rehabilitation Program for Acid Assault Victims of Bangladesh

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ABSTRACT

This chapter is a PhD research proposal of the first author based on qualitative research design. The study aims at exploring some community-based rehabilitation interventions for the acid victims (women) in Bangladesh. The proposal was submitted by the first author to pursue her PhD studies at the Department of Social Administration and Justice, Faculty of Arts and Social Sciences, University of Malaya, Malaysia. It contains major components of a research proposal that includes the background of the study, problem statement, research questions and objectives, literature review: conceptual and theoretical framework, the scope and significance of the study, and research methodology. This proposal also includes the work plan of the study. The proposal will be helpful to the students and readers who are interested in conducting research in this field.

BACKGROUND OF THE STUDY

Violence against women is a universal phenomenon. It is a serious human rights abuse and has a significant public health concern with substantial consequences on physical, mental, sexual, and reproductive health (Yount, Vander Ende, Zureick-Brown, Anh, Schuler & Minh 2014). Because of its nature and pattern, the scholars such as, Adams, Sullivan, Bybec & Greesom (2008) and Das, Olga, Peck & Salek (2014) termed violence against women as gender-based violence). According to Hasam and Islam (2016), any activity committed by someone to (or "intending to") hurting or harming anybody physically is named as violence, and gender violence is a daily and a deadly matter of life for millions of women and girls around

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the world. It kills tortures and maims girls and women physically, mentally, sexually and economically. Women experience different types of violence throughout their life cycle, as, for instance, a girl child may be the target of sex-selection abortion. During childhood, she may suffer from malnutrition, and may not get access to the education and medical, may force into early marriage in her teenage, a female may experience genital mutilation, forced prostitution, forced pregnancy and dowry-related violence, even during widowhood; women may experience different types of abuses (Vlachova & Biason, 2005).

The volume of violence against women may differ a little from region to region, from continent to continent but the scenario is almost similar. Violence against women occurs both in the developed and developing countries. In case of Latin American countries such as, Columbia, Guatemala, Brazil, Mexico and Ecuador, women subordination position is prominent and the forms of violence are visible as kind of structural violence like, feticide, women trafficking, force prostitution, rape by intimate partner etc. (Wilson, 2014). Again, in African countries, violence against women is not a new phenomenon. In a joint report by the UNHR & UN Women (2016) revealed the same truth for African and sub Saharan countries where women cannot enjoy their rights. They experience violence in street, in home, working place. According to the report, in Africa, one in three women have suffered different forms of physical or sexual abused by their intimate or non-intimate partner in their lifetime. The report mentioned that the nature of culture of Africa plays vital role to justify discrimination against women. Here, women and girl child experience female genital mutilation, forced child marriage, unsafe abortion and they are under threat of HIV. Vlacova & Biason (2005) mentioned that dowry related violence, honour killing and female genital mutilation (FGM), sexual violence during armed conflict as severe forms of violence against women in countries like Benin, Egypt, Kenya, Niger, Sudan, Tanjania, Yemen, Mali and Ethiopia.

In South Asia, violence against women begins immediately after birth and continues throughout their lives, it is viewed as a normal phenomenon (Wahed & Bhuiyan, 2007). Farouk (2005) argued that South Asian women suffer from different types of violence in their entire lifetimes including domestic violence, rape, dowry tortures, sexual harassment, suicide, forced marriage, trafficking, and other psychological and economic oppression. In a word, violence against women has become one of the most prominent social issues in this region . The women and the girl child of Bangladesh, Pakistan, and India sometimes experience same types of violence.

Being a part of the South Asian region, Bangladesh is no different from its neighbours (Rahman, Bhuiyan & Lovely, 2014). In some cases, the intensity of violence against women in Bangladesh is much higher than that of many other countries. Parvin & Naved (2016) mentioned that violence against women in Bangladesh is occurring in almost every aspect of their lives. It is a grave threat to the overall development and progress of women in Bangladesh. Hossen (2014) focused that, women in Bangladesh facing different forms of violence like physical (i.e., hitting with fists, punching, pushing, kicking, beating/ stabbing), mental abuse, sexual abuse, acid throwing, murder, rape, sexual harassment of multiple types, eve-teasing, abduction, trafficking, oppression by fatwa (religious verdict) and suicide etc.

One of the most barbaric forms of violence against women in recent time specially found in South Asian and African and in some cases of European countries of the world is acid violence or acid assault. Dubey (2015) called it as a brutal act. Though acid violence is a global problem, the frequency of this attract is critical particularly in Bangladesh, India, Pakistan, Nepal, Cambodia, Vietnam, Laos, China, Iran, Hong Kong, Kenya, Uganda, Ethiopia (Swanson, 2002). The developing countries like Malaysia and China have also experienced such cases in the recent past (Ahmad, 2012). Acid violence is not limited to a specific race, region, or geographical location. It happens in many countries in South Asia, Sub Saharan Africa, the West Indies and the Middle East also. In the 18th century, sulfuric acid,

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which is known as vitriolage was first manufactured in the industrial purpose in England in the 1940s but later people began to use it for violent action in Western Europe and the United States. The Person Act 1861 was formulated to combat crimes like corrosive substance violence, such as acid in the UK over a century year ago. Dubey (2015) added some other countries like Vietnam, Laos, Hong Kong, Kenya, South Africa, Uganda, Ethiopia in his list where the occurrence of acid assault was taking place in several times. While acid violence is most prevalent in Bangladesh, Cambodia, India and Pakistan, they have also been reported in Afghanistan and parts of Europe.

However, in Bangladesh, acid violence is considered as a wicked problem and damaging form of gender-based violence which has significantly increased and spreading like terrorism in recent time (Kalantry & Kestenbaum, 2011). It is an act of throwing acid or similarly corrosive substance onto the body of another with the intention to disfigure, maim, torture or kill (Acid Survivor Foundation, ASF). According to the Project against Torture (2003), the perpetrators of acid assault usually do not want to kill the victims. They want to do something worse than murder. Typically, the nitric and sulfuric acids are used in acid throwing which has catastrophic effects on human flesh. It causes skin tissue to melt, often even dissolving the bone. In particular cases, the ears and noses, including eyes are lost completely. The scars left by acid are not just skin deep. Many survivors suffer from a psychological breakdown and identity crisis due to their lost and distorted appearance.

The general causes of acid violence can vary from country to country and society to society. As, for example, domestic disputes, family related matter, financial disputes, marital disharmony, extramarital affair, etc. are common reasons for throwing acid in Taiwan, Colombia, SriLanka, Cambodia (Guerrero, 2013; Karunnadasa et al., 2014). Asaria,Kobusingye, Khingi, Balikuddembe, Gomez, Beveridge (2004) highlighted house or motorcycle robbery, suspected affair or domestic disputes are major reasons for the acid attack in Uganda. The Acid Survivor Trust International Nepal (2011) showed that besides domestic disputes acid is largely used for suicide in Nepal. Surprisingly, some common trends of causes of acid violence are found among South Asian countries like India Pakistan and Bangladesh. Experts mentioned some basic motives for acid throwing in this region are the rejection of love, sex or marriage proposal, dowry, land or money related disputes (Jafreen, Wahab, Islam, 2010; Rahman, Bhuiya & Lovely, 2014; Zia ,2013; Ahmed, 2012; Dubey, 2015).

Acid violence, as an extreme form of criminal activity in Bangladesh, needs to bring under special attention for ensuring women right and social justice. The need is in line with the constitution of Bangladesh that ensures the equal right for men and women (Section 28, Bangladesh Constitution). Acid violence is a threat to the women, which hampers the empowerment process of women and overall development. Acid violence does not destroy the victim's life; it also destroys the hopes and dream of a family. The entire society suffers, and the state has to bear unforeseen financial and social cost to tackle the problem of acid violence. Thus, it has become an crucial aspect for the social scientist particularly to the social workers to address such brutal crime with particular priority and offer a suitable solution to end the violence.

Statement of the Problem

In Bangladesh, acid violence is an extreme form of repression and violation of women's rights (Rahman, Bhuiya & Lovely, 2014). Although acid violence has become a common social problem throughout South and Southeast Asia, a review of the scientific literature of the past two decades reported the highest incidence in Bangladesh (Mannan, Ghani, Sen, Clarke & Butler, 2007). According to the Bangladesh

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National Women Lawyers Associations (BNWLA), acid violence represents 6% of the total violence against women in Bangladesh (Farouk, 2005).

The first case of acid violence in Bangladesh was reported in 1961 (Begum, 2004; Milton, Mathieu, Hall & Maibach, 2009). The majority of the victims are women, and many of them are under 18 years of age. The Acid Survivors Foundation, ASF (2011) reported that since 1999, there had been an astonishing 3240 incidents. Voice (2013), a Quarterly Newsletter of Acid Survivor Foundation, reported that in Bangladesh, among the victims between 1999 and 2013, 69% victims were female and 51% fall into the age group of 19 to 35, and 97% of the incidents occurred in rural areas. A study was conducted an on 90 acid victims who were admitted to Dhaka Medical College Hospital, revealed that 90% of the victims were female, 60% of the victims were unmarried, and 51.1% were students. The vital reasons for throwing acid were for dowry, and the second highest reason was the refusal of the perpetrator's proposal for marriage, sex or romantic relationship (Zafreen, Wahab, Islam, and Rahman, 2010).

The victims of acid receive medical treatment once they come in contact with ASF (Acid Survivor Foundation) or in the Burn Unit of Dhaka Medical College Hospital. The victim has to enter into lifelong treatment cycle for the rest of her life. She needs physiological care, treatment, physiotherapy, psychological support or therapy, legal assistance, economic support, education help etc.(Akhter &Islam,2013). In Bangladesh, a victim receives some psychological counselling, while she was under the treatment of ASF, but a widespread service of counselling is not available all over the country in Bangladesh, which is a prior need for the victims of acid. Moreover, they become burdens to their family and sometimes the family treats her as the reasons for bad luck. A victim cannot perform her family duty properly. In many cases, the husband of the victim remarries. However, the victim has no chance to get married even she is unmarried (Anwari, 2003; Dubey, 2015). Most of the victims are from poor family, as Kamruzzaman & Hakim (2016) mentioned in their study that 65% of the acid victims were living under poverty line and they had to face, biological, sociological, economic, security issues and social exclusion. The provisions of help for acid assault victims from Government is very limited. It is, therefore, very significant to understand the underlying needs of the acid victims in Bangladesh. The recent literature poorly addressed such needs of victims after the occurrences of acid throwing. An extensive study is required to find out the prime needs of the victims of violence of acid.

The victim of acid embraces a new life with so many dramatic changes when she comes back home after a long-term treatment. However, what happened to her life when she returned to her own community after a long-term treatment is still not studied well. She may face new challenges as she suddenly enters into a new world with new experiences. Earlier, she was a woman with fare appearance. Suddenly she greets her life with disfigure face and body. The new situation may create problems, not only for the victim but also for her family and her relatives. ASF Report (2015) quoted the verbatim of one victim;

I was seven months pregnant when the incident occurred, I dreamt a lot about the future of my child. But the incidents shattered all those. I had nothing to say except for the fact that I am no longer attractive

Family breakdown, divorce, etc. are associated with the problem like acid violence. Victims may become stigmatized and socially excluded. The Report on "Coping with Disfigurement" by the Acid Survivor Foundation 2015 explores some realities including physical, psychological, economic and social situation after the incidents of acid violence. Victims embrace physical disfigurement and disability. Acid dissolves skin and flesh, which can even damage bone. If it goes to the eyes, it creates permanent blindness. They suffer from partial or full blindness with visual impairment. They face the problem with

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mobility and breathing. They sometimes have to go under several surgeries that have a post-surgical effect and distress. The victim cannot work under the sun. They totally become depended on their family members and thus become a burden for their family. According to Rahman, Bhuyan & Lovely (2014), the acid attack leaves a survivor traumatized, disfigured, and sometimes disabled, socially excluded and economically vulnerable. The victim has to bear a big amount money for treatment. She has to face economic, physical, psychological, social, educational challenges in every steps of her life. Survivors suffer from emotional and psychological trauma. They become disfigured, marginalized, disabled and socially excluded (Rahman, Bhuyan & Lovely, 2014). Shah (2016) also added that rejection, criticism, discrimination etc. increase the misery of a victim of acid. There are few studies those investigated the life of the victims after such brutal attack and challenges faced by the victims from a multidimensional point of view.

Another important thing is that before the late nineties, acid throwing was not recognized as a form of violence against women in Bangladesh. The Acid Survivors Foundation (ASF) was established by UNICEF, on May 1999 as the first organization to challenge the issue, and to set up a forty-bed hospital for acid burned patients (Langerhans, 2007; Haque & Ahsan, 2014). The agency also provides plastic and reconstructive surgery, psychological care, legal assistance,and financial support for economic rehabilitation. Despite the structured and unstructured services from both the government and other organizations, it is also important to know what acid victims feel and how they survive. Are they being socially excluded? What are the challenges of their reintegration in the mainstream community? Current literatures of Bangladesh cover issues like socio economic demographic profiles, causes or motives of acid throwing, impacts of acid violence on victim' s life, health and other psychological sufferings of victim (Haque & Ahsan, 2013; Zafreen & Wahab, 2010; Rahman, Bhuyan & Lovely, 2014; Shah, 2016; Das, Khondokar, Quamruzzaman, Ahmed & Peck, 2012; Akhter & Farzana, 2013). Besides theses, there are other studies which include various issues like health hazards of acid violence, medico legal aspects, medical surgical treatment, acid burn management system, psychological outcome etc of acid assault victims. But no single literature is found which states the needs, challenges, reintegration process or rehabilitation process of acid victim after the brutal attack of acid. Neither government nor other the NGOs adopted any kind of community based rehabilitation program for the wellbeing of the victims of acid violence in Bangladesh. Despite seriousness of the issues like rehabilitation for acid victims is a little studied subject especially in Bangladesh, so an explorative study is needed towards develop some community-based rehabilitation for the acid victims of Bangladesh.

AIMS AND OBJECTIVES OF THE STUDY

The aims or objectives of the study are as follows,

1. To identify the needs faced by the acid assault victims when they are reintegrated into the Community.
2. To look the challenges faced by the acid assault victims and the community in Accommodating the acid victims
3. To reconstruct the existing community based rehabilitation programs for their better Services

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RESEARCH QUESTIONS

In connection with the above statement, the study will seek answers to the following questions:

1. What are the needs faced by the acid assault victims during the reintegration process?
2. Why is the community not being able to accommodate the acid assault victims?
3. How can the existing community- based rehabilitation programs in Bangladesh be reconstructed for their better services?

LITERATURE REVIEW: THE CONCEPTUAL AND THEORETICAL FRAMEWORK

Acid Violence

The term "acid violence" is synonymous with acid assault, acid burns, acid throwing, and vitriolage, chemical assault etc. According to Vij (2003), acid attack is more formally known as vitriol age; which is defined as "… the act of throwing acid into the body of a person with the intention of injuring or disfiguring her out of jealousy or revenge (p 462). The report by New York Avon Global Centre for Women (2011) stated aid violence as, "acid violence" and "acid attacks" are used interchangeably in this Report. "Acid attacks" refer to specific incidents usually involving throwing acid at one or more individuals who are the intended victims of the attacks.The report also added that acid violence1 comprises intentional acts of violence in which perpetrators throw, spray, or pour acid onto victims' faces and bodies "Acid violence" is a broader term that includes acts such as forcing a victim to ingest acid. Zafreen, Wahab & Rahman (2010) mentioned acid violence as a worst form violence against women which brings permanent injury and disfigurement to ones life. Hakim & Kamruzzaman (2016) and Watson (2002) described acid violence as an attack on a person with sulfuric, hydrochloric and nitric acid, which causes severe burns and disfigurement associate with blindness and hearing loss.

In another report by LICHADO: Project against Torture (2003, p1) stated acid throwing as kind of torture which never ends. According to the report, acid throwing is usually an action of revenge, driven by jealousy or hatred, because of a personal relationship problem such as rejection of proposal of love affair or marriage, unfaithfulness, or rejection. Akhter & Islam (2012) defined acid violence or acid throwing or vitriolage as a barbaric form of violence, where strong corrosive are thrown on face or body of victims with an intention to disfigure or permanent scar. In an article, Chandrasekhar & Johny (2017) defined acid violence as "acid throwing or vitriolage is characterized as damaging acidic chemicals onto the body which reasons distorting skin, in Medical obsessive clarification". The Cambodian Acid Survivors Charity (2010) mentions that acid violence, as a deliberate form of assault involving the throwing, pouring, or administering of acid, or other similarly corrosive substance, on an individual, with the intention to seriously maim, disfigure, torture, or kill. The Acid Survivor Trust International mentions that acid violence is deliberate use of acid to attack another human being. Acid attacks rarely kills but causes severe physical, psychological and social scarring, and victims are often left with no legal resources, limited access to medical or psychological assistance and without the means to support themselves (ASTI, 2011).

Bangladesh has its own legal definition of this crime. The Bangladesh Government has enacted two laws named Acid Offense Control Act, 2002 and the Acid Crime Control Act 2002. The Acid Offenses

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Prevention Act 2002 defines 'acid' as any kind of burning, corrosive and poisonous substance (Yasmin, 2014). As per section 4 of the Acid Control Act 2002, death or life imprisonment will be given to the offenders for causing death or other harmful injuries by throwing acid. The law named 'Nari O ShishuNir-jaton Daman Ain 2000' has also mentioned punishment as well as rehabilitation, treatment and justice for the victims (Yasmin, 2014). The Indian Penal Code, 1860 by virtue of Criminal Law (Amendment) Act, 2013 under the Explanation 1 of Section 326B has defined acid to include, "any substance which has acidic or corrosive character of burning nature, capable of causing bodily injury leading to scars or disfigurement or temporary or permanent disability"."Acid throwing and burn Crime Bill, 2014, was introduced in the Parliament in Pakistan. The bill mentioned acid attack on section 5, "acid attack means any act or omission caused by corrosive substance/acid to be thrown or administered in any form on the victim with the intention that such person is likely to cause to the other person permanent or partial damage / injury or deformity or disfigurement to any part of the body or organ and cause death of such victim".

The Avon Global Centre for Women and Justice at Cornell Law School and the New York City Bar Association (2011) mentioned that acid violence is a form of gender-based violence and discrimination prohibited under the international law, including the Women's Bill of Rights, i.e., the Convention on the Elimination of All Forms of Discrimination against Women. In an article, Zia (2013) claimed acid violence as a gender-based violence, where cultural background, gender bias, socio-cultural imperatives are major factors for throwing acid against women in Pakistan. In the case of Bangladesh, the perpetrators are relatives or unknown person, whereas in Pakistan the major perpetrators are husbands and in-laws. According to the Avon Global Centre (2011) gender inequality is one of the major reasons for throwing acid in Bangladesh, India and Cambodia. Anwary (2003) linked acid violence with the impact of globalization in a broader sense. Mannan, Ghani, Clarke & Butler (2006) focused that in Bangladesh, acid crime has been labelled as a 'gender crime' as maximum victims are female.

Literature explored some motives or factors for such barbaric action. For example, Farhad, Naghibzadeh, Nouhi & Rad (2011) found that the reasons for acid violence in Iran were usually the marriage related issue, extra-marital affairs, divorce, poverty and illiteracy. Wilott, Ayebare & Warah (2011) conducted a study in Uganda and found that the causes are linked with business and property related matters. In another study in Uganda, Asaria et al, (2004) found two major reasons for acid throwing; robberies and family dispute. In another study, a group of doctors in Sri Lanka identified some reasons for acid throwing are the conflicting love affair, adultery, family disharmony, issues related to land, money and business (Karunadasa et al., 2010). The Burn Violence Survivors Nepal (BVS-Nepal, 2011) showed that dowry related problem and land disputes are leading causes of throwing acid in Nepal. Also, people use acid for committing suicide in Nepal. In Pakistan, acid is thrown to women by their intimate partner such as, husband, in-laws. (Zia, 2013). Motives like spurned love and affairs, sexual jealousy, financial and land disputes, hate or revenge, etc. are the main reasons for the acid attack in India (Dubey, 2015). Ahmed (2012) argued that the lack of poor law in force is another cause of such kind of violence in India.

The sulfuric acid, hydrochloric and nitric acid is usually used for this heinous violence. The consequences of acid violence are dreadful as well as painful. A victim suffers physically, psychologically, economically and socially. The acid attacks leave the survivors traumatized, disfigured, disabled, socially excluded and economically vulnerable (Rahman et al., 2014). A survivor of acid suffers physically, psychologically, socially and economically. The acid attack against women brings a dramatic change in their entire life. They have to go under several surgeries which are painful. Their faces and parts of the body become disfigured. They face, hair loose, with partial or total blindness. Acid has a catastrophic effect on human flesh, which can dissolve skin and flesh, it can even destroy the bone of the victim. She is

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disfigured. Acid can create partly or completely blindness. The face, neck, and chest are damaged badly. If the breasts are affected by acid may stop developing or destroy (Haque & Ahsan, 2014; Rahman et al., 2014). It leads to permanent scarring, destroy vital body organ. It may affect the respiratory system of the victim and cause a serious respiratory problem. Any physical disabilities may arise from such violence what may add another dimension of suffering to the victim daily life (Ahmad, 2011; Ahmad, 2012).The victims suffer from psychological agony with other symptoms like a headache, insomnia, nightmare, fear, fear of facing outside. The acid attack leaves the victims traumatized, disfigured, socially excluded, psychological scars can be even more dreadful than physical scars, the victim suffers from social isolation with poor self-esteem suffer from psychosis, depression, ashamed and loneliness, and low self-confidence which may lead her to suicide (Anwary, 2003 & Ahmed, 2014).

Operational Definition

The proposed study will consider all the cases of violence against women performed by throwing acid as acid violence. The study will select these women whose age is 20-35 years and who were attacked by acid between 2005 and 2015 and took treatment from the Acid Survivor Foundation Bangladesh.

Community-Based Rehabilitation (CBR)

The concept of CBR was promoted by WHO in mid-70. Community-based rehabilitation is a term that has been used in different literature in different names. As Momm and Konig (1998) used 'community integration' and Miles (1998) introduced the term 'information-based rehabilitation'. In another paper, Miles and Medi (1994) used 'community-based support' as CBR. Frye (1992) applied the term 'community-based integration of rehabilitation' instead of CBR in his writings. Samuel (2015) mentioned "CBR as a philosophy" . A booklet named *CBR Guidelines as a tool for Community-Based Inclusive Development* published by IDDC (International Disability and Development Consortium) termed CBR as 'community-based inclusive development' (Thomas, 2012).

According to Mpagi ((2002) rehabilitation includes all measures aimed at reducing the impact of disability on an individual, enabling him or her to achieve independence, social integration, a better quality of life and self-actualization. On the other hand, community-based rehabilitation is a strategy, a coordinated method, a complementary and institutional approach, a way of thinking, a concept, an ideology and decentralized way to rehabilitation service delivery (Geert, 1998). Community-based rehabilitation (CBR) stands on three principles of equity, equality and equal rights and social justice. The approach is for the disadvantaged group of the community. CBR provides disadvantaged people with a support system which ensures their survival, growth, progress and complete rehabilitation. It aims to ensure disadvantaged people with a productive life (Punani, Rawal & Sajit, 2002).

Heinicke-Motsch (2010 in World Health Organization (WHO) 2004) CBR involves

measures taken at the community level to use and build on the resources of the community, including the impaired, disabled and the handicapped persons themselves, their families and their community as a whole (p. 188).

Thomas (2012) cited from, WHO, ILO and UNESCO issued their joint position paper (1994) which is revised in 2004, with the following definition of CBR. According to the organizations, CBR is:

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…a strategy within community development for the rehabilitation, equalization of opportunities and social integration of all people with disabilities. CBR is implemented through the combined efforts of people with disabilities themselves, their families and communities, and the appropriate health education, vocational and social services. (p. 4).

The above definition indicates CBR as a multispectral approach which includes both governmental and nongovernmental services needed for the community (ILO, WHO & UNESCO, 1994). To complement the definition, CBR is a strategy for enhancing the quality of life of disabled people by improving service delivery, by providing more equitable opportunities and by promoting and protecting their human right (Lang, 2011). The primary aim of such rehabilitation is to create such environment which will facilitate the victims to become self-actualized and become integrated socially (Lang, 2011, p. 167).

CBR strategy encompasses some key components of wellbeing those are health, education, livelihood, social participation and empowerment of people with disability and their families. This inclusive approach is followed by CBR Matrix. The matrix helps to plan community development program and to manage them. The matrix is supported by the principles of inclusion, participation, self-advocacy, accessibility, and sustainability (Heinicke-Motsch, 2010; WHO, 2004, Thomas, 2012). Following the objectives of Dutch Coalition on Disability and Development of 2007, Samuel (2005) pointed out some of the major objectives of CBR. He said that CBR tries to include victims in mainstream services that they may get full access to education, employment, healthcare services and soon with equal opportunities. Capacity building and local fundraising, and enabling a community to promote the rights of the disabled people are also the aims of such program. CBR also tries to enhance the physical and mental ability of the victims and always focuses on improving the quality of life of disabled people with community integration. 'Education for all' by WHO, Millennium Development Goal (MDGs) and United Nations Convention on the Right of Person with Disabilities (UNCPRD) etc. are international legal and political backgrounds for spreading the ideas of CBR all over the world (Heinicke-Motsch, 2010).

In a nutshell, community-based rehabilitation is a worldwide recognized approach which is applied to intervene different problems at a community level. The study aims at exploring some community-based rehabilitation programs for the acid victims of Bangladesh. In Bangladesh, the rehabilitation approach in the study covers physical, social, economic, psychological aspects of acid victims, and also provides them with solutions to the problems they suffer. The community-based rehabilitation program will be developed in such a way that acid victims will have proper rehabilitation for their future life. It is expected that the CBR will ensure their human rights and will help them to become self-actualize.

In Bangladesh, ASF is the sole and only specialized organization who provide multiple services to the acid victims. Besides medical and psychological treatment ASF provide small grant and livelihood grant to the victims so that they may continue their study and can servive.ASF engages government and civil society at the national level for policy changes (Annual Report of Acid Survivor Foundation, 2011). Other organizations such as BRAC, Naripokkho, The Daily Prothom Alo, Ain o ShalisKendro, Burn Unit of Dhaka Medical College Hospital, etc also provide medical care, legislative, economic and social supports for the survivors of acid. The Bangladesh Government enacted two laws; the Acid Control Act 2002, and the Acid Crime Control Act to protect and control the heinous crime of acid violence (Haque& Ahsan, 2014). The manage grant for acid victims there are district and divisional acid control committee . Very few governmental attempts were made to rehabilitate acid victims in their community's and Brac arrange some community awareness meeting when the victim goes back to her community after lengthy treatment procedure.

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Operational Definition

In line with the aims of the study, the operation definition of community-based rehabilitation for this study refers to rehabilitate acid assault women who are also disabled in a sense that they become physically, psychologically and socially and economically vulnerable. Thus, the community-based rehabilitation strategy is implemented for the betterment of the acid victims. Also, for this study, the CBR means a combination of such programs provided by the joint venture of government and non-government and community effort to bring desire change and positive outlook toward the acid victims. It covers the entire range of activities to tackle physical, social, economic and psychological barriers of a victim so that they can enjoy a fruitful life. The primary objective of the CBR program is to provide them with comprehensive services near their community. Thus, they can access and enjoy social equity and dignified life.

Theoretical Framework

This study underpins with two main theories such as the Social-ecological Model and the Patriarchy Approach for a better understanding of my research questions. Pardeck (2015) argued that ecological model can be applied to treat different types of problem in societal level. The ecological approach offers a comprehensive theoretical base that social practitioners can draw upon for effective social treatment. It is suggested that the ecological perspective can be a useful treatment strategy for improving the social functioning of the client system the famous theorist Uric Bronfenbrenner mentioned five systems named the microsystem, the mesosystem, the exosystem, the macro system and the chromo system. Each system has their distinct features, which include family, friends, neighbours, greater community, culture, state etc. to get understanding on an issue like acid violence and its impact on their lives the ecological model can be matched better. The Ecological approach explains the human problem as the complex mixture of psychological, social, economic, political and physical forces the theory will help to analyse acid victims from different dimensions. The *micro system* Bronfenbrenner's theory refers to those interactions where the person in direct contact and directly engage with others. The next level is *meso system*. The meso system refers the interaction between the two micro systems. The exo system refers to the social structure both formal and informal in which micro system is in influence. The macro system consists of a set of cultural values and beliefs (Perdeck, 2015; Heise, 1998). The theory will help the researcher to get better understanding of the needs and challenges of acid victims. Hence it can help to develop some community based rehabilitation for the acid victims. Also the perspective suggests the human problem is derived from the complex interplay of psychological, social, economic, political physical forces (Perdeck, 2015). Acid violence or acid throwing problem is a social problem originated from the society. In most cases, men are the main perpetrators and reasons behind such violence is combination of psychological, social, economic and political factors of society. As for example, patriarchy or gender discrimination are some of social or political factor, which contribute such problem in society. Dowry demand, land dispute, poverty etc. are some economic preseasons behind such types of violence against women. Therefore, the social ecological model will best fit to analysis problem like acid violence and the theory will show the way to develop community-based rehabilitation for the reintegration of acid victims. The approach will help to develop effective intervention (Pardeck, 2015).The major aim of the study is to find out the needs and challenges a victim's face in her reintegration process and to find out suitable community base rehabilitation for their better rehabilitation. We can see acid violence through different system of the social ecological model. We can put an acid victim in micro system and can analyse her

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situation. A victim may suffer due to various reasons like, dowry, rejection of the proposal of a suitor, land dispute, etc. can directly affect the acid victims. The family, in laws, neighbourhood, peer, friends, and colleagues are consisting of victim's meso system, which directly influence their life after the acid attack. The major needs and challenges of a victim can be understood through different systems of social ecological model. The macro system can help to find out cultural and societal variables for such brutal crime. The system can help to develop intervention strategies for rehabilitation of acid victims' women. As the aim of the study is to develop community based rehabilitation for the acid victims of Bangladesh, the systems combine can contribute to mold such intervention for the victims

Again the needs and challenges faced by the acid assault women and their suffering and agony or coping mechanism aspects can be best explained by the Patriarchy approach by Silvia Walby (Walby, 1989). The concepts patriarchy is an important tool in the analysis of gender relations. The patriarchy approach deals with gender inequality, including men's domination over women. As Walby (1989) stated patriarchy as a system of social structure and practices in which men dominate, oppress and exploit women. As acid violence is gender based violence and Walby mentioned six components/structures of patriarchy. Male violence and patriarchal culture are the two important structures of patriarchy, which could help to analyse the main issues related to acid violence and will help to develop community based rehabilitation program for their better service.

SCOPE OF THE STUDY

The scope of the study are those things what will be covered in the research. The current research is in the domain of human right approach. The study will not mainly emphasis on its gender aspect .The study also attempts to find out the needs and challenges a victim face after they come back to their community, impacts of acid on the life of victims, and formal and informal rehabilitation system for the acid victims. In doing so, the study chooses to adopt the Ecological Model by Urie Bronfenbrenner and the patriarchy theory of Silvia walby as its analytical framework. The scope of the study will encompass the entire system of the social ecological model. The patriarchy theory will guide the study to understand and find out the major needs of the victims from multidimensional points of view. The study will conduct in Bangladesh, and the focus of the study is on the acid affected women of Bangladesh, who took treatment and are the direct beneficiaries of Acid Survivor Foundation (ASF) Bangladesh. The study will not cover the legal system or support system for the victim and it will not focus on the status of current laws against acid violence in Bangladesh. The study will involve acid affected women either married or unmarried. The major objectives of the study will look for the needs and challenges they face in their life after the attack of acid. The study will examine current needs either basic or felt, expressed or unexpressed needs of acid victims. The current study will also examine social, economic, physical, psychological challenges a victim greet in her whole life after the victimization of acid. Finally the research will develop some community based rehabilitation program for their wellbeing. The study will also look the state of current rehabilitation process of the victim following the social ecological model.

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SIGNIFICANCE OF THE STUDY

The aim of the study is to explore a comprehensive community based intervention for the acid victims in Bangladesh. This model will help the acid victims to overcome their suffering. They can able to reintegrate with the society in an easy way. They will be benefited physically, mentally, socially, economically and legally. The final outcomes of the research will help acid victims to be self-dependent and cope their life battle in a more dignified way. The findings of this research will be beneficial to various stakeholders that involve in the prevention and treatment of violence of acid. Since. The aim of the study is to find out the needs and challenges of acid victims in the context of Bangladesh, it may open a new door to the policy makers and lawmakers to rethink about the issue from a different perspective. The findings will provide a platform to the policy maker about a real direction to minimize such kind of brutal form of violence like acid violence. Both Government and NGOs' are working with the problem. The research will show some new guidelines and ways to Government, NGOs', development workers, legal workers, social workers, the International Agency, local media, human rights activists, women activists, and donor agency for better solution to the problem of acid violence.

METHODOLOGY

Research Approach and Research Method

This research is based on a qualitative study. A case study method will be followed to conduct the research as the principal method of research. Yin (1984) defines the case study research method "as an empirical inquiry that investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used." Yin (1984) discussed case study as unique one that examines a number of small sample in detail with its real life context. Case study method will allow researcher to get deeper understanding about acid victims in detail. Again case study allow a researcher to explore and understand a complex issue like acid violence, and case study research method is considered as a robust method of research when in-depth enquiry is mandatory (Baxter, Jack, 2008 & Zainal, 2007). The case study method will follow multiple or collective case study design as it will involve several individuals (Creswell, 2007). A case study is comparatively a perfect method for the researcher who can clearly identifies case within boundaries.

Data Collection Techniques

The research will use a multi-method data collection procedure. Data will be collected using in-depth interview method. In-depth interview will allow researcher to know in detail about the victims of acid, their life, sufferings and challenges they face in every steps of their life. Data will be collected from them, who will willingly show their interest to be my participants. I shall discuss the objectives of my research and will share the ethical issues with them. A recorder will use to record the interviews and field note will be taken. This interpretative technique will give an opportunity to discuss elaborately with the acid victims about research objectives and their understandings. The researcher will arrange to visit several times to the victims to build rapport and gather data. The study will also use two Focus Group Discussions (FGDs) with the staff members at Dhaka Acid Survivor Foundation (ASF).One FGD will be

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conducted by the policy makers, practitioners and members of civil society for having suggestions from them for the rehabilitations of the acid victims. The research will also use the key informant interviews (KIIs) in order to get some experience from the experts such as the representatives of the Ministry of Social Welfare, local leaders, journalists, international human rights activists, NGO workers, Executive director of Acid Survivor Foundation and academics in Bangladesh.

Sample Size and Sampling Technique

The study will a purposive sampling technique. Patton (1990) argued that the purposive sampling technique is considered as a useful technique in case of descriptive study of qualitative research. The current study is descriptive in nature. The respondents will be selected from the listed beneficiaries of the Acid Survival Foundation (ASF). As Creswell (2007) argued that there is no specific number for the case, rather the researcher can select no more than four to five cases for conducting case study. It is sometimes difficult to select the exact number of sample in case of qualitative study (Fusch & Ness, 2015). I will select 10-15 acid victims for in-depth understanding about different aspects of their acid victims considering my capacity, time, funding and research objectives. The sample size will follow the rules of saturation that is a key to excellent qualitative work (Marshall, 1996). The researcher will continue interviewing as long she reach the target point of saturation. The research aims to conduct two FGDs, one with 6-8 staffs of Acid Survivor Foundation. Another FGD will be conducted in Sylhet city, where the number of the participants will be from 6-12 from civil society. Besides these, the study will conduct six KIIs. As acid violence is a sensitive gender based violence and purposive sampling enables a researcher to understand the situation or a phenomenon in detail, and in-depth directly from the people who experienced the situation. The researcher will follow maximal variation sampling types of purposive sampling (Creswell, 2008). As acid victims are not available so I would rather apply purposive sampling rather than convenience sampling techniques.

Research Instruments

To conduct the interviews a semi structured interview protocol will be used. The guideline will be developed according to the objectives of the study. A separate set of guidelines will be prepared for FGDs and KIIs.

The methodological framework of the proposed study can be presented in Table 1.

Data Analysis Techniques

Collected data from the respondents will be transcribed verbatim. Later I will use the NVivo. NVivo is a new, powerful computer package in qualitative research. It provides the researcher with an extensive range of tools that can be used to support standard qualitative analysis techniques such as coding, theory building, and theory testing, cross sectional analysis, modeling and writing. I will get opportunity to verify my data concerning the different theory and rhetorical approaches.

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Table 1. Research design against research questions

Research Questions	Research Approach	Research Method(s)	Data Collection Methods	Data Collection Instruments	Number and Type of Participant	Type of Data
1. What are the needs faced by the acid assault victims during the reintegration process?	Qualitative	Case study	In-depth Interview	Guide line	**10-15** in-depth case study with acid survivors women	Demographic and socio-economic information of acid victims, causes, impact of acid throwing -
			KIIs	Interview protocol	(Local leaders, human right activists, journalists, lawyer, NGO workers, academician) total=6	Identification of the needs of victims and possible rehabilitation for them
			FGDs	FGD Guideline	**2 F**GDs With the staff mewmbers of Acid Survivor Foundation (6-8) and with civil society development workers (6-8)	Need identification and suggest for possible rehabilitation
2. Why is the community not being able to accommodate the acid assault victims?	Qualitative	Case study	In-depth Interview	Guideline	**10-15** indepth case study with Acid survivors women	Informal and formal services available for acid victims
			KIIs	Interview protocol	**6** (Local leader, Human right activist, journalist, lawyer, NGO worker, Academician)	Informal and formal services for acid survivors women
			FGDs	FGD Guideline	2 FGDs With the staffs of Acid Survivor Foundation(6-8) and with civil society 6-10)	Formal and informal service system for acid victim
3. How can the existing community based rehabilitation programs in Bangladesh be reconstructed for their better services?	Qualitative	Case study	In-depth Interview	Guideline	10 in-depth interview with acid survivors women.	Expectations of acid victims from the community
			FGDs	FGD Guideline	2 FGds With the staffs of Acid Survivor Foundation(6-8) and with civil society (6-10)	Possible community interventions and policy implications
			KIIs	Interview protocol	(Local leader, Human right activist, journalist lawyer, NGO worker ,academician) total 6	Possible community interventions and policy implications.

Ethical Issues

We will follow the ethical guidelines of the University of Malaya. A written prior permission will be taken from the the authority of the ASF. During data collection period, We will explain the research objectives and benefits of the participation to the selected respondents very clearly so that they can be aware about their participation. We will take their written or verbal consent (if needs) from them. We will

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give full freedom to the respondents about to withdraw their opinions in any time of the data collection period. We will strictly maintain the confidentiality and anonymity of the respondents.

Time Schedule

See Table 2.

Table 2. Study plan

Tasks	September 2016-February 2017	March 2017-August 2017	September 2017-February 2018	March 2018-August 2018	September 2018-February 2019	March 2019-August 2019
Task-1 Proposal Defense						
a. Desk Study and preparation for proposal writing b. Selection of Title, research objectives and research questions						
c. Literature review: Conceptual and Theoretical d. Research Methodology Course						
e. Proposal Defense						
Task-2 Completion of Language course and Field Work and Data Collection						
a. Completion of Bahasa Malaysia course b. Development of data collection Instrument c. Field setting and contact d. Conducting pilot survey e. Data Collection f. Data Translation g. Data editing and coding						
h. Presenting paper in a national conference						
Task-3 Report Writing						
a. Data anlysis plan b. Adding recent literature c. Results d. Discussion e. Policy implications						
f. Submission of journal publication						
Task-4 Compile of Draf Report and Submission						
a. Finalization of Report						
b. Report submission						
c. Defense						

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Chapter 56
Faces of Grief: Cross-Cultural Bereavement and Support in Malaysia

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ABSTRACT

Death, bereavement, and grief are natural processes that are experienced by every individual who is born into this world. The level of trauma experienced from such loss can be mitigated by internal factors and the external environment faced by the individual. Spiritual belief systems and culture play a critical role in the experience of bereavement. This qualitative study applies the phenomenological approach to explore the lived experience of bereavement of 15 Malaysians from five different religious groups, namely Buddhism, Christianity, Hinduism, Islam, and Taoism. Rituals and belief systems impact an individual's experience with bereavement. The likelihood of individuals to seek emotional and psychological support depends greatly on individual belief systems, family support, support facilities set up by religious groups, and the perceived availability of professional services.

INTRODUCTION

While 'Death' is a universal experience, the process and philosophical construct of death varies between cultures and religions. As Victor Frankl in his book 'Man's Search for Meaning' (pg. 51, 1984) said "When we are no longer able to change a situation… we are challenged to change ourselves." Death of a loved one or a family member is an ultimate example of a situation where we are unable to change. The event of death in a family is a universal experience that leads to changes in family roles and in an individual's life. Cultural norms and traditions have been developed by all groups to support and come together in the times of grief, examples of such norms are Wakes where friends and family come together to share memories of their loved ones, *Cheng Beng* festival by the Chinese to honor the graves of their ancestors, daily prayers from 10 to 35 days by the Hindus where family is supposed to take turns bring-

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ing food to ease the financial burdens of the family in mourning. Internal and external factors which are possibly influenced by upbringing and culture have a mitigating effect on the trauma experienced upon the death of a loved one. Rituals to face grief and death is different in every culture and society worldwide, but according to Weeks (2004) the common factor of all these rituals is that they "enable us to remain connected with the past, the future and with each other. They also serve to provide us with comfort and security." (pg. 115)

Malaysia, with its rich multi-cultural and multi-religious heritage, allows for unique insights into the lived experience of individuals who may have differing religious backgrounds. However, it does share a common nationality, and a broadly common Asian upbringing.

The qualitative methodology is an appropriate means of studying the matter of multicultural approaches to grief because it aligns with the philosophical underpinnings of the approach as proposed by Cresswell (2013). The qualitative methodology is ontological, allowing for the study of the multi-dimensional reality of the nature, its properties and interrelated relationships of human experience. It is also epistemological, axiological and rhetorical. This allows for the study of knowledge and the justification of meanings, how experiences are value and made sense of in the daily experiences of the individuals. The approach allows the researcher to study grief from both an individual and societal standpoint.

A phenomenological qualitative research design was employed for purposes of conducting this study to provide insight into the essence of the lived experience of those whom are undergoing a particular phenomenon. The phenomenological approach allows for the identification of differences and commonalities in individuals' experiences of complex social phenomena (Barnard, McCosker & Garber, 1999). At the same time, generalizing these ontological narrations of subjective understanding to encompass broader social and cultural discourses. The approach provides insights into the objective as well as the subjective experiences as reported by individuals (*Ibid.*). Hence, ensuring that the discourse on the personal experience of bereavement provided by respondents was descriptive as well as reflective in nature. It also provided for rich and thick data that is relatively free of the researchers' personal framework (Edmonds & Hooker, 1992).

The subjective experiences of individuals in the phenomenological approach according to German philosopher Husserl looks at the subjective experiences of the moments that matter, moments that give meaning to an individual's experience. As quoted in Bailey (2013) "To live, Husserl says, is to experience (*leben ist erleben*)" (p. 39). Grief as experience by an individual is very much a personal experience and through the phenomenological approach the moments that creates meaning for individuals are captured and applied.

Therefore, in the context of this study, the phenomenological approach has allowed for an in-depth examination of how Malaysians responded to the universal phenomenon of grief and bereavement within their unique cultural and religious context.

METHODOLOGY

This qualitative study applies the phenomenological approach to explore the lived experience of bereavement of fifteen Malaysians from five different religious groups; namely, Buddhism, Christianity, Hinduism, Islam and Taoism. All respondents had completed the first year anniversary of the death of their loved ones and were English speakers. Semi-structured interviews were used to collect data from individuals.

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The intentional-expressive approach of interviewing was applied to enter the life world of individuals and obtain narratives, concepts and in-depth experiences of individuals (Merriam, 2009; Salkind, 2009; Sin, 2010). To ensure the veracity of the research and to avoid unwarranted conclusions that may arise from personal bias, epoch and bracketing was employed in the course of data analysis. (Bryrne, 2001, as cited by Pitney & Parker, 2009; Merriam, 2009). Multiple means of data modification was employed. To ensure validity and reliability of the data finding two methods of triangulation was employed in the collection of data. Data was collected via multiple methods; namely, through semi-structured face-to-face interviews, researcher field notes, and review of existing literature on culture-specific grief and bereavement. This is for the dual purposes of broadening the scope of its focus as well as narrowing it down to one or several issues in the review scholarship that would benefit from further investigation (Richards, 2005). Further, three peer researchers were engaged to independently analyze the data and their individual findings were compared to ensure consistency of the analysis (Merriam, 2009).

Purposive sampling was used to ensure that all respondents had experienced the first anniversary of the death of their loved ones. The maximal sample variation was applied in selecting more than two respondents in each group in order to develop a comprehensive picture of the experience of bereavement as narrated by the respondents. The respondents were made up of three Hindus R1-R3, four Buddhists R4-R7, four Christians, two of whom were Protestant and Catholics R8-R11, two Muslims R12-13 and two Taoist R14-R15. All of the respondents had experienced deaths of close family members.

Data collected through fifteen face-to-face interviews were approximately 45 to 90 minutes in length. All interviews were audio recorded and transcribed. Transcripts were sent to the participants and were reviewed by peers for accuracy verification. The research was in compliance with the ethics standards of HELP University.

LITERATURE REVIEW

An inevitable consequence of life, is death. Yet, across nations, religions and cultures, the topic of death is not considered a topic of polite conversation. The experience of the death of a loved one may be met by tears, disorganization, and by a sense of helplessness and hopelessness. Bereavement is defined as the state of deprivation that arises from the death of a loved one, and from the continued feeling of loss that endures well past the actual death of the individual (Attig, 2004).

The permanence of death results in a unique loss in an individual's life, the loss of someone that can never be returned. This state of deprivation has a deep impact on individuals. The loss experience cuts across the mental, emotional, psychological, spiritual and even physiological state of the individual. (Love, 2007; Worden, 2009) Bereavement potentially disrupts the certainty one has in the ebb and flow of life, it can shake the foundation of one's core beliefs, priorities, values, worldview, spiritual and religious beliefs (Love, 2007; Gillies & Neimeyer, 2006). The grieving process is increasingly recognized as a method of preserving ties and connections with our loved one. These connections, memories and ties that have were formed with our loved ones in the past inform and mold out views of the present and help us shape our futures (Purkiss, 2006).

From the pyramids to the catacombs, death and the subsequent process of mourning is influenced by (and at the same time) greatly influences religious and philosophical beliefs, as well as the expression of culture. While the experience of bereavement may be universal, the expression and process of grief

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is culturally bound, with each culture providing a distinct approach to the loss and the transitions that follow after the death of a loved one (Anderson, 2010).

Strobe and Schut (1999) put forward a modal of grief to have a more universal application beyond gender and cultural specificity modals. Instead looking at the universal issues of stress and coping generated by the grieving process. The Dual Process model of coping with bereavement looks at how individuals go through two processes; loss orientation process and the restoration orientation process. These two processes are separate. Healthy grievers focus on the daily living challenges and then focus on the issues of managing their grief. The oscillation between these two processes promotes recovery and health coping.

Research has been done on the relationship between grief, spirituality and coping, where Bruke and Neimeyer (2014) found that religion provides mourners with an opportunity to seek meaning; to get some level of inner control and receive comfort and love from the Divine. Beyond the personal comfort, religion provides a shared platform to provide support and gives structure that can facilitate the process of managing the loss of a loved on. Religion is seen as providing a positive coping experience as it creates a sense of spiritual alliance and support system with those of the same faith and group.

Malaysia, as a multi-ethnic society has a rich diversity of culture and religions. The rationale of this research is to understand the bereavement experience of individuals, who while sharing a nationality (Malaysian) are from different and unique cultural and religious backgrounds. While the research adds to the literature of Asian grief and bereavement studies, it is also a potentially solid guide to counselors and therapists in dealing with bereaved clients in a culturally sensitive and professional manner.

DISCUSSION OF LIVED EXPERIENCES OF RESPONDENTS

Respondents reported that many factors played into the experiences of grief and loss. There are universal experiences that are nuanced by the personalized cultural experiences.

Emotions elicited by grief are complex and overwhelming. As a universal experience, all respondents felt the loss but how that loss was expressed varied between respondents. All respondents reported experiencing sadness and pain in a highly personalized manner. R8 reported, “Grief means I feel acute pain, a sharp pain...”, and R5 reported, “I was really in a great depression… most of the time I will cry alone.” While expressing and describing grief was actionable for most, some of the respondents were unable to articulate their grief experience. R7 for instance said “Ok, em, ok, it feels sad that this person is not around (M...), guess you’ll miss um...his guidance and advice (Ok...), but other than that I can’t think of a.. Can’t think of anything say...very traumatic ah...”. The individual could express the cognitive loss but was unable to express the emotions that went with it. In the respondent’s voice and manner the sadness was apparent but they were unable to express the depth of their emotions because their family saw crying as a ‘luxury’ and that they needed to be logical about the situation.

An important emotional impact of death is that it generates within human beings a sense of helplessness and being overwhelmed by the situation. “I was very confused at the time, I particularly like blank-out” R4. “I couldn’t cope with it” R2. “I wasn’t very well prepared, I broke down” R8. In remembering the death of their loved one during the interviews, some respondents still displayed an emotional reaction to the loss by tearing up, stuttering and other minor physical cues. However, the lack of external displays of grief does not indicate a person in unaffected, the opposite may be true. R3 who faced the sudden loss of a sibling stated “it’s like being in a situation, being and seeing from the outside what is actually

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happening. It's like I didn't feel part of the…I felt like I was watching a movie. I didn't feel that I was part of the... one of the actors in that scene. I felt like I was standing out of the whole thing and I was watching what was happening, because I couldn't believe what was happening before me….. I may not be able to, would have been able to... would not have been able to handle myself at that time. So, I don't know, maybe it's a system working within myself that took me out of that." Respondent R3 was hurt by the situation so much that till today she is able to recall the moment and feel a similar sense of pain. But at the event to others she seemed in control and slightly aloof. This may be very much part of Asian cultures where those in charge need to appear strong and in control, therapists approaching this situation need to trend lightly to ensure clients have the space to manage their internal state.

Psychologically, this can be seen as a sign of the individuals' defense mechanisms reacting to the painful situation and a sense of disassociation is generated. This feeling of numbness or aloofness allows the individual to function, albeit somewhat mechanically in this situation, temporarily locking down the otherwise deliberating emotions.

In terms of anticipated death, emotional expressions of loss that was reported was no different from when there was no prior warning of the death. R14 who was caring for her terminally ill mother was still surprised at the moment of death "you were prepared, but did not expect it to really come that fast la, it was so sudden, so sudden, ya, and your immediate reaction to it was stunned, shock and you know, you just can't cry, right?' Respondent R2 who was in hospital with her father experienced a similar sense of overwhelm, "… my dad is gone.. there was a lot of blankness is like, the cold you know this thing that he is supposed to get up.. never got up. I cannot think." Despite being the main care-giver, despite being hospitalized and aware on a cognitive level of the impending death of the loved one, the actual moment of death is still a uniquely overwhelming experience. The anticipation of the death seems to have little impact on the actual emotional experience of the moment of death. Reasons for this is layered and varied ranging from the loss of a role of care-giver in the family, feelings of guilt related to robustness of caregiving, physical loss of the individual and loss of a sense of identity and purpose.

Among respondents, reactions to the death was reported to be mitigated by the sense of responsibility that they bore to making arrangements and looking after the last rights. Respondent R14 for instance had to maintain calm while her younger sister could kick the wall and shout at people around her. Respondent R2 related that she had to keep it together for her mother's sake. At the time of the funeral she could not give in to the grief as her mother needed her to be strong. Even in grief respondents were empathetic and aware of the needs of those around them, tampering their responses to support those they perceived as more needy around them.

Aside from emotional control, the roles one plays in the family also influences expressions of grief. When a key family figure is gone, the role has to be taken over by surviving members. R11 as an eldest son felt keenly the new responsibilities on the death of his father, "Er I was I was sad, the thing that immediately I..I feel that I am the er....responsibility, to...to handle, all my younger... My brothers, and uh and and the children, and and..to settle the.. er.. all the..job after he died." The need to fulfil obligations and care for those around, to an extent blocked an individual's ability to openly express their loss. So while all felt loss and sorry, the emotions are not expressed the same way across the board. Cultural and societal roles mitigate the freedom respondents had to express their grief.

The range of emotions experienced by those in the first few hours of grief covers almost the entire darker spectrum of emotions; from pain to numbness, even hidden relief. It is therefore best to not make assumptions of what the grieving should be doing or how they should be acting. The impact can be expressed or internalized but the impact of the loss of a loved one is there.

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In the face of such personalized uncertainty, the rituals, prayers and cultural activities surrounding funerals provides a sense of structure and guidance. Which is sorely needed in a time of such acute upheaval.

Respondents reported that prayer was a common coping mechanism used to mitigate the pain of bereavement. Common elements in the prayers to cope with bereavement included a prayer for guidance, a sense of companionship or strength to face the painful situation that they are in. Respondent R1 stated that she prayed that for "...the wound to heal, you have to have some kind of a guidance or some support or something to that extent for me to heal from within." R10 prayed for a sense of 'relinquishment' asking God to support her in moving forward. She was able to hold it together and not have a breakdown at home because "but God really was with me, with me la. God was with me." Respondent R15 stated that the chanting and the many days of prayer brought the family together. The chanting gave her a sense of "being connected to the ground, connected to ourselves, connected to the, the Buddha" thus supporting her in the process.

While prayer is a common element in the bereavement process, the nature and focus of prayer between the religious groups seems to differ. For instance, the Christian respondents reported that in prayer, they connected with Jesus to save the soul of their loved ones: "I hoped Jesus will come and save his soul" R9. The Hindus, who believe in the rebirth of the soul in their prayers, focused on being connected with the soul of their loved one as the soul continues its journey after death: "I speak to them through my prayers"R2. The Muslim respondent R12 believes that the prayers help the soul of the departed to find peace and gave a sense of control in the situation. He stated "..for those who really, really believe that, yes this is what you should do, you know, when people who pass on, and that you're gonna help their soul, and stuff like that, this is what you should do. So, in that sense, you know, because you can't really help anybody when they've, they've, you know (passed away) passed away right. And if you think that you know this might help by saying a few prayers here and there and then you feel like you're doing your part la." From the rituals this respondent received a sense of purpose and direction.

The Buddhist focused on the sense of community, continuance and comfort provided by their prayers and chanting, R6 'We are coming together, offering prayers." The Taoist had rituals to ensure the wealth and happiness of their loved on after death. The difference in the nature of their prayers is most likely due to the different views of death and afterlife held by each religious group. The benefit of the prayers as experienced by the respondents therefore ranged from a sense of community, personal support, to empowerment from assisting the souls of their loved ones, to a continued sense of connection with their loved one.

Whatever an individual's personal opinion of religion and rituals for death, respondent R7 said it very nicely"… the departed has departed, and you know it's just the living needs some way of coming to terms with their grief and we've got all these funeral rituals... if it makes my mom and family feel better, then they are okay."

Among the Buddhist respondents, there was a willingness to address the topic of death before the loved ones passed on. Planning for the passing and subsequent funeral was reported by all respondents. According to R6, "I already discuss with him before that, when he was alive we sort of discuss what I want, what he wants for his funeral." With the numerous taboos, sensitivities and cultural norms in the Asian context, this is neither a normal nor an easy conversation. None of the respondents from the other groups reported similar conversations among family member. On a personal level, most of the respondents reported that they have not had discussions of death issues with their family.

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Discussions of death did however occurs on a more philosophical and spiritual level among the Muslim and Christian community, where death reactions from a religious perspective was discussed. The Muslim respondents in particular reported having deeper discussions on death and the relationship between death and religious belief. This philosophical view of death allowed for a more cognitive processing. It is the respondent's belief that the philosophy supported him in moving forward from his personal loss.

Funeral rites return a sense of purpose and power to the individuals on two distinct levels. Firstly, there is a solid belief that the rituals have a positive impact on their loved one's after life. A Hindu respondent went as far as having a second funeral ceremony conducted in India. The individual felt that upon having the second ceremony that was more traditionally complete and detailed, he had truly advanced the liberation of his loved one's soul. Respondent R10, a Catholic shared that, "It was frustrating that we could not do anything, but we prayed for her soul that she will have a better time in heaven."

The second and more pragmatic purpose provided by funerals is that the funeral itself forces the grieving into motion. It provides a clear purpose that allows grieving space, to avoid emotional overload because they are dealing with physical and societal needs. As reported by R5 who stated, "I was holding on, you know, short of holding on to it lah. Because I have to make sure everything is done perfectly well." The need to conduct the funeral, to an extent, allows the space to process and filter emotions so that individuals can function without being overwhelmed immediately after a traumatic loss.

While the rituals helped respondents focus on what needed to be done, some respondents felt that they rituals put extra pressure on them and interfered with their grieving process. "When my mother-in-law passed away I had no time to cry." R1. People were coming to her home all day, there were things to do. The respondents were unable to make time for themselves to grieve. There is a clear need to strike a proper balance and ensure that grievers have space for themselves to do what is necessary for the funeral and the family around them.

One of the most common problems noted by the grievers was adapting to the change of role that the death of the loved ones created. Death impact individuals and families in every aspect of their lives--emotionally, mentally, physiologically, financially and spiritually. In the collectivistic cultures of the East, death creates a tremendous shift in an individual's role in their family. Respondents were at loss when they are faced with new responsibilities, on top of the grief-reduction in household income, changes in maturity and emotional responses that were required of them. This was especially apparent in the loss of a parent or the loss of a major care giver in the family. Children felt the need to be "tougher" than their surviving parent and to support them in their time of need. Others felt as though, "I was just thrust into this role that I couldn't.. I couldn't turn back you know" R2.

Across cultures at the time of need, friends and family were a source of support and comfort. Human presence, kind empathic words and touch are important in times of need. While all participants were supported by family and friends, it is important to note that Christian participants received direct support from their church. Christian respondents recognized their church pastors, religious counselors and support groups as being an active part of their grieving process. The Buddhist and Hindu participants, while receiving a great deal of support from family, friends and the rituals of their religious practice, neither identified their place of prayer, nor their prayer group, as an active source of support.

Eight respondents however reported that while family and friends were supportive, their support was ineffective at the time. Use of platitudes such as "I know how you feel" and "they are in a better place" was not helpful in minimizing the experience of grief. One respondent felt that there is an artificial social guideline to how long and how much a person should grieve. The misconception that one should recover fast led to inappropriate and hurtful comments being made during the funeral.

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Respondents reported that friends and family who attended funerals seemed to be confused on how to console those in grief. Some of the more unhelpful statements by family and friends are as follows. "When someone around you dies, the people around you keep telling you don't cry. Don't cry for your parents, don't cry for your mom, don't cry for your brother" R10. If one cannot cry in mourning, when else can they cry? It is perhaps good to realize that when in funerals the words 'Don't cry" translates into "I am uncomfortable with your tears, so please stop crying." The supports are asking grievers to stop crying not for their sake but for their own.

Statements such as "be strong" to those already taking charge and leading the funerals placed extra pressure. Contrary to the healing of the respondents. They felt that telling someone to stay strong was not supportive and locked them in a role they were unprepared for. Respondent R11 reported "I have no idea how to let go of being strong" and felt that they had still not properly grieved.

Grievers reported that they were inundated by platitudes such as "Are you okay". Although the respondents were not okay, what else they could say except 'I'm fine thank you.' Griever also reported feeling unsupported when people offered help without really meaning it. ".. they tell me what they feel is respectable to say for example, please let me know if you need anything. I believe that is a scripted speech." R15. Vague statements of support and generalized offers of help did little to actually support the respondents, who would be rote give negative responses to offers to help.

Grievers also felt pressured and alienated by having to repeat what happened over and over again. When friends and family visited, they often out of natural curiosity asked what happened. Repeating the story was painful to the respondents. It created a feeling as if their own emotional state were being disregarded by the supporters. Gossip, passing negative remarks and judgements made during funerals within ear-shot distance of the griever is obviously the exact opposite of support. These are negative habits but given that even funerals are social gatherings, it is an unfortunate outcome of being unable to filter the guests, where some carry their bad behaviors with them.

Most helpful behaviors experienced by grievers was when people were there for the bereaved. Respondents felt what was most beneficial was having a friend or a family member by their side, providing comfort. "People wanted to spend time with me," R1, "People actually took the time to get to know me and listen to my thoughts" R8, "Just being there is important, just think I am there." R14. The presence of genuinely caring individuals or a warm hug provided the most positive support. When griever felt that they were not being judged or criticized, was when they were most consoled. "She said look you don't have to stay strong, you don't have to do anything. If you want to cry – cry… if you want to scream-scream. Do anything you want and there is no how to do this thing." R13. The unconditional acceptance of the griever's needs and behavior conveyed the most active support on those in grief. Finally what was most helpful post the death of a loved one was consistent support. Not just turning up during the funeral, but being there and being available over a period of time to support the grieving was important.

The final aspect of the culture of grief looked at were the meta-physical manifestations of loved ones in dreams and various symbolic forms. These symbols were obviously very influenced by the religious belief and spiritual philosophy of the individual. Dreams of loved ones seemed to be common occurrence, and the dreams shared corresponded with the cultural and religious context of the dreamer. For a Muslim respondent, the visitations of the departed in dreams was not a good sign as it meant that they had blocks in their journey. Other religious groups seemed to see it as a positive occurrence. They saw their loved ones in familiar settings, such as the swing in the back garden, in their bedrooms, at places of prayer, and during special festivals. These kinds of dreams gave respondents a sense of a continued bond with the deceased and were in themselves a source of comfort. However, unresolved issues with

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the deceased were a source of disturbance. Two respondents dreamed of their loved ones in need, crying and lost. The dreams seem to correspond with the relationship of the living to those who had deceased. Perhaps as means by which unresolved issues can be processed and even overcome.

INTERTWINING GRIEF AND RECOVERY

The process of grief emerging from this research is that of an intertwining modal, where the socio-cultural environment and the grieving process is very much intertwined. The death rites and rituals of cultural groups are perhaps not so much for the benefit of the deceased but for the benefit of those that they leave behind. Certain rites of cultural group facilitate both the grieving and the process of moving forward in the bereaved journeys through life.

The sharing of Damma in Buddhism allows individuals to feel that they are actively supporting the soul of the departed as it is carried on its journey. The prayers of the living mitigate and ease the burdens of pain and sin carried by their dearly departed. Prayers of all the groups while aimed at the departed, have the more practical impact of giving those in grief a feeling of purpose. It has, can and does have an impact on the positive fortunes of those who have departed. This is a huge buffer to of the feelings of hopelessness and helplessness, providing guidance, purpose and a sense of direction in an otherwise unmanageable situation.

The processes are intertwined with the act of grieving and the activities of reconciliation with a new lifestyle without the loved ones, occurring together in mentally healthy individuals. Some acts may require the focus to be more on an emotional grief journey, but both states of a person move forward.

Moving forward and emotional processing of grief are not the only two intertwining threads in an individual's journey through grief. Other threads of shame, loss, fear, guilt and so forth are intertwined in the individuals' grief experience. Methods of managing these darker emotional threads can be sourced from spiritual practices, wellness plans and therapeutic interventions. It is in the experience of the author as a counsellor practitioner whom has worked with grief that the negative emotions can be elevated to an extent, if individuals are able to accept their grieving as a sign of the respect and love that they have of their loved ones. Regardless of time and space, the reality that the ones we love are gone remains. The pain and loss is unique and will last as long as we live. If individuals are able to see their grief not as a continued sign of trauma, but rather as he legacy of love and reverence that they carry for their loved one, the moments of STUG (Sudden Temporary upsurge of Grief) can be seen as moments of bitter sweet nostalgia and moments of reverence. Also reflecting the importance and the enduring impact of the one who has passed on, rather than traumatic reminder of death.

Culturally and traditionally, there are events that honor the passing of our loved ones. From Cheng Beng among the Chinese, to yearly death anniversary prayers of the Indians, it is to achieve the purpose of giving reverence to the memory of those who have departed. These traditions make individuals pause in their busy hustle and bustle of life to give moments of deep importance, respect and reverence to the memory of individuals who impacted us. These traditions allows for the intertwining of grief, family unification and reconciliation to occur in an organic and family focused manner.

When these threads become entangled, the grieving process may be choked to a halt. The halting of the grieving process, potentially interferes with an individual's ability to move forward and function in their everyday life. Thus the situation develops into complicated grief. Complicated grief here is in reference to grieving that interferes with daily functioning.

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Individual philosophy on death and bereavement, which may be very much influenced by religious beliefs, is a critical factor that allows for the processing of bereavement in a healthy manner.

DISCUSSION: IMPLICATIONS FOR COUNSELORS

In working with one of the most traumatic times that an individual may experience, the first call to any counsellor, social worker or supporter is respect. Respect for the individual's grieving process, their personal beliefs, the unique emotional state they are in and respect for the culture that is governing the last rites. Counsellors may not believe in the faith, philosophy and religion of the clients. But therapists, in order to work with grief and loss must be able to respect the rights of the clients to believe and worship as they see fit.

The second criteria is to recognize and understand the client's current state of mind. Any intervention therapy is only effective if the client is functioning both emotionally and mentally. Clients who have just experienced loss are in a state of crisis. They are emotionally overwhelmed and their normal coping strategies are unable to meet the unique challenge of grief, leading to a state of cognitive and emotional disequilibrium. This is a classic sign of disequilibrium that is associated with crisis management. The death of a loved one is a state of personal crisis and individuals to an extent must be treated as if there are in crisis. In the first few days after a loss, therapy focuses on Crisis Management rather than counselling per say. The role of the counsellor is to ensure immediate safety of the client rather than trying to start the healing process. The healing process only begins after the state of crisis is over and this can be a few weeks or even a few months after the funeral.

The third criteria needed by therapists in multi-cultural grief work is to be open, curious and courageous. An open and curious therapists is willing to learn about other religions and cultures. While it is impossible and not recommended that one try to learn everything about other religions, it is crucial that the therapists have some knowledge of the basic principles of the various major religions in their area or country. The researcher will always recall a pointed lesson that occurred in a group therapy session, the facilitator said to a member, "How do you think God would feel about that action." The participant responded "I'm a Buddhist, I don't believe in God." A very awkward moment followed that statement, as the facilitator stammered and changed the subject. If a therapist is going to embark on any form of spiritual therapy, that basic understanding of major concepts is critical for long term success. Courage is needed because we are talking about religion. We are breeching a topic in therapy that has caused wars through the centuries. But when it is relevant to the client's healing we need to be courageous enough to address the issue in a supportive and respectful manner.

From the experiences of respondents shared across the different religious groups, it is apparent that while grief and bereavement is a universal experience, the religious, social and cultural context of those going through grief makes it a highly unique experience (Cowles, 1996). This uniqueness calls for the need for sensitivity and understanding of cultural and religious norms when managing grief. The universality of grief response can be seen by how all spiritually inclined respondents used prayer as a key coping mechanism. The differences between groups arose in terms of what was the content of the prayer and the meaning the prayer carried for the individual that was highly influenced by their religious philosophies. In therapy it is probably prudent to check with spiritually inclined clients on how they can incorporate prayer into their healing. Assuming that prayer is universal and that individuals approach prayer in the

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same way with similar intentions (especially if the therapist is from the same religious group) can lead to the activity missing the mark and the client feeling that the therapist has imposed their beliefs on them.

In terms of coping current literature indicates that the Dual Process Model suggests that in managing grief, individuals either coped with the loss caused by the death of a loved one, or with restoration-orientated coping that refers to the reorganization of life. It's only after they masters new skills required in meeting daily challenges post bereavement (Stroebe & Schut, 2001 as cited in Neimeyer, 2001). Current literature suggests that grievers alternate between loss and restoration orientation, with both orientations a necessary part of grief work. The findings of this research suggests that in the collectivistic cultures of the East, especially in from Buddhist and Hindu perspectives, the rights and rituals focus on loss and restoration simultaneously. The Buddhist transfer of merit and the offerings of the Hindu's to feed the needy as part of their funerals, address both orientations. It addresses loss as the ritual is done for the deceased and the restoration orientation as it adds meaning to the rituals besides fulfilling obligation to culture and society. The significance of the rites and rituals surrounding death, therefore, play numerous roles in ensuring the continued welfare of the living.

In dealing with the grieving process incorporating activities unique to that culture and religion may have a more intense impact than simply relying on generic activities such as journaling or simple service activities. Feeding the needy in the name of those who have passed on is highly significant to Hindu's and Buddhists. Reciting the Al-Fatihah is important to the Muslims. Reading the Holy Books, chanting, activities in memorial can all be incorporated into a comprehensive grief management plan with clients, that is highly personalized and meaningful to them.

In Western literature, the continuing bond that an individual maintains with the deceased is viewed at times as an unresolved source of grief (Bowlby, 1980) or a part of the global meaning making mechanism of certain cultural groups (Benore & Park, 2004). Findings of this study were more aligned to studies on grief done in Japan (Klass, 2001) which found that the continuing bonds, impacted moral, social and spiritual growth. Both Hindu and Buddhist respondents found continuing bonds with the deceased a normal part of life and karma. Their task in mourning is not to move on, instead it is to "find an enduring connection with the deceased in the midst of embarking on a new life" (Worden, 2010, p.50). This means that it is important that therapists understand what the continuing bond means to the culture and religion the client. This is a nuanced difference that can in the opinion of the researcher be critical to the healing of the client.

How the therapists develops the continuing bond between the client and their dearly departed is important. Especially in terms of catching the client's internal view of the death and the afterlife as well as the theoretical or therapeutic approach. Individuals may see themselves in ways such as carrying on the legacy of the departed, as the one who remembers, as the one who has picked up the burdens, source of spiritual solace, as a guardian and so on. Spending time exploring and understanding the clients view will allow for a robust development of the continuing bond that is match to the client's needs.

Mental health workers need to appreciate that this may mean what can be considered delusional or imaginary by other cultures, may be wholly culturally appropriate to the grieving individual. With the exception of the Muslim respondents who saw dreams of the departed as a sign that not all is well on their journey, most of the religious respondents took comfort in dreams and even saw having visions of the departed as a positive occurrence. Dreams, visions, signs and ghosts may be normal and appropriate to the clients world view and not in any way a sign of developing mental aberrations. Therapists need to process that at times 'supernatural' occurrences with a sense of confidence and detachment are only pathological if they interfere with the daily functioning and the mental health of the client. If these events

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do not interfere with a client's functioning, therapist need to monitor the situation, be respectful to the client's needs (silence is golden), listen empathically and focus on the emotional content of the client's story rather than trying to align cognitive and physical beliefs.

The likelihood of individuals to seek emotional and psychological support depends greatly on individual belief systems, family support, support facilities set up by religious groups and the perceived availability of professional services. Among grieving Malaysians, there is still a high resistance and lack of awareness of counseling services for the grieving. Those who grieve will attend prayer meetings, general sharing session and talks offered by their religious groups, but two participants, both who were already involved in helping services reported that they approached a counselor for support.

In order to reduce the stress created by funerals, it is important for mental health workers to have a conversation of the best practices during a funeral. First off avoid platitudes, be genuine and if you do not know what to say just say "My deepest condolences" and provide a warm hug. No other statements is needed when individuals can lend active presence. At times, we can just stand beside the mourner for a period of time allowing the person to know they are not alone without needing them to say more. If individuals sincerely want to provide help it is the advice of the researcher that we ask specific questions. Instead of asking the general "Do you need anything" ask "When was the last time you ate / had a drink / slept?" People are more likely to give correct information to well-thought questions. From that specific answer, you will know what needs to be done to best support the individual in grief.

There is a definite need for counseling to be provided to grieving. Such service, to be effective, must cover the grief process, the cultural and religious idiosyncrasies of their clients, as well as, address the changes in the roles of those going through grief. Dreams and manifestations of the deceased need to be understood within correct cultural contexts in order to avoid misinterpretations of the phenomenon.

The role of spirituality and religion in mitigating and processing grief cannot be denied. It was perhaps best expressed by respondent R3 who said, "I know he is there. If you think death is removing, completely wiping out somebody's existence, soul, then you should grieve." Cultural and religious grounding allows the perceived bond with the loved ones to persist after death. They provide support and structure in an overwhelming situation and are an active part of individual coping mechanisms. Thus it is the responsibility of those who venture into grief work. To recognize and appreciate the influence of culture and religion in the healing process, to gain relevant knowledge and develop the skills that will allow for active support of clients.

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Chapter 57
Losing a Friend:
Social Media's Impact on Child and Adolescent Grief

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ABSTRACT

This chapter focuses on the role of social media consumption on older children and adolescents during the bereavement process of a childhood friend. Using case study methodology surrounding an 11-year-old girl's tragic death, surveys were administered to peers and semi-structured interviews with peers, counselors, and the deceased's mother were conducted in order to collect in-depth information on the opinions and feelings of those utilizing social media as they cope with loss, specifically the loss of a friend. The idea of virtual mourning is significant to explore as social media is ubiquitous for most older children and adolescents.

INTRODUCTION

The Loss of Kate

It was July 26, 2015, and it was a beautiful, sunny day in southern Indiana. It wasn't a day a kid should die. It was a day to play. And that's what Kate Bruggenschidmt was doing. It was a day of playing softball and playing at a friend's home. Unbeknownst to her parents, Kate drove a large all-terrain vehicle (ATV) for the first time. She wasn't wearing a helmet. Kate lost control, and the ATV overturned and rolled on top of her. Kate was 11 years old.

According to the Centers for Disease Control and Prevention, the leading cause of death for children is unintentional injuries sustained from car accidents, drownings, guns and other sources. On average, over 12,000 children 0-19 years of age die each year in the United States from an unintentional injury (CDC, 2017).

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Figure 1. Kate Renea Bruggenschmidt. March 30, 2004 – July 26, 2015. (Used with permission by parents Eric and Ashlee Bruggenschmidt)

The fight between Kate and the ATV was a mismatch from the beginning. The ATV, weighing in at 750 pounds, was a far heftier load than her 73-pound frame which went unprotected.

"When you get the news someone you are close with has passed away, it's not easy," said Layla, a 13-year-old who was 11 at the time her friend Kate died. "This was the same friend I'd danced in my living room with, made science experiments with in the kitchen and sold art projects with on the sidewalk. This was the same friend that I had been making plans to play sports with and have classes with in college. While that might be a tad unrealistic, at the time we just thought our fun never had to end" (Personal communication, July 15, 2017).

Layla said while the news would be horrible no matter how she heard about it, she's at least glad she got the news from her mother in person about Kate's death. Kate was a kind, well-loved little girl, and news of her passing spread like wildfire on social media. Many of her friends found out about her death

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by seeing postings on Instagram and Facebook. Layla worries about this modern-day reality of news dissemination, as she doesn't feel it's personal enough to present such tragic information. She thinks about how the family or close friends who found out through this medium must have felt, and she wonders if people should wait longer to post tragic news for the sake of feelings and accuracy.

She does believe it was helpful, though, for many people to post messages and photographs as they were mourning during the days, weeks and months following Kate's death. After Kate was gone, her Instagram account was inundated with messages. "Lots of humanity finds comfort in posting pictures in tribute to a lost one. In a way, it's like you are writing *to* them. If it helps a person out to post these, then it's good because there's really no other way to talk to them," said Layla (Personal communication, July 15, 2017).

Research findings support this observation. A number of scholars have noted that social media commenters rarely interact with each other on a deceased's profile page and instead prefer the feeling of speaking directly to the deceased (DeGroot 2008; Dobler 2009). Moreover, other areas of Layla's reflection help to elucidate key components of the process of grief studied and analyzed in this chapter: attempts to find meaning when losing a friend, how older children and adolescents crave a safe space to express sadness and vulnerability, the desire to keep the memory of a loved one alive, and how social media plays a thread throughout all these.

Chapter Focus

No person is immune to grief. It defies age, gender, race and sexual orientation. It does not adhere to rules of logic. It cares not for geography nor good timing. Losing a loved one may have occurred from diphtheria or cholera years ago as opposed to cancer or a car accident today, but the feelings of loss remain painful, natural and life-altering. For older children and adolescents, those spending hours upon hours every day on social media, it is worth learning what grief looks like and how technology may be impacting it.

Young people are the fastest growing adopters of new online platforms, with nearly a quarter of teens reporting being online 'almost constantly' (Lenhart, 2015). As such, it becomes necessary to consider how they communicate surrounding a tragedy which could impact their emotional and behavioral well-being, in particular when the grieving process may be removed from their home life and instead involve a peer. This chapter in no way intends to negate or lessen the pain and lifelong impact a child experiences losing a parent or other relative. It is indeed very sad that one in nine Americans lose a parent before age 20, and that most people are exposed to at least one violent or life-threatening situation during the course of their lives (Ozer, Best, Lipsey, & Weiss, 2003). As people progress through the life cycle, they are confronted with the deaths of close friends or family. Most of the literature involving children and adolescents experiencing grief depicts the circumstances surrounding the death of a parent (Worden, 1996; Melhen, et al, 2011), not a peer. What is known, in those cases, is that another parent or close relative is often able to step in and assist the child. When a child or adolescent loses a friend, however, there may be less understanding of the impact if much of the emotion is not directly impacting the family household.

As Sylvia Buck, director of counseling at a private university said, "Both kinds of loss can be deep and intense, but they are very different. Losing a peer does not seem to be the natural order of things," she said. "Many young people seem to grieve the loss of a grandparent more easily than parents would expect, for instance," she said (personal communication, August 30, 2017). Karen Stenstrom, who leads grief sessions for adolescents, agreed and said, "It seems that they rely on the other parent and extended

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family to help work through their grief" and are " … actually helped by the face to face hugs and tears" (Personal Communication, September 1, 2017).

But what about children and adolescents confronted with the death of a peer? The case study presented here allows for a structured and purposeful attempt to gain knowledge about the relationship of online communication during the process of grief. The protocols related to online grief are still being developed and the norms surrounding it continually constructed, but patterns begin to emerge.

BACKGROUND

The linguistics of bereavement, grief and mourning overlap in how they are used in everyday vernacular. At times they are used interchangeably and even inconsistently, so it is imperative to identify nuances of each. For purposes of this chapter, *bereavement* may be thought of as the actual fact of the loss of a loved one. The term *grief* is referred to in regard to the emotional, cognitive and behavioral responses to a death. *Mourning* is referred more specifically to the behavioral manifestations of grief, which are influenced by social and cultural rituals, such as funerals, visitations or other customs (Zisook & Shear, 2009).

The case study laid out in this chapter was chosen in part because the accident took place in 2015 and allows for an opportunity to look at social media practices of those from the acute grief reaction through several years post-accident.

Stages of Grieving

The first major theoretical contribution on grief and mourning was provided by Sigmund Freud in his 1917 seminal work titled *Mourning and Melancholia*. In this paper, Freud defined mourning as the reaction to the loss of a loved one and called that loved one "the love object", showing a focus on the process and need for the survivor to slowly lessen his or her emotional attachment to the deceased (1922). While no exact science dictates how the process unfolds, there exists a predictable course according to Freud, and it involves breaking the emotional ties that bind those surviving to the deceased. Initially, there is much confusion and acute grief upon news of the death. Emotions and behavior are often erratic at this time, and this stage according to Freud could last anywhere from a few weeks up to three months. A less disruptive stage typically follows over the next one to two years.

After Freud, a few theories were found to show grief in a series of fairly predictable stages (Kübler-Ross, 1969; Bowlby, 1980; Parkes & Weiss, 1983). Elisabeth Kübler-Ross, a Swiss-American psychiatrist who passed away in 2004, is widely known as the individual associated with the five-stage response on awareness of terminally ill patients of their impending death. Eventually this stage theory of grief was generalized to a range of losses including reactions to death or even by children to parental divorce (Bowlby, 1980).

Kübler-Ross's model of adjustment to death is still used by physicians, psychologists, counselors and others in understanding the complicated process that the death of a loved one brings. The five stages are part of the framework that make up our learning to live with the loss of a family member or friend. The five stages are 1) denial; 2) anger; 3) bargaining; 4) depression and 5) acceptance.

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1. *Denial* is the buffering stage best phrased by the idea of *this really can't be happening*. It is a refusal to accept facts, information or any reality relating to the situation, whether consciously or unconsciously. This can be a healthy defense mechanism as long as it is temporary and an individual moves on from this toward a more real understanding of healthy acceptance.
2. *Anger* can manifest in a number of ways. Some people may be angry with themselves, or they might be angry with others they feel were part of causing the death, or they may be angry that others don't understand what they're going through. They can even be angry with the person who passed away for causing the pain.
3. *Bargaining* involves attempting to bribe, coerce, beg or otherwise bargain with whatever higher being the person believes in. This stage is an ill-attempted expression of hope that the death is somehow reversible or that we can control the ultimate outcome.
4. *Depression* is a type of acceptance with emotional attachment. It is natural to feel sadness, regret, fear and uncertainty, and it shows that the person has begun to accept the gravity of the situation.
5. *Acceptance* can be mistaken for happiness, yet it is often marked by withdrawal and calm. It is a stage identified with some detachment of emotion and much objectivity.

Another framework widely utilized in more recent times is that of Theresa Rando's six steps for incorporating the reality of mourning into one's life (Rando, 1993). As with the others mentioned here, this framework is not linear, but does provide a somewhat natural progression toward healing. Rando's six requirements for healthy mourning include: 1) recognition of the loss—acknowledging the death and understanding the death; 2) reaction to the separation—experiencing the pain and identifying, accepting and expressing reactions to the secondary loss; 3) recollections of the deceased—realistically reviewing and remembering the deceased, as well as reviving and reexperiencing feelings; 4) relinquishing of attachments to the deceased; 5) readjustment to the world without the deceased; and 6) a reinvestment of energy into other people and activities—putting emotional energy into new people and new goals. Paramount to Rando's framework is that the six requirements are collectively necessary elements to work through for the bereaved in order to reorient themselves to a reality that incorporates the loss they have experienced.

How this framework works with older children and adolescents, and how technology fits into the equation, makes the subject feel a bit like a labyrinth with moving passageways. Although these older children and adolescents stem from a generation defined by sending and receiving messages online, many educators and parents express frustration and dismay as they sense rapid declines in the ability of these individuals to express themselves verbally and in writing. Moreover, when they do express themselves, the act of the expression appears more important to them than whether others can understand what was, in fact, intended to be expressed (Feiertag & Berge, 2008).

Some of this may be attributed to what has always been known: the teen years are tumultuous, confusing and emotion-ridden. Over 100 years ago, G. Stanley Hall (1904) proposed that adolescence is inherently a time of storm and stress. Teens are no longer children, yet neither are they adults. Other than infancy, no developmental period is so filled with change as adolescence. While the teens may be the same in stature as an adult, they typically do not have the emotional maturity to process their feelings.

Grief is a complex emotion adults struggle with, so it is understandable it may be exacerbated in children and adolescents. Furthermore, many adults feel inept in helping young people cope. It is not that adults are being insensitive, but they may simply lack the skills to support youth in their own grieving process as they often discourage teens and pre-teens from sharing their grief or rush them along in

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the process wanting to see them back to their happier selves. Bereaved teens may feel as if they need to pretend they are fine. Meanwhile, these children may be experiencing psychological, physiological and academic pressures, all of which can amount to a vicious cycle in an already multifarious grieving process.

"The reality is that you will grieve forever," said Kübler-Ross (1969). "You will not get over the loss of a loved one; you will learn to live with it. You will heal and you will rebuild yourself around the loss you have suffered. You will be whole again but you will never be the same. Nor should you be the same nor would you want to."

So how does this play into technology? While teens have always been categorized, fairly or not, as moody and with a tendency to disassociate themselves, social media has changed an element of this. The year Kate died, CNN reported that teens spent an average of nine hours each day on some sort of media (Wallace, 2015). While they may retreat to a room in the house to be alone, not necessarily breaking down the stereotype of moodiness or isolation, they are only alone in the physical sense. They may be in communication with several – or hundreds – of individuals. The digital bond brought about by social media can at times, in fact, assist older children and adolescents in escaping emotional struggles they are facing offline (Turner, 2015).

Methodology of Study

Researcher Robert K. Yin defines the case study research method as an empirical inquiry that investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used (Yin, 2014).

Case study research has existed since the day of Charles Darwin's biography (Stewart, 2014). Growing in scope and reputation, case studies offer a means for in-depth insight. Case study research is a versatile form of qualitative inquiry when striving to understand complex phenomena (Yin, 2014). A major feature of case study methodology is that different methods are combined with the purpose of illuminating a case from different angles. Snow and Anderson (Feagin, Orum, & Sjoberg, 1991) asserted that triangulation can occur with data, investigators, theories and methodologies. Stake (1995) further asserted that the protocols used to ensure accuracy and alternative explanations are called triangulation. The need arises from the need to confirm validity of processes. In case studies, this could be done by using multiple sources of data (Yin, 1984).

According to Yin (2014) a case study design should be considered when: (a) the focus of the study is to answer "how" and "why" questions; (b) you cannot manipulate the behavior of those involved in the study; (c) you want to cover contextual conditions because you believe they are relevant to the phenomenon under study; or (d) the boundaries are not clear between the phenomenon and context.

This study revolved around the death of a child in a Midwestern city with a county population of 62,500. For this study, data was gathered in both survey form and interview form. Data for the study was gathered in the following manner: a total of 198 youth participants from a Midwest region of the United States participated. Each had experienced grief surrounding the death of their friend Kate. In addition, Kate's mother, Ashlee Bruggenschmidt along with three grief counselors discussed their thoughts in regard to social media usage by teens during the grieving process.

While experiences of grief resulting from bereavement are complex and can be unpredictable, it is accepted that under normal circumstances, the average person is able to re-establish a sense of physical and emotional equilibrium after 6-12 months (Kübler-Ross, 2005). The respondents for this study were

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selected because the timeframe allowed them to have sufficient time to reestablish patterns, yet the grief process was not far off in their memory and may, in all actuality, still be quite present.

As part of the case study, the Critical Incident Technique (CIT) provided a means for exploring feelings. CIT was developed in the 1940s by John Flanagan, an American researcher in the field of occupational psychology (Flanagan, 1954). CIT is a form of qualitative research offering a practical approach to collecting and analyzing information about human activities with significance to certain activities. CIT is now widely recognized as an effective investigative tool (Woolsey, 1986) and has been used in numerous social science disciplines (Query & Wright, 2003).

CIT fits well with this research study, as it centers around a major crisis, and possesses a subset of a personal crisis, which represents aspects of the human experience significant to the individual concerned. For this study, child and adolescent respondents recalled experiences of social media usage when posting about the death of their friend Kate.

In terms of limitations, since the method relies on memory, the passage of time may dilute reporting accuracy. In addition, a relatively small sample size could skew results. This chapter attempted to frame this case in terms of both a story – a case study and not numbers alone – as "we live in stories, not statistics" (Gilbert, 2002).

The future research of this topic should include a sample size that is more diverse and larger compared to the one in this study. It would also be interesting to look into the differences between opinions based on specific social media, for instance Facebook, Twitter, Instagram and Snapchat, as this study combined all social media and didn't denote differences in the online social networks.

Data and Discussion

The case study used here has both an explanatory and theory-building purpose. The interpretive piece uses known variables and stages to provide historical explanation. Basically, in layman's terms, it was used to show an expected outcome in terms of stage of grief. It also serves as a deviant case study, which provides interest as new variables – that of social media – are introduced.

Table 1. Means and standard deviations of emotion-ratings using social media

	Communicating via Social Media 0-6 Months		**Communicating Via Social Media 6-12 Months**					
Emotion Expressed	**M**	**SD**	**M**	**SD**	**T**	**Df**	**P**	***D[a]**
Happiness	.49	1.12	2.04	2.19	7.31	107	<.001	1.38
Acceptance	.51	1.13	2.01	2.58	6.42	107	<.001	1.33
Pleasure	.55	1.31	2.87	2.9	8.32	107	<.001	1.77
Anger	.89	1.46	1.52	1.52	3.27	107	.001	.43
Confusion	3.91	2.56	2.41	2.46	-5.88	107	<.001	-.59
Sadness	4.04	2.43	1.78	1.8	-9.14	107	<.001	-.93

*D[a] =a Mean difference standardized by SD before induction.

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Table 1 shows that communicating via social media six months to one year after the death of a peer significantly elevated the emotions intended to be expressed of happiness, acceptance, pleasure and fondness as one sought to think of, remember or honor a friend. The table also indicates a significant decrease in social media's use to express sadness or confusion. The average absolute effect size of changes across the six emotions was d = 1.07 which is considered above an effect size conventionally seen as large (d = .8). Effect size, a quantitative measure of the strength of a phenomenon, is a basic descriptive statistic showing the power of the relationship between two variables.

In this case, it appears social media was utilized during the acute grief stage that occurs in the early aftermath of a death. It is that time when bereavement is intensely painful and characterized by emotions that are extreme in nature. It is a time when there is a preoccupation with thoughts and memories of the deceased and a difficulty in thinking about much else. In the case of this survey, respondents found utilizing social media significantly helpful in expressing their confusion (both of actual events surrounding the death and confusion over finding meaning and reasoning of the death).

Later, six months to one year after the peer had passed away, respondent found social media helpful in expressing more positive thoughts, a sign of natural progression through the stages of bereavement. Stenstrom said this is consistent with what she has observed. In particular, she noted the happiness and acceptance seen as anniversaries of deaths are highlighted on social media.

Jana DeCristofaro is a children's grief services coordinator at the Dougy Center, the National Center for Grieving Children & Families nonprofit based in Portland. She said the research data was helpful because it affirmed what she believed adolescents were feeling whom she had observed. "At the beginning, some have a difficult time accessing feelings of happiness while recalling memories," she said. . "They may be more engulfed with thoughts of the death and painful memories. Over time, they are better able to access positive memories and experience corresponding positive emotions while recalling those memories" (Personal communication, August 31, 2017).

Sylvia Buck agreed. The data " … make sense considering the normal flow of the grief process. People tend to need to express their sadness during the beginning of the grief process. Much later, it is very comforting and heartwarming to post pictures and tributes which memorialize loved ones" (Personal Communication, August 30, 2017).

While the stages are not rigid or linear, Kate Bruggenschmidt's mother, Ashlee, said, "I look back on my posts days after Kate's accident until now and I think you can see the stages of grief in my posts. I may have posted a song about denial or quote about depression. Then my friends, families and other parents who have lost a child may have commented or reached out and helped move me through that phase of grief or helped me to process my feelings and regrets. In the days following Kate's tragedy, we were so touched by the pictures, messages and outpouring of support that we received from Kate's friends, family and the community. The posts and pictures and online messages provided us so much comfort. Our hearts were shattered, but we felt so much love by the support of all of these groups via social media and texts. We still love seeing the posts and messages today; however, we utilize social media more to continue to keep Kate's legacy alive, to be a vehicle to deliver her message, and to increase awareness about ATV safety, how to be an advocate for safety, and how to handle tragedy by choosing hope and trying to persevere" (Personal Communication, June 28, 2017).

Unfortunately, death is often a taboo topic. There is a tendency to expect people to hide their emotions to avoid making others uncomfortable. Bereaved individuals of all ages may find it easier to hide or downplay their grief, which is counterintuitive in helping them heal. For children and adolescents, DeCristofaro explains, they may be so unfamiliar with grief – how it acts, what it needs, how it is af-

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fected by time and context – that they are particularly vulnerable. When it comes to social media, this means they may be extra vulnerable to how others respond to them because they are still figuring out how to respond to themselves. A year out, teens may feel more secure in their grief and also have more endurance and the ability to withstand how others respond.

"Most teens appreciate people sharing stories and photos of the person who died, as long as the person doesn't make the post about their own feelings," said DeCristofaro (Personal Communication, August 31, 2017).

DeCristofaro offered this example:

- *Helpful Post: I loved spending time with Maria on our annual vacation. She always told the best stories and so many were about her children.*
- *Less Helpful Post: I miss your mom so much. I don't know how I'll go on without her. (Personal Communication, August 31, 2017)*

She said a sense of community is felt by teens when they post sentiments that are well received in comments or likes. On the other hand, there are times when people respond in ways that don't feel as connecting, or do not respond at all, and then the teen may feel more isolated than ever. One survey respondent said he felt more isolated after communicating online with strangers because he was sharing a great deal of personal information and he realized they "… didn't even know me or really care," extending the feeling of isolation and grief even further. He said when he wasn't online, he "…had to act like everything was fine. Everybody just goes on and you're supposed to act like nothing huge has even happened." Or, as several survey respondents of this chapter's research noted, it made them feel "mad" or "annoyed" when people glorified who the deceased was " … and acted like they were perfect." "Some people post without really knowing them and make it about themselves," said another respondent.

An overwhelming majority – 87 percent – of respondents found social media a beneficial means to communicate feelings and memories during the bereavement process. Nine percent said they did not find it beneficial nor negative, and four percent found it unhelpful.

FUTURE RESEARCH DIRECTIONS

Peer to Peer Groups

Previous research has illustrated the positive impact that grief counseling groups have among adolescents (Battle, 2017). Yet nowadays it appears many adolescents view social media as their counseling group, often not seeking out a separate meeting group with supervision of experts. Social media allows a feeling of recognition of an individual's grief. They post and feel a sense of satisfaction that other are reading it and recognizing the grief.

While Stenstrom said she is not against using social media for bereavement healing, she believes it is important to strive for balance in written declarations and verbal exchanges. "I do think it is somewhat of a problem that teens today are having difficulty learning to express themselves in direct verbal interactions," she noted (Personal Communication, September 1, 2017).

People of all ages can struggle with intimate conversations, but for older children and adolescents the associated anxiety can be heightened. "They simply do not know what to say or how to act," said

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Bruggenschmidt. "It is easier to post a picture, a memory, or a story online instead of saying it face to face or in an intimate social setting. I also think kids today are so technologically savvy that online is their main way to communicate or express themselves" (Personal Communication, June 28, 2017).

In addition, with social media, it is often peers on their own and without adult input who are viewing the content. "The subtle nuances of facial expressions, sighs or quiet interactions seem to bring grief to the forefront rather than just ranting on social media or making the circumstance more than it is," Stenstrom explained (Personal Communication, September 1, 2017).

For most individuals, uncomplicated grief is naturally self-limiting, with longitudinal studies of bereavement show naturally occurring declines in bereavement symptoms (Ott & Lueger, 2002; Raphael, Minkov, & Dobson,2001). What needs to be monitored, however, is silent and extended grief, that in which the loss cannot be socially sanctioned, openly acknowledged or publicly mourned. That is when the healing process is not naturally working and when an individual requires more assistance in moving on with their life in a healthy manner.

"With the advent of new websites such as SLAP'D (Surviving Life After a Parent Dies), Hello Grief, and Modern Loss, teens are better able to connect with others who are also grieving, even if they don't have access to in-person support groups" said DeCristofaro (Personal Communication, August 31, 2017). There are areas for improvement, however. Within these websites, there is a notable focus on children grieving the loss of a parent or other family member. The loss of a peer seems lesser known or understood in searches for websites to assist peer-to-peer loss. At a natural time when older children and adolescents may already feel detached or misunderstood from adults, a lack of peer-focused groups may intensify feelings that nobody understands them.

And while the good news is that any support group may lead to a decrease in isolation and confusion while increasing a sense of community, validation and acceptance around their experiences with grief, there is also the potential for negativity. DeCristofaro notes that there " … is a concern about the information, judgments and harsh comments that older children and teens may encounter online" (Personal Communication, August 31, 2017). She said, "I wonder if with the increase in more public ways of grieving if teens will turn less to themselves and more to others for ideas and suggestions, or if they will feel more empowered to honor their own thoughts, feelings, and wishes, especially when it comes to significant events such as anniversaries or birthdays" (Personal Communication, August 31, 2017).

Virtual Memory Walls

Social media remains undeniably constructive as a means of connecting individuals regardless of geographic constraints. The aftermath of the April 16, 2007 massacre occurring on the campus of Virginia Tech University provided one of the first clear precedents into the unique value online social networking can play during a tragedy. Teens and college students throughout the U.S. united after the Virginia Tech deaths by creating online groups and posting comments expressing their concern and grief. The language was often candid, emotional and sentimental. One of the many group descriptors read, "In memory of those lost and those grieving at Virginia Tech. This is a group to honor those who have lost someone just know that you are not alone the world is watching and we are all praying."

It is this idea that forms the basis of a virtual memory wall and offers an opportunity and place for people to emotionally embrace. While the Virginia Tech tragedy received national – even international headline – it serves to show the desire people have for a lasting online memory.

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To illustrate, up until May 2007, Facebook's policy was to delete profiles of the deceased. That policy was altered after online protests and a letter campaign were initiated in response to friends and family of Virginia Tech victims learning that profiles of victims were to be removed (Hortobagyi, 2007). " … these pages are what's left of their voices, and the rest of their voices have been stolen from us," said Virginia Tech student John Woods.

The respondents for this chapter's survey echoed those sentiments. Layla said, "It's nice to go back and see how Kate looks. Her Instagram account reminds me of what she was like."

Kate's mother agrees. "We haven't touched Kate's Instagram page since her accident. It still contains her quotes, her thoughts, her pictures and characteristics that made her who she was. It still has her fingerprint. Pages created since her accident allow us and others the opportunity to teach others or share with others about Kate or Play for Kate (the foundation created in her honor). We feel that Kate would die a second time if no one spoke her name or talked about her or posted about her. So we encourage others to talk openly and frequently about her. I believe silence increases suffering. So if posting pictures, comments, memories or thoughts about Kate on an Instagram account or Facebook page helps kids heal, then I think it is a great thing. We all know that social media or an online presence can be used in negative ways. However, we only use it for positive messages and memories and try to police that others are doing the same. We want to keep Kate's memory alive in a positive, healthy way" (Personal Communication, June 28, 2017)

This brings about an interesting area for future research. How often and by whom should pages or postings be monitored? For Ashlee Bruggenschimdt, she said it takes a village to not only raise a child but to monitor the Facebook page highlighting the foundation in Kate's name. "It is monitored probably hourly between all of us. We would delete anything that was inappropriate or illegal. Thank goodness we haven't had to do that. I have had some tough conversations with a few family members that posted something that wasn't part of Play For Kate's mission and asked them to remove it, and they did. They didn't post it out of malice or with ill will, but we were worried someone would take it the wrong way" (Personal Communication, June 28, 2017).

Monitoring the page is important for the virtual memory to remain helpful to the deceased family and friends. "The pictures, posts and memories help us heal. Opening up about traumatic events can improve mental and physical health. The virtual memory is like a virtual journal. It helps us put our feelings into words and share them with other and allows others to do the same through their posts. Turning feelings into words or pictures helps us process Kate's accident and our grief. I really believe it helps us overcome adversity, gives us strength, and makes our emotions easier to deal with. Putting feelings into words, posting your feelings, a quote, a picture or a memory gives you power over your emotions, gives you strength, helps you get your confidence back that you lose after the death of your child or someone you love" (Personal Communication, June 28, 2017).

Many of the respondents for this chapter's work discussed the sense of sense of community and feeling of belonging to a larger group thanks to technology. Hashtags – those brief links preceded with a pound sign – allow content to be organized around a singular topic or discussion. "When people post old pictures they had with Kate, or a picture in honor of Kate, they sometimes use the hashtag "#play4kate" or "#playforkate", said Layla. "There are around 450 Instagram posts with that hashtag" (Personal Communication, July 15, 2017).

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Intervention Tools for Those in Danger of Self-Harm

The mourning process can be healthy, giving us time to grieve yet slowly move on to accept new roles and new people in our life (Horowitz, 1990). It is the identification of users who continue to struggle with depression, thoughts of suicide or an inability to eventually move back to a handling normal routines and responsibilities that becomes disconcerting. Intervention tools need to be part of a regular social media system and have been slow to arrive on the technological scene. In 2016, Facebook added functionality allowing content to be reported when it appears a user is possibly suicidal. It is considered the biggest step to date by a major technology company to incorporate suicide awareness and prevention tools into its platform. The tools allow friends to flag each other's posts with "self-harm" or "suicidal content". The posts are then reviewed by a team and, if deemed appropriate, a message is sent along with information on suicide prevention.

"The area I see most problematic using social media for self-expression in grief would be related to suicide deaths. Sometimes teens tend to glamorize suicide deaths, and the language in social media posts can influence other teens to consider suicide a viable option and a way for others to remember them forever," said Sylvia Buck (Personal Communication, August 30, 2017).

The novel turned Netflix series *13 Reasons Why*, popular among older children and adolescents, also brought to light a concern over this glorification of suicide, particularly revenge suicide. Following the series, the search phrase 'how to commit suicide' rose 26 percent above normally expected searches for the same time period (Ayers, 2017).

As the posting of suicidal thoughts on social media is a relatively new phenomenon, it will become necessary for parents, educators, guidance counselors and grief assistance professionals to be aware of this new type of self-harm disclosure and how to help those in need as they struggle with coming to grips over a friend's death. "To date, it is unclear if the overall effect of such notes will in fact lead to greater encouragement of suicide or to greater opportunities for suicide prevention" (Ruder, 2011). Careful evaluation of these competing factors will be necessary in the future given the growing adoption of social media.

CONCLUSION

The data and discussions surrounding this case reveal that social media is deemed worthy and often valuable by children and adolescents in aiding the bereavement process. From their perspective, the online component was not seen as a separate piece to their grief. Instead, they saw it as a highly integrated and obvious part of their experience. It was *not* noteworthy to them that they communicated online intense emotions of sadness, fear, anger or even celebratory happiness. It was, for them, normal and expected.

A key contribution of this chapter is illustrating not only the reality and depth of feeling as one experience's the death of a peer, but also how we can reach a better understanding of the experience of bereavement in an ever-evolving digital world. Social media allows for new possibilities of engaging in rituals and finding means for creating, sharing or obtaining material and memories to remember the pain, sorrow and celebrations of those who have passed away. These children and adolescents may grieve differently than adults (Himebauch, 2008), with new grievances arising at each stage of age and maturity. They may place the death in a context of further experiences and understanding. At times, this

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may mean the grief process is rekindled and that they have new or "out of order" stages of setbacks and progressions.

What social media provides, the grief counselors agree, is the opportunity for students to express themselves openly and not feel restrained. This concept has become so widespread that a phrase has been coined for it – the online disinhibition effect. Children and adolescents are often reluctant to talk about difficult subjects in front of an authority figure. But online, there is the feeling of an equalizing effect. Authority appears minimized, the playing field seems level, and children and adolescents feel like they can speak their feelings much more openly.

As Ashlee Bruggenschmidt said, whether as a parent or peer, social media can help you reach out to people who have gone through something similar. "You can see that they survived. You may learn things that helped them, and you may learn things not to do. My suggestion would be to go at your own pace, your own comfort level, but don't be afraid to reach out to someone who has suffered a similar loss or comment on someone's post to try to help them. You may help them just as much as they could help you" (Personal Communication, June 28, 2017).

The piece to the puzzle for parents and educators appears to be making sure valuable conversations and offline outreach are taking place alongside the use of social media by children and adolescents, whether that be with parents, counselors or trusted family or friends. "I see more significant progress in group settings than with those students who just try to talk it out on social media," said Stenstrom. "Nothing compares to human interaction for support, encouragement or other feedback for growth and healing" (Personal Communication, September 1, 2017).

"As far as helping with a peer's death," offered Buck, "I always encourage teens to stay in contact with the parent of the deceased via a note, letter or text if the parent is open to it. Most times they are. If a student wasn't close with the peer's family, I still encourage a letter or card a few weeks after the funeral to share a memory. It not only helps the parent after the chaos has calmed down to remind them others are still thinking about their child, but it also helps the teen remember and put it on paper to mail. Just the act of getting the address has been helpful for teens" (Personal Communication, August 30, 2017).

As adults, it's crucial to acknowledge the depth of feelings surrounding a child's bereavement process. By remaining patient and communicative, it's easier to help the individual accept the reality of the loss, adjust to a new circumstance and move forward emotionally. Attending a memorial service, encouraging them to talk with mutual friends and doing something to honor the friend who died can all be useful, said Sylvia Buck. "They want to somehow make meaning out of the person's short life and feel that the person will not be forgotten" (Personal Communication, August 30, 2017).

Children and adolescents experience death through many means – family, pets and, as the focus of this chapter, even friends. To ignore discussions on the topic is to ignore their development, growth and healing. In addition, without these conversations, children and adolescents will use their own imaginations to fill in gaps about death, consequences, and what are normal feelings versus abnormal. Therefore, they will be forced to process on their own or with minimal guidance if they are not steered in the right direction for meaningful conversation.

The death of a childhood friend can be a traumatic experience. Ongoing research will help us better understand how to assist grieving children and adolescents toward a place of acceptance and, ultimately, to become empathetic, healthy adults. As Danielle Bernock (2014) wrote in her book *Emerging with Wings*, "Trauma is personal. It does not disappear if it is not validated. When it is ignored or invalidated the silent screams continue internally heard only by the one held captive. When someone enters the pain and hears the screams healing can begin."

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KEY TERMS AND DEFINITIONS

Acute Grief: The intense physical and emotional expression of grief occurring as the awareness increases over the loss of an individual.

Adolescent: The years of age between 13 and 19 considered to be the transitional stage from childhood to adulthood.

Bereavement: The actual fact of losing a loved one.

Critical Incident Technique (CIT): A method of gathering facts (incidents) from domain experts or less experienced users of the existing system to gain knowledge of experiences in a singular incident or experiences surrounding an incident.

Grief: The emotional, cognitive, and behavioral responses to a death.

Mourning: Refers to the behavioral manifestations of grief, influenced by social and cultural rituals.

Online Disinhibition Effect: The lessening of restraint one senses when communicating online versus face-to-face communication.

Social Media: Websites and internet-based applications which enable users to create and share content or participate in social networking.

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Chapter 58
Counseling Chinese Communities in Malaysia:
The Challenges and Needs in Mental Health Service Deliverance

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ABSTRACT

This chapter presents the experiences of Chinese in Malaysia (CIM), in the context of mental health services. As the second largest ethnic group in Malaysia, CIM is diverse in its dialectic subculture, education, generation, geography, and degree of assimilation to the mainstream culture. The chapter introduces the ecological characteristics of CIM and how they shape the unique psychological challenges. Though CIM are known for their multilingual ability, strong work ethics, emphasis on education, and family piety, the clashes between tradition and modern values, the marginalized position in the Malaysian political arena, the stereotype of overachiever in education, and the "brain drain" movement of young elite CIM, have all caused a strain in CIM families as well as individuals. Moreover, they face both external and internal barriers in getting quality mental health care. It is therefore imperative to promote a mental health discipline that is open to serve CIM, as well as being sensitive to its cultural and historical backdrop.

INTRODUCTION

In the recent two decades, the discipline of psychology in Asia is arriving at its golden age of development due to waves of globalization, modernization and westernization. Since the publication of the *Handbook of Chinese Psychology* (Bond, 1996), Chinese psychology is deserving much attention in the arena of cross-cultural psychology and cultural psychology. In 2010, there is an updated edition on the Handbook and the chapters expanded from 32 to 40 (Bond, 2010). Many recent empirical researches

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on the Chinese population have been included in the handbook, which demonstrated that psychological research among this population could confirm, verify and be adapted from certain existing theories from Western psychology. Nevertheless, most of the studies cited in those chapters were based on Chinese populations from Hong Kong and Taiwan, as these regions have a longer history in establishing local psychological disciplines. Overall, there is a scarcity of psychology publications and literatures on Chinese immigrants or diasporas in other regions or societies.

The Chinese people have a long history of migrating overseas. Due to acculturation and assimilation, overseas Chinese espouse multiple identities that add to the richness in manifestation of Chinese personalities. The diverse and multidimensional identities among overseas Chinese can be explored through identity conflict and integration in the experiences of acculturative stress and socio-cultural adaptation, cultural competence mediated by coping strategies, personal and situational factors, social support (i.e. in the context of ethnic communities & host cultures), and the roles and interpersonal relationships within the foundation of the Chinese family (i.e. the concepts of family harmony and filial piety) over time and generations (Ward & Lin, 2010). The voices of Chinese immigrants speak of the evolvement of Chinese culture in new lands, as well as their hybridized identities as overseas Chinese. As a pioneering effort, the authors of this paper endeavor to expound upon the experiences of Chinese in Malaysia (CIM), in the context of mental health services. In comparison to Hong Kong and Taiwan, psychology practice is considered to be in its infancy stage in Malaysia. While academic psychology has existed since the late 1970s, applied psychology disciplines have surfaced only in the past 30 years (Ng, Teoh & Haque, 2003).

The Chinese as the second largest ethnic group in Malaysia with a population of 6,650,000 (23.4%) (Department of Statistics, 2016), is also diverse in its dialectic subculture, education background, generation gap, residential areas, and exposure to the amalgamated mainstream Malaysian culture. The aim of this chapter is to introduce the ecological characteristics of CIM and how they shape the unique needs of mental health among CIM. The objective is to empower mental health practitioners to be culturally sensitive and competent in providing services to the CIM community. Due to their unique migration history and settlement in Malaysia, CIM are known for their multilingual ability, strong work ethics, emphasis on education, and family piety. Their relative absence in the political arena, ethnic identity crisis, mistrust towards governmental system, and lack of solidarity have made them vulnerable to psychological stressors. In recent years, there is a rise in awareness of mental health issues among CIM in the public arena through promotional efforts of NGO services, religious groups, para-counselors, and social media. However, there is still stigma towards mental illness that creates barriers for CIM to seek help, especially among the less Westernized and urbanized populations. Since not all lower class CIM could afford private mental health services and deem such services as priority, many CIM rely mainly on family network or strong relational ties as emotional support. From the practitioners' standpoint, many trained counselors or service providers are not fluent in using Mandarin or other Chinese dialects in providing counseling. Moreover, even when there is an ethnic or language match between the counselors and counselees, the former often found that translation of Western psychological concepts a challenge in the counseling room with CIM, and do not necessarily possess multicultural competency. The uncritical transposition of the Euro-American values embedded in Western psychology also contributes to potential cultural clashes in the counseling room with the more traditional CIM (e.g. assigning labels such as "over-enmeshment" to CIM families). This struggle is quite obvious as Malaysia is an ex-colonized country struggling to find its multiracial-multicultural identity after 60 years of claimed independence from British influence. It is therefore imperative to produce a mental health discipline that is open to serve the CIM population, as well as being sensitive to its cultural and historical backdrop. This chapter

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will end with practical suggestions for CIM mental health trainers, researchers and practitioners in service delivery, education and policy making.

A BRIEF MIGRATION HISTORY OF CIM

Malaysia has a multi-ethnic naturalized population of about 28.4 million that is made up of three major ethnic groups. The largest ethnic group is the Malays at 68.6%. Those of the Chinese descent make up about 23.4% of the total population (about 6.65 million, which is roughly the size of Hong Kong's population). The Indian ethnic group makes up about 7.0% of the population and the remaining 1.0% consists of the aboriginal people as well as mixed ethnicities (Department of Statistics Malaysia, 2016).

Historically, the Chinese have been settling in Malaya since the days of the Malacca Sultanate, when the Straits of Malacca was a major trading route in the 15th century AD. Many Chinese traders settled and integrated into the Malayan culture since then. The second large wave of Chinese entering Malaysia was after Penang was founded in the late 1700s; many of them were planters, traders and tin miners. The influx of Chinese became more established after the founding of Singapore in the early 1800s, expanding their trade to include manufacturing, banking, and timber trading (Tan, Ho & Tan, 2005).

Due to trading and mining, CIM have been instrumental in the economic development of Malaysia as it is now, especially with regards to commerce and industry. A British administrator in Malaya was quoted as saying,

Under present conditions, the Chinese are the bone and sinew of the Malay states. They are the labourers, the miners, the principal shopkeepers, the capitalists, the holders of the revenue farms, the contributors to almost the whole of the revenue; we cannot do without them (Tan, Ho & Tan, 2005).

Reinforced by the British policy to keep the different ethnic groups in separate sectors, CIM had been seen as leading in business and trading, while Malays dominated the politics and government administration, whereas Indians provided blue-collared manpower (Fu, 2007). As a result, CIM tend to be seen as being on a higher scale with regards to socioeconomic status as compared to other ethnic groups (Fu, 2007). In 1971, the New Economic Policy (NEP) was introduced to eradicate poverty as well as to eliminate racial differences in economic function and geographical location. It was also a vehicle to boost Malay entrepreneurship by encouraging Malays to venture into business. In spite of its controversial implementation, which resulted in decreased Chinese participation in economic activities, the CIM still flourished in business ventures (Fu, 2007).

Traditionally, economic strength of the CIM is very much related to its community leadership. Many community leaders were successful merchant-entrepreneurs or *towkays.* Some of these leaders were conferred formal leadership status, and named *Kapitan Cina* (Chinese Captains) by the Malays. These *Kapitan*s were instrumental in building the Chinese community, in the areas of infrastructure and trading, as they were also appointed to State Councils. Apart from that, "secret societies" were also instrumental in leading the Chinese communities, especially during the early British colonial times. By the end of the 1800s, the Kapitanship was abolished by the British and secret societies were banned. Instead, the secret societies resorted to underground activities that still managed to keep the Chinese economy afloat (Pan, 2006). Influenced by the Confucian work ethics, the early Chinese settlers were known to be very hardworking with strong determination that lasted generations until today, leading to the stereotype of

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CIM being the most entrepreneurial people. Today, many CIM have ventured into and demonstrated success in various contemporary vocational areas. They also make up the bulk of the population in most urban areas of Malaysia today (Carstens, 2005; Heng, 2006).

UNIQUENESS OF CIM

According to the theory of ecological rationality (Todd & Gigerenzer, 2012; Sundararajan, 2015), human cognition and emotion are shaped by the ecological system we are embedded in. Even among the same Chinese tribe, such as the Yi ethnic minority group, there could be differences in semantic expression of emotions, explanation of suffering, and help-seeking behavior due to different religious practices and beliefs (Ting & Sundararajan, 2017). This theory could explain why CIM are different from other racial groups in Malaysia, as well as Chinese from other countries. We would describe four major environmental factors as having decisive influence on CIM in this section—language, cultural practices, education, and political status.

Language

With regards to language and culture, although most are conversant in the Malay language which is also the national language, each ethnic group in Malaysia still retains most of their original traditions and mother tongue. In addition, most Malaysians are familiar with the English language, which can be traced back to the long history of British colonization. Such multilingual ability is a uniqueness of CIM as compared to the Chinese elsewhere such as Taiwan, Hong Kong, Indonesia and Thailand. Tan (2005) estimated that there were approximately 5,365,875 number of Chinese dialect speakers in 2000, comprising of 94.27% of overall CIM (i.e. 24.45% of the total 2000 Malaysian population)[1] (Department of Statistics, 2001). Though not all CIM could read and write Chinese characters, most of them are fluent in one dialect or more at conversational levels, depending on their education, origin, and exposure. There are also significant differences in the way the Chinese language and dialects are spoken among the CIM. Influenced by the Malay and English languages, the CIM develop their own unique Chinese dialects, such as the Penang Hokkien which is unique and distinct to the northern peninsular region (Ong & Tan, 2017).

Cultural Practice

While most CIM retain their Chinese identity and traditions in their acculturation process, there exist some degrees of differences in the CIM cultural practice compared to those of Mainland China, Taiwan, and Hong Kong. Some traditional festivals celebrated by the Chinese community in Malaysia are no longer widely celebrated in Mainland China after the Chinese Cultural Revolution. This is especially true of certain regional rites and rituals that continue to be celebrated by the CIM. For example, for wedding ceremony in the Cantonese community, elaborated rituals and gift-exchanges are observed between the engaged families. The Chinese New Year, especially the reunion dinner on Chinese New Year eve and the 15th day, are still highly emphasized (Tan, 2005).

More importantly, the ability to preserve their language and cultural practice enable CIM in general to preserve their identity as Chinese, unlike their counterparts in Indonesia and Thailand where national

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identity precedes ethnic identity. In fact, many CIM still identify themselves as "Chinese," even if they are already acculturated Malaysians for more than a generation (Ang, 2013). For this group of CIM, their healing methods for mental health problems would also strongly tie to the folklore beliefs and practices, such as shamanism or traditional Chinese herbal treatment (*Zhong yao*) (Chang, Tam & Mohd Suki, 2017; Edman & Koon, 2000).

Education

Tan (2000) divided CIM into three major categories based on their education: Chinese-educated, English-educated, and Malay-educated, and he predicted that the second group will disappear as its boundary with the third group becomes gradually blurred with increased shared characteristics. He postulated that the internal diversities of CIM by education have implications on their cultural identities and even political orientation. The mass media they are exposed to also differentiates their level of acculturation and worldviews, with the English-educated CIM more susceptible to Western ideologies (such as democracy), whereas those who are Chinese-educated may know more about the historical facts and cultural values of ancient China. Not surprisingly, the English-educated CIM have remained politically prominent. This difference in educational background would also influence their worldview towards mental illness as well as help-seeking methods.

Socio-Political Status

Given economic strength and recognized leadership, CIM do possess some political influence in the ruling parties as well as the opposition, compared to other ethnic minority groups. Case in point is the state of Penang which has been under the governance of DAP (former opposition party prior to GE14) Chinese chief ministers since 2008 (Banyan, 2013). However, the ethnic Malays still hold the dominant political power in the country and the political involvement of CIM is decreasing (Freedman, 2000). The recent Penang floods debacle in which the plight and appeal for federal aid became political fodder and contention underlines the challenges faced by the minority opposition party (FMT Reporters, 2017).

In terms of inter-racial relationship, CIM seem to prefer to remain within their own race, forming racial cliques at schools and at workplaces. Due to the ethnic-based political structure in Malaysia, ethnocentric sentiments remain entrenched within each ethnic group thus discouraging meaningful inter-racial interaction. As evident in the university students' campaign against having different races to share rooms in hostels (Ng, 1999), which shows that there is still a strong pull towards keeping to one's own racial-ethnic group, leading to a lack of inter-racial understanding. This sociopolitical atmosphere is caused by the oversea immigration trend among CIM since 1980s, and those who remained in the country are faced with psychological insecurity as a racial minority. In fact, rising racial tension can be seen in recent years due to some right-winged ethnic Malay groups' rhetoric on "Ketuanan Melayu" ("Malay Supremacy" in English), and delegation of the ethnic Chinese as "Pendatang" (i.e. immigrants) and second-class citizens which further harmed positive inter-racial relations (Han, 2015).

According to Minkov and Bond (2017), the main predictors of national differences in happiness (i.e. subjective well-being, SWB) are closely connected to "national economic development, democratization, and increasing social tolerance" among different ethnic groups of a nation. Hence, taking the current socio-political challenges faced by the CIM into consideration, it is understandable that in comparison

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to the other ethnic groups in Malaysia, CIM have been found to have the lowest level of happiness and SWB (Minkov & Bond, 2017).

DIVERSITIES AMONG CIM

Despite much shared experience among the CIM, there exists much diversity among the population. Different scholars also have different taxonomy to differentiate CIM depending on their educational backgrounds, history of immigration and acculturation, language/dialect spoken, and geography of residence. Knowing these subcultures will help counselors better engage with their CIM clients as well as conceptualizing their struggles in a cultural-inclusive perspective.

Cultural Identity

According to Tan (2007), the CIM are broadly categorized into two groups. The first group, constituting 85% of CIM, builds their cultural identity around three pillars: the Chinese-medium schools (currently about 95% of Chinese children study in Chinese schools; there are around 1,300 national and independent Chinese schools across the country), the Chinese newspapers (nine in West Malaysia and eight in East Malaysia) and the Chinese ethnic corporations (including more than 7000 registered cultural heritage, industrial and business associations). They are typically independent business people, whose main concern is political stability for good economic returns. The second group, constituting the remaining 15% of CIM, consists of those who speak mainly English and are non-Chinese educated. Many are Christians, Peranakan, and members of Lion's or Rotary Clubs. This group is often stereotyped by the first group as the "banana" (i.e., yellow skin [Chinese race], white core [pro-Western culture]) (Tan, 2007).

The main difference between the two groups is that the second group does not share the three cultural pillars as part of their identity. Even though some are sending their children to Chinese schools now, this is done more for practical rather than cultural reasons. The two groups differ in their choice of media (English / Malay newspapers vs. Chinese newspapers), which indirectly results in very different perspectives and reactions to sociopolitical events within the country. Inevitably, because of different interests and worldviews, the two groups tend to associate minimally with each another, which further reinforce their prejudice and stereotype of the other party.

Nonetheless, despite their differences in cultural beliefs and identification, Tan (2007) suggested that both groups of CIM ultimately share one mutual concern -- fairness and justice for all people in the country. With general economic stability over generations leading to less hunger for survival, there is also increased interest in ancestral identity among the contemporary CIM (Fu, 2007). However, in recent years, the wealth gap has been increasing among the CIM community, yet not much attention has been paid to the marginalized CIM from lower socio-economic background (FMT Reporters, 2017).

Degree of Assimilation and Acculturation

According to Tan (2000), CIM could be divided into two broad categories — the more assimilated "Peranakan Chinese" and the so-called "Pure Chinese." The former group refers to the Malay-speaking Chinese, including the Baba in Malacca, and Malay-acculturated Chinese from the rural areas of Kelantan and Terengganu. The origin of this group could be traced back to the 19th century, where interracial marriage

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occurred between the early Chinese settlers and Malays in those areas. The second group refers broadly to the Chinese who settled in Malaysia in the later stage, and who kept the kinship among themselves. What differentiates them from the first group is that they would never speak Malay among themselves. Their interaction with Malays is more confined to economic exchange (Tan, 2000).

Earlier research on acculturation also showed that those who were able to reach the "integration stage" in the acculturation process tended to have better mental outlook and subjective well-being than those who were stuck in the "marginalized status". Lin and Ting (2014) studied returning oversea Chinese from Southeast Asia to Mainland China during the 1950s, in terms of their re-entry acculturation experience. Many of them experienced cultural shock and disillusionment after returning to China as they lacked language fluency of Mandarin Chinese and still preferred the customs of their original host country (e.g. Thailand, Indonesia, Myanmar). This experience is likely similar to CIM, who although self-identify as "pure Chinese", have already adopted the host country's values and living practices. That is why CIM call themselves as "hua ren" (華人) rather than "Zhong guo ren" (中國人), where the former connotes overseas born Chinese and the latter entails the political nationality as Mainland Chinese.

Nevertheless, there is much variation in the degree of acculturation among CIM and their self-identified status in the society, which manifests as much nuances and complexities in the CIM's identities. For instance, in a preliminary study on psychotherapists in Malaysia (Ng, 2007), when participants were asked whether they would be considered "a member of a social, cultural or ethnic minority" in Malaysia, more Chinese considered themselves as part of the mainstream (60%) than not – a stark contrast with the Indians (about 75% considered themselves a minority), even though both the Chinese and Indians were historically migrants and generally considered the minorities by census. Yet, what makes the CIM very much distinguished from Chinese in other countries is still their hybridized identity shaped by the pluralistic Malaysian culture with the regional social-cultural experience of being Chinese. Bonn and Tam (2015) supported this premise and found that the CIM group carries its own unique cultural values on happiness overlapping with the values from Malays and Mainland Chinese groups respectively.

Dialect Groups

Early Chinese settlers in Malaya were mainly from the Guangdong and Fujian provinces in China. A report by Heng (2006) categorized these settlers into five major dialect groups, with the largest group being the Hokkien (37%), follow by the Hakka (22%), and then the Cantonese (19%), the Teochew (12%) and the Hainanese (4%). The geographical distribution of these groups was not random due to chain migration. The Hokkiens and Teochews mainly settled on the northern and southern coasts, whereas the Hakka and Cantonese settled in the inland regions. In Sarawak, East Malaysia, the Fuzhou and Hakka dialects are more prevalent in most inland and coastal regions, leaving Kuching to be predominantly Hokkien. In Sabah, the Chinese community is largely Hakka, followed by Cantonese and Hokkien (Tan, 2005; Ghazali, 2012). There is also certain bonding within each dialect group due to similar custom, cuisine and heritage.

Geographical Locations

Due to its political backdrop and geographical distance, Chinese in East Malaysia also forms a unique culture and community that is distinctive and different from the Chinese in West Malaysia (Chin, 1981). Sabah and Sarawak joined Malaysia as a country in 1963, after West Malaysia claimed its independency

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in 1957. Prior to independence, both were under the ruling of British governors and the Malay Raja (king). Due to the discrepancy in political history, East Malaysians usually do not possess an affiliation with their nationality as strongly as those from West Malaysia ("Civil movement", 2013; "GE 13: Movement", 2013; Rintod, 2013).

The Chinese first came to Sarawak as traders and explorers in the 6th century. Today, they make up 29% of the population of Sarawak and comprise of communities built from the economic migrants of the 19th and early 20th centuries (Hing & Tan, 2000). The first Chinese migrants worked as laborers in the gold mines at Bau or on plantations. Through their clan associations, business acumen (*kongsi)* and work ethics, the Chinese rapidly dominated the commerce sector. There were times of riots with British and Holland colonizers early in the history due to discrimination and oppression. Waves of immigration were agreed upon by the British governor, Charles Brooke, in 1901. Though there was mistrust between the local government and the Chinese immigrants during the communist war in China, the majority of the Chinese abided by the rules of the new Malaysian government, formed in 1963. Today, Chinese are amongst the most prosperous ethnic groups in Sarawak (Chin, 1981).

PSYCHOLOGICAL RESILIENCE OF CIM

After introducing the socio-economic status and ecological system of CIM, this section focuses on the psychological resilience of CIM, as well as resources they inherited from the historical and cultural contexts.

Business Vitality

As illustrated above, CIM has a history of success in entrepreneurship and as a leader in economic development. They have a high visibility in business, both nationwide and internationally. Therefore, though they do not hold much political power, their contribution to the Malaysian economy has been widely acknowledged. This also gave them certain leverage and voice over the mainstream political structures (Gomez, 1999).

Strong Adaptability

CIM has a history of resiliency through immigration and differentiation from China by building a new home and identity in a new land. Within a century, the Chinese have grown into the second largest ethnic group in Malaysia, and its contribution to the nation is undeniable. In spite of all the hardship at the beginning of the 20th century, CIM are able to adapt to the new country and be flexible about their roles in the Malay government.

Family Values

The strong family lineage and concept of filial piety have kept the Chinese families intact. According to the Population and Housing Census 2010 in Malaysia (Department of Statistics Malaysia, 2011), CIM have the lowest divorce rate among all the racial groups. This shows family resilience in facing life challenges, as well as their values of integrity of family as a social unit. Moreover, filial piety is still

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highly emphasized in the CIM, and it serves as a protective factor for the aging population, as children are expected to take care of the elderly (Simon, Chen, Chang & Dong, 2014). The elder siblings are also expected to take care of the younger siblings. The Confucius hierarchy for the family continues to be passed on through generations. Many researchers have established that the tight networks among blood-tie relationships have served as a buffer against social oppression and marginalization (Ng, Bhugra, Mcmanus & Fennell, 2011; Yeh, Yi, Tsao & Wan, 2013). These networks are even more evident in rural areas, where most of the CIM siblings and relatives stay together in the same neighborhood. In many cases as evidenced in clinical practices, when there is mental illness in the CIM family, all the family members feel obligated to take care of the ill-member, hence decreasing the burden of the social welfare system.

Emphasis on Education

Compared to other ethnic groups, CIM have a reputation of high investment on education for their next generations. Chinese parents usually work very hard to save enough money for their children's post-high school education. In spite of the racial profiling at public education, Chinese parents always try to send their children to foreign countries for better opportunities in education. Private Chinese associations or societies would also sponsor some distinguished students through donations and scholarships. In fact, great pride is bestowed upon young students who excel in academic achievements even at the elementary school levels.

Strong Work Ethics

The strong work ethics among CIM is a continuation of the "survival" mentality since centuries ago, and coined by scholar as high "Confucius dynamism" (Hofstede, 2003). This strong work ethics is not only reflected in the common business sector, but also among mental health professionals in the health care domain as well.

PSYCHOLOGICAL CHALLENGES OF CIM

Despite many strengths and resilience embedded in the CIM community, the clashes between tradition and modern values, the marginalized position in the Malaysian political arena, the stereotype of over-achiever in education, and the "brain drain" movement of young elite CIM, have all caused a strain in CIM families as well as individuals (Sukumaran, 2017). According to the 2015 Malaysia National Health and Morbidity Survey, both CIM adult and children population have seen a significant increasing trend in mental health problems from 1996 to 2015 (Ahmad et al., 2015; Ministry of Health Malaysia, 2015). This section presents more specifically how different age cohorts of CIM face specific external pressures that could add to the mental burden of the individuals. We hope the readers would not generalize or pathologize the problems by stereotyping CIM, but to see their personal responsibilities and solutions in the midst of these social dilemma.

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1. Children: Pressures of Achievement (Overachievement/Perfectionism)

In the past decade, the increase of mental health problems among the child and adolescent population in Malaysia has become a significant concern. According to a study comparing data from the Malaysia National Health and Morbidity Survey (NHMS) from 1996, 2006 and 2011, the prevalence of mental health problems among children and adolescents (between the ages of 5 to 15 years) saw an increase of 49.2% across 1996 to 2011. Mental health challenges among preschool aged children (5 to 6 years old) almost doubled in the decade spanning 1996 to 2006 (Ahmad et al., 2015). The latest 2015 Malaysia NHMS highlighted that Malaysian children struggled especially with emotional, conduct, hyperactivity, peer and social problems (Ministry of Health Malaysia, 2015). From the literature reviewed, depression among Chinese children could be associated with family factors, social factors, age and gender, ethnicity and culture, and physical (or body) factors (Zgambo, Kalembo, He & Wang, 2012).

In general, although Ahmad et al. (2015) found that the prevalence of mental health problems among children of Chinese ethnicity was lowest compared to other ethnic groups from 1996 to 2011, mental health problems among CIM children saw an exponential increase of 366.7% from 1996 to 2006. In 2015, the NHMS placed CIM children group second in the prevalence of mental health problems (Ministry of Health Malaysia, 2015). Many CIM children struggle with psychological distress especially pertaining to anxiety, depression and even suicide (Alphonsus, 2012). For the CIM, the pressure to excel and achieve began at a young age, and is invariably closely tied to the Chinese family's interests. Hence, failure to achieve and meet high standards not only reflected poorly on the individual child but impacted the concept of the Chinese family's face, image, pride and integrity. For CIM, such achievement-oriented upbringing and emphasis on family interests served as a double-aged sword for children – especially in the absence of adequate parental and social support, familial and household stability, and positive coping resources – the pressures and stress early in life precipitate significant challenges with mental health adaptability in young children which are unfortunately carried into the later years in life[2] (Alphonsus, 2012; Bernama, 2016; Zgambo, Kalembo, He & Wang, 2012). In fact, research has shown that academic and achievement-oriented stress could actually be carried until the college stage where CIM have been found to have relatively higher levels of stress but lower coping skills in comparison to other ethnic groups (Mazlan, Bahari & Ardillah, 2012).

2. Adolescents: Addiction Problems and Pressures From Authoritarian Parents

As Malaysia goes through the wave of industrialization and modernization under the 2020 vision[3], college students are widely exposed to the most advanced information and technology globally through internet browsing and video gaming. The younger generation has a subcultural of their own with a myriad of cultural exposure that is very different from their parents. The identity crisis of CIM teenagers surfaces in their choice of friendship, dating relationship and career path, as parental authority is still prevalent among CIM (Chen & Liew, 2015). While the traditional CIM parents expect them to be "obedient and filial" children, not many teenagers today can conform to such social norms and expectations. As a matter of fact, in a survey among 2927 secondary schoolers, CIM students were found to have the highest depression rate among all ethnic groups (55%), which is associated with low academic performance and alcoholism (Latiff, Tajik, Ibrahim, Abubakar & Ali, 2016). Similar results were shown in another research in Sarawak, where CIM adolescents had the highest depressive rate among all ethnic groups

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(Ghazali & Azhar, 2015). Suicidal ideation is also higher in CIM adolescents (7.9%) in comparison to their Malay counterparts according to a survey done in Sabah (Ahmad & Cheong, 2014).

In the counseling room, the therapists might see many CIM teenagers who are having trouble with their parents. Behavioral problems and teenage delinquency are rising as substance abuse becomes prevalent in Malaysia (Singh, Yap, Redpath & Allotey, 2017). According to a survey conducted in Penang (Guan & Rahimi, 2015), self-hurt behavior has also become prevalent for CIM teenagers (56.81%), especially among female students (33.72%). For children who come from families with lack of emotional support (e.g. single parents, absent father figures), their need for mentoring and emotional regulation become the goal of therapy. As mentioned before, many CIM families engage in entrepreneurship and business management, and therefore it is quite common among CIM families for many fathers to be travelling frequently between places while the mothers and grandparents are the housemakers. These "migrant worker" families were quite common in the first and second generation of CIM, and thus created a unique family structure where the grandparent figures became prominent in parenting. The gap between the grandparent generation and the teenager world creates difficulty in mentoring and behavioral monitoring, even though the former could serve as supportive figures for the family. Hence the lack of moral guidance and supervision of parents are quite common in the "high work ethic" CIM families. Many teenage clients in therapy complained that the parents provided only their material needs but neglected their emotional needs. The challenges in working with CIM teenagers would be to reconstruct the family system to make it more flexible and reciprocal using their perceived language of love.

3. Adults: Family Differentiation

As briefly introduced before, though familism is a strong protective factor for CIM against psychological distress, it could also serve as a stressor when the family lacks resources to cope with acculturative and assimilation stress from the mainstream culture. As Malaysia is still a commonwealth country, it is constantly being impacted by globalization and Western values. Though CIM have been persistent in keeping their cultural heritage, the hybridized cultural identity could be clashing with traditional social norms. For example, many CIM adult clients complaint about the enmeshment and interference of their parents in their daily life decisions and not respecting their boundaries and privacy. It is quite common for unmarried adults to still stay with their parents until they get married. Some traditional CIM also value multigenerational living under the same roof (三代同堂) as a sign of prosperity for the family clan. With this kind of living structure, one could imagine the possible conflicts that could occur between in-laws, and those who seek individuation from the family of origin. Studies have identified that post-natal depression and suicide among CIM women could be perpetuated by the unsupportive family system such as lack of support from the husband or due to in-law conflicts (Yusuff, Tang, Binns & Lee, 2014). Having to struggle with the patriarchal family system (e.g. in-law problems) makes CIM married women more vulnerable to mental illness especially depression (Arifin, 2015).

From the first author's clinical practice in the past 10 years, many depressed CIM adults found it suffocating for not being able to be recognized as an "individual," and expected at the same time to be loyal to the family. Issues with authority figures are always a challenge the adult CIM have to work through in the therapy room. Finding their own voice in the traditional Chinese household would be a life-long challenge due to the pressure of being the "perfect child". For example, career choice is often a battle seen in the therapy room when CIM parents insist on the career choice for their young adult children especially sons who carry the family names. More often, the top career choice for their children is the

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medical profession or computer sciences which could guarantee a secure financial income and white-collar class. However not many CIM students could thrive through competitive programs like medical school, but they are "forced" to honor the parental wish for choosing a career path that is "good for them." This observation is confirmed by several studies which found that parental authority still plays a key factor for individuals of Chinese descent in determining their career goal (Chen & Liew, 2015; Tang, 2002).

Moreover, Mak and Chen (2010) expounded that strong Chinese cultural values pertaining to the maintenance of the family's "face" and interpersonal harmony could inversely contribute to ineffective coping and adaptability. Research have shown that Chinese adults who uphold stronger preference for familial "face" concerns were more likely to report higher levels of psychological distress. The effort invested towards interpersonal dynamics within the family can be psychologically taxing and distressing especially in the event of failure to sustain interpersonal harmony among family members (Mak & Chen, 2010). Hence, CIM who carry strong adherence to the concepts of the Chinese family's face, interests and harmony are more susceptible to sociotropic cognitive vulnerabilities and psychological distress which in turn precipitate challenges with mental health problems.

4. Older Adults: Somatic Complaints and Empty-Nest Syndrome

Many less acculturated CIM older generation still believe in Chinese traditional medicines in interpreting mental problems and healing of ailments. The popular belief in "shen jing shuai ruo" (神经衰弱), translation of neurasthenia, is still pervasive among CIM older adult circles[4]. Older generation CIM would rather equate mental problems such as mood disorder or anxiety disorder as "shen jing shuai ruo" as it is thought to be a "neurological condition" of their mental problems. It serves the function of destigmatizing mental illness, as well as matching the traditional philosophy of mind-body unison (Kleinman, 1982). It has been argued that Westerners conceive depression as an intra-psychic, existential experience, whereas in Chinese and many other non-Western societies, it is most frequently experienced somatically and in terms of interpersonal dysfunction (Chan, 1990; Kleinman, 1982; Watters, 2011). In her dissertation, Ting (2008) showed that Chinese individuals, when using Chinese language, tended to use discourse that was interpersonally focused (e.g., feeling critical of others) in projecting depressive feelings rather than abstract emotional discourse that was intrapersonal (e.g., feeling lonely). The challenges for aging adults then become their inability to express their pain through internal affective language but manifested through somatic and concrete descriptions instead. Their losses and grieves might not be understood by the mental health practitioners or taken seriously by their family members if emotions are being expressed rather indirectly with somatic symptoms (Mak & Chen, 2010; Ting, 2008). The somatization and interpersonal projection of emotional dysfunctions often times do not overlap with Western diagnostic categories for mental disorders (Mak & Chen, 2010).

Another unique phenomenon surfacing in the CIM community is the "international family" constellation, where younger elite CIM migrated to other countries as Permanent Residents in the foreign lands while still carrying Malaysian citizenship. These kinds of global families normally happened in the middle upper class CIM families where the parents encouraged their children to pursue higher education in more developed and immigrant-friendly countries (e.g. Australia, New Zealand, Singapore, Taiwan)[5]. Most of their children continue to stay on in those developed countries for better living and stable subsistence as the Malaysian government provides limited chance or promotion for CIM (Ward & Hewstone, 1985). This trend of re-migration is also known as the "second wave diaspora among CIM" (Ling, 2008; Tan, 2005). However, this creates a vacuum in the CIM community where the aging cohort lacks support

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from the younger cohort. Many older adults might suffer from empty-nest syndrome with loneliness and depression as their children and grandchildren are not around, which conversely goes against the cultural tenets of filial piety and family ethics (Simon, Chen, Chang & Dong, 2014).

BARRIERS IN RECEIVING MENTAL HEALTH SERVICES

Though CIM displays a relative low rate of mental problems (24.2%), compared to other races in Malaysia, the ratio is still quite high among the CIM community (Krishnaswamy et al., 2012). The ratio of seeking mental health services is quite low for CIM, hence we need to explore further the barriers hindering them from seeking and receiving quality mental health services in Malaysia. Some barriers listed below are internally oriented, but the major barriers lie externally in the scarcity of resources in meeting the heterogeneous needs of CIM.

Shame in Psychopathology

Though there is an increased awareness of mental health among CIM, there is still stigma towards mental illness and seeking help from mental health professionals[6]. The belief of "never air your laundry outside the family" is still prevalent among CIM. They would usually cover up the pathology of individuals within the family through social isolation, in order to avoid "face losing" or "shame". The stigma towards mental illness and the implication of personal and familial failure, weakness and shame invariably result in low help-seeking behavior and service utilization (Hwang, 2006; Mak & Chen, 2010). Therefore, the delay in seeking help often times exacerbates the symptoms of targeted patients, and consequently demands a lot of case management and crisis intervention from mental health professionals. Another reason for treatment delay is due to financial reasons. Besides financial concerns and affordability, some CIM are reluctant to pay a professional fee to seek help from "talk therapy." Many still prefer pro bono or low fee service from non-profit organizations. Those cases that are being seen by the counselors in community usually are chronic, psychotic, low-functioning and severely-ill. Yet they expect a "quick fix" or "magic pill" in one session. The concept of an ongoing treatment plan is still foreign.

Cost-Benefit Concern

Unlike other countries, where mental health services are covered through managed care or insurance plans, most mental health providers in Malaysia are not included in the welfare systems. Hence, the clients have to pay out of their own pockets should they seek private or community psychologists. Governmental clinics or hospitals have very limited positions for clinical or counseling psychologists, and instead largely depend on social workers who might not have the relevant training, background or experience to manage serious mental health cases. Psychiatrists mainly adopt a medical and biological model in approaching the patients. Hence, private counseling centers become the major sources of mental health referral. However, many lower class CIM cannot afford a costly long-term treatment plan. They would rather opt for other forms of treatment, such as traditional herbal medicines for symptom relief (Chang, Tam & Mohd Suki, 2017; Chen, 1981).

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Preference for Ethnic Match

From our clinical experiences, if they have a choice, CIM tend to seek private and Chinese-based professionals rather than government agencies catering to a Malay majority. Even within the government setting, where services are more affordable to most people, Chinese clients have been known to ask for Chinese service providers. Reasons for this tendency include language and sociocultural familiarity, and underlying mistrust towards "the others". According to multicultural counseling research in the United States (Sue, 1998), ethnicity match does not predict the efficiency of therapeutic outcome, but would reduce the dropout rate and prolong the length of the treatment among ethnic minority clients. Ironically, due to the stigma of mental illness, seldom would Chinese parents encourage the new generations to pursue a career in the mental health profession, which contributes to the enormous gap between the demand and supply of CIM mental health service delivery.

Lack of Mandarin and Dialect Speaking Practitioners

Though CIM are educated in the Malay and English language, most of their mother tongue are still Chinese dialects (e.g. Cantonese, Hokkien). Research found that interventions conducted in clients' native language were two times more effective (Griner & Smith, 2006). In order to facilitate greater emotional congruence in the counseling room, we need more Mandarin and Chinese dialect speaking mental health professionals who are able to serve the non-Malay and non-English speaking CIM population effectively. With regard to Chinese psychologists in Malaysia, to date it is estimated that up to 56.6% (77 out of 136) of known active clinical psychologists in the country are of Chinese descent[7]. Fortunately, compared to the data collected between 2004-2005 by Ng (2005), the ratio of CIM clinical psychologists has actually increased almost doubly (from 37% to 56.6%). However, the Chinese representation in the registry of the Malaysian Counseling Association is only about 12.7% (907 out of 7157) (Lembaga Kaunselor Malaysia, 2016). With such a limited number of CIM psychologists and counselors serving the whole community of CIM (ratio=1:6758), one could imagine the gap of services in the system.

Lack of Developed Inventories Used for Mental Health Screening and Diagnosis

Most psychological instruments are predominantly in English and normed on Western populations (such as in the United States, United Kingdom or Australia). As such, assessment services in Malaysia are still largely culturally and linguistically biased. The lack of Chinese translated and locally normed tools for intelligence and personality testing have been a dilemma, as many competent CIM researchers and psychologists are English speaking and not fluent in Mandarin. This leaves the Chinese-speaking CIM population underserved and unfairly assessed.

Lack of Multicultural Competence

Not all institutions that train mental health professionals emphasize on multicultural competency training and include it as core coursework. Moreover, the multicultural modules that are adopted by current Malaysian postgraduate programs are often times heavily reliant on the Western model of multicultural diversity; hence, adequate understanding and contextualization of the unique history, challenges and

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issues of Malaysia's multicultural setting and communities are invariably overlooked in the training of mental health professionals. As counseling is still a young profession, and not many culturally competent senior CIM counselors or therapists are available, the younger generation of mental health professionals often lack supervision and role models, leaving them to stumble their way in gaining more clinical and educational experience (Ching & Ng, 2010; Haque, 2005).

Lack of Regulation on Mental Health Professions

Many of the "counselors" in the Chinese non-profit counseling centers, who have limited training and experiences as para-counselors or volunteers, are not registered with PERKAMA. This could be risky to the clients, especially CIM who are less exposed to the mental health professions. There is a lack of regulatory boards to govern uncertified "therapists" or "psychologists", which leaves the less educated CIM an easy target for scamming or exploitation[8] (The British Psychological Association, 2006).

Lack of Research Funding in the Area of Chinese Psychology in Malaysia

Our feeble effort might be the first formal document in this aspect. Up till date, there is no registered Chinese journal for psychology in Malaysia. There are some local peer-reviewed journals, but the publishing language is mainly in English or Malay. On the other hand, most of the Chinese-speaking NGOs choose to publish their own books and magazines in Mandarin, which could be disseminated to wider readership among the Chinese community. The gap between scholarly work and popular psychology has also hindered the dissemination of appropriate and updated information about mental health to CIM who are fluent in Mandarin only.

Uneven Distribution of Mental Health Services

Most mental health services are concentrated in big cities, such as the Klang valley and Penang (Ng, 2006). There are hardly any counseling services in rural areas or small cities. It is not convenient for people from suburban settings to seek professional counseling. This has become a problem in terms of availability and accessibility of mental health services, especially to those living outside of the city areas, which understandably have lower awareness and greater stigma on mental health issues. In terms of the mental health profession, East Malaysia is still at the infancy stage of development, due to the uneven distribution of resources in governmental sectors. There is limited literature or research conducted in terms of the mental health prevalence and needs among Chinese in East Malaysia. To the authors' knowledge, there is only one clinical psychologist and less than five psychiatrists in the whole Sarawak state; furthermore, most of them reside in big cities. Moreover, most of these mental health professionals are not Chinese and usually would not be conversant in Mandarin or Chinese dialects either. In practice, the mental health professionals working under the government services will rotate to the smaller towns once a month only and would have a very long waitlist of patients which significantly diminishes the quality of care rendered to patients.

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Lack of Family Therapists

According to a survey, the mental health profession in Malaysia is dominated by individual-oriented therapists who practice individual therapy (Mohamed & Rahman, 2011; Ng, 2006). Family therapy or other modes of therapy are not as widely practiced due to a lack of training opportunities grounded in the Malaysian context. However, as we have learned, CIM is thickly embedded in familism as well as how mental problems and solutions are perceived and managed. Through the lens of family systems, one could reframe mental illness or psychological struggles in a more dynamic and sensitive language reflected through a multigenerational and familial structure. Aside from the individualistic approach to counseling, mental health practitioners should receive further training in family systems theory or even community psychology (Ching & Ng, 2010), and adopt it to the CIM context. Otherwise, CIM clients would be blinded to their communal resources and be isolated in the therapy room.

SUGGESTIONS FOR FUTURE MENTAL HEALTH DEVELOPMENT

In this section, a blueprint is delineated with the objective and strategy to advance the mental health profession and practice for CIM. The ultimate goals are twofold: First, CIM would be able to access effective and culturally sensitive mental health services; Second, local practitioners will be empowered to take part in discovering a Chinese psychology that is indigenous for CIM. To achieve these goals, the following are some strategies and plans of action in the near future:

1. Indigenizing Research Epistemology and Methodology

While reviewing and researching empirical studies related to CIM, the authors found that ethnicity was seldom a major factor addressed in the literatures. The CIM group was often used as the "comparison group" to the Malay group, and the findings of those papers were also interpreted from the lens of the dominant group where CIM culture was left invisible or not taken seriously. While many anthropologists and sociologists have studied the diversity of CIM in length, Malaysian psychologists are still behind in building a suitable theoretical framework to explain the ethnic differences and uniqueness in our own country. To date, most of the psychological models employed by Malaysian psychologists are either direct translation or importation from developed Western countries. The discipline of psychology practices occur almost exclusively in the Euro–American tradition. There is little awareness of the need to indigenize psychology to fit into the local CIM culture and needs.

International psychologists like Gulerce, Lock and Misra (as cited in Gergen et al., 1996), wondered whether there should be a universally acceptable conception of psychology. These psychologists noted that the journals in their respective countries (i.e., Turkey, New Zealand, and India) seem to differ little from American psychological publications in the methodologies utilized, the issues addressed, or the paradigms adopted. Failure to appreciate cultural particularity tends to result in local phenomena where minority psychologists imitate American models of psychological research (Sundararajan, Misra & Marsella, 2013). In fact, Mohanty (1988) had referred to the replication of Western psychology by Indian psychologists as "Yankee Doodling."

While indigenous psychology may well include non-local wisdom (e.g. scientific methodology), members of the host culture should decide what is to be imported or contextualized in the local culture.

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Indigenous psychology not only should be built on the collaboration between anthropologists, psychologists, historians, and sociologists, it should also be constructed on relationships of mutual respect and empowerment between the researchers and the lay leaders of local communities. In contrast, mainstream psychology is culturally bound in that it serves and benefits the people in a Western context. It exports the products of psychology to minority cultures through the processes of colonization, commercial exchange, globalization, and westernization. Mainstream psychology's failure to recognize the limitations of Western theories, and the fantasy of creating a universal psychology have not only disempowered the recipients in underdeveloped societies, but also destroyed the shelter built by the traditions of those cultures (Dueck, Ting & Cutiongco, 2007).

It is hoped that indigenous research for CIM would address the social phenomena of CIM, study the psychological concepts espoused by CIM, and develop measurement tools or scales to assess the concepts coherent and pertinent to the CIM community. The mixed method research approach would be best utilized to explore and identify the key factors contributing to mental health issues of CIM and to validate the best treatment approaches. Pedagogical efforts are needed to invest in research topics concerning the wellbeing of CIM, as well as establishing reliable funding agencies to support such efforts. More awareness on the importance of indigenous psychology in the Malaysian mental health field could also promote similar cultural sensitivity towards other ethnic groups as well.

2. Enhancing Multicultural Competency in Training and Education

It is highly recommended that higher education institutions mandate multicultural therapy as core coursework in counseling training programs. For counselors who are providing services to CIM community, it would be imperative to have a clear understanding of CIM culture and subcultures through reading and cultural immersion experiences. Since it is not possible to train multilingual staff, it is more realistic to train multiculturally competent therapists in post-graduate programs. Even if there is an ethnic and language match between the CIM counselors and counselees, there might be values differences due to education background and upbringing (Tan, 2007). For example, a Chinese-educated therapist may not readily empathize with the unique experiences of English-educated Chinese. With multicultural competency, a good counselor will first examine his/her own biases and values toward different groups of CIM. Multicultural competency training would not only include close supervision of intern counselors working with CIM, but also help trainees work through their own cultural stereotypes and counter-transference challenges with various clients.

Besides having cultural sensitivity towards different groups of CIM, a competent counselor would also be trained with therapy skills that are specific to dealing with frequently seen problems among CIM. For example, cognitive-behavior therapy was found to be preferred and effective for Chinese American community (Chen & Davenport, 2005), due to its education and didactic elements. For those CIM clients who prefer a more practical approach and quick fix, a solution-focused approach would be essential. For those CIM clients dealing with family conflicts, therapeutic skills in conducting family sessions would be necessary. Furthermore, knowledge about CIM community resources and traditional wisdom would help the counselors to facilitate referrals for more traditional CIM. As many CIM still practice folk religions (e.g. Taoist) and ancestral worship, counselors also need to have some basic knowledge of these local practices, aside from the common spirituality and religions practiced by CIM.

Another unique socio-political atmosphere for the mental health profession in Malaysia is its "thickness" in religion. Considering the Islamic backdrop in Malaysia, some Islamic psychologists have taken

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on a leading role in integrating Islamic teaching into psychological practice (Haque & Masuan, 2002). It was found that religious-based therapy serves as a catalyst to recovery from anxiety disorders among religious Malay patients (Razali, Aminah & Khan, 2002). Some CIM mental health practitioners have already started integrating their religious faith into their research and practice, such as mindfulness and meditation for Buddhist therapists, and prayers and scriptures for Christian therapists (Ting & Ng, 2012). Counselors are encouraged to talk to different religious leaders in the CIM community for wider exposure. Academicians could also study the effects of such integrated therapeutic approaches for empirical evidence based therapy.

3. Empowering CIM Community to Take the Lead in Mental Health Service Delivery

It is highly encouraged for the next CIM generation to pursue a career in the mental health profession due to the great need among its own community. In the past, many CIM parents insisted for their children to pursue medicine or law as the symbols of achievement and success, which contributed to the current shortage of CIM mental health professionals. Careers in the mental health field are also associated with the stigma of mental illness. However, there is a turn in the last decade, where greater visibility of psychology and mental health practices among CIM can be seen. The establishment of Chinese counseling centers and associations, coupled with the blossoming of counseling seminars and various continued education courses, have led to a wider acceptance and understanding of counseling and mental health within the Chinese society. More CIM are expressing interest in psychology and counseling courses. These demands further stimulate the expansion of psychology departments in some private institutions in Malaysia (EduAdvisor, 2017).

Many textbooks and literature in counseling/psychology have been translated into Mandarin in Taiwan, Hong Kong and China, and CIM counselors could also benefit from such overseas resources by accessing first-hand knowledge from their counterparts in other countries. There is also more interchange with Taiwan counselors to bridge in such developing skills through intensive training and workshops. Some CIM counselors/therapists have started to publish their own works, as well as contribute to newspaper/journal columns (such as Sinchew Daily and Guangming Daily). Online media exposure such as to radio station interviews could also help to destigmatize the mental health field, as well as promoting the social status of counselors.

In addition, CIM counselors/therapists have a privilege which other racial groups might not have. Ng (2006) found that a substantial number of Chinese therapists (though not all) speak at least one Chinese language/dialect – 70% speak Mandarin, 60% speak Cantonese, 47% speak Hokkien, 16% speak Hakka, and 2% speak Hinoi or Teochew. In addition, most, if not all, CIM therapists are able to speak and write in English and Malay (Ng, 2006). This is an advantage for CIM therapists who can also reach out to non-Chinese clientele, without the need for translators. Unlike other racial groups who are usually monolingual or dual-lingual, multilingual CIM therapists have wider access and flexibility to the general Malaysian population.

4. Building a CIM Friendly Society Through Advocacy and Public Policy

In ensuring quality services not only to CIM but to the general public, we need to continue to ensure the presence of regulatory boards and enforcement of clinical ethics in mental health service delivery. All

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Malaysian citizens, including CIM, should have equal access to mental health services in the public arena. The counselor registration requirement stipulated by the *Counsellors Act* in Malaysia has a certain positive influence towards the quality control of counselors in Malaysia. The mass media including magazines, television and radio programs very often interview people in the mental health profession, which gives the profession more exposure to the public. This is certainly a reflection of the mental health need in the society, where people are beginning to seek help in this area. The government sectors should also ensure diversity among employed mental health practitioners (e.g. psychiatrists, counselors, psychologists) to serve the diverse CIM population. Many trained CIM clinical psychologists or counselors were actually "drained" to foreign country such as Australia and Singapore as they found current employment in Malaysian governmental sectors not available. Though there is no overt racial oppression and discrimination towards CIM, the implicit racial quota in the government system could be unfair to CIM mental health practitioners. It is urged that all mental health professionals, regardless of ethnic backgrounds, to come together to share resources in the community and promote inter-racial harmony.

Considering the current trend of racial segregation and tight knit CIM community, mental health professionals could utilize community-based services to promote mental health awareness and services to this population. Instead of practicing from an individualistic model, community psychology could help in destigmatizing and demystifying psychotherapy, building a safety net of preventive measures, and decreasing the prevalence of mental illness among CIM. There is also the advantage of mobilizing peer-mentoring groups—such as parenthood groups, adolescent mentoring programs, support groups for family/caretakers of the severely mentally ill, among the CIM community. In rural areas where mental health resources are scarce, the training of lay counselors and peer counselors who come from diverse backgrounds would be a high priority. It is anticipated that local counselors would be able to reach out to the CIM family units in a more culturally appropriate manner than external consultants.

CONCLUSION

Despite the mushrooming number of studies on the mental health of ethnic minorities in the United States over the past three decades (Sue & Sue, 2003), Chinese diaspora remains a novice population to be studied by psychologists and mental health workers. The public slogan of "Satu Malaysia" (One Malaysia) promoted by the Malaysian government with the intention to unite the nationalities, has not been encouraging towards ethnic comparison studies. Emphasizing national identity over ethnic identity is a political strategy that encourages assimilation and reduces tension between multiple races. Yet, if these efforts are not balanced by celebrating diversity under the umbrella of nationality, cultural heritage would be watered down, and the identity of any ethnic group would be compromised. We advocate for a moderate public policy to embrace the diversity within CIM, as well as a mental health field that fosters more peaceful dialogue between CIM and other racial and ethnic groups. Henceforth, this chapter is a feeble attempt to start tackling the complicated mental health issues faced by a heterogeneous group like the CIM. We adopt a psycho-social approach in understanding the diversity and uniqueness of this group, as well as how mental health needs are shaped by the political atmosphere in Malaysia. We address the barriers faced by CIM in getting quality mental health care and services, as well as methods in overcoming these barriers. It is our belief that the mental health profession could promote the welfare of the CIM community by modeling harmony, modesty, justice and peace within and between the mental health professionals.

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KEY TERMS AND DEFINITIONS

Acculturation: The process of social, psychological and identity change resulting from migrating to another culture (i.e. original and host cultures).

Assimilation: The process whereby a minority group gradually adapts to the customs and attitudes of the prevailing culture.

Chinese in Malaysia: Naturalized Malaysians of Chinese descent, mostly descendants of Chinese who arrived in various waves of immigration.

Indigenous Psychology: The scientific study of human behavior and mind that is native, that is not transported from other regions, and that is designed for its people. It involves understanding each culture from its own frame of reference, including its own ecological, historical, philosophical, and religious or spiritual contexts.

Mental Health: A person's condition with regard to their psychological, cognitive, emotional, and social well-being.

Multicultural Competency: The ability to understand, communicate with and effectively interact with people across cultures.

Psychological Challenges: Difficulties or obstacles that affect the individual's mental status.

Resilience: The ability to recover quickly or adjust easily to life difficulties, misfortune or adversities.

ENDNOTES

1 Estimated breakdown of Chinese dialect speakers based on available official data from the 2000 Population and Housing Census of Malaysia.

2 See interview from Kwanghua Newspaper on November 1, 2015 on http://www.kwongwah.com.my/?p=39671

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[3] Wawasan 2020 was proposed as vision for Malaysia to realize the dream of becoming a developed country.

[4] Neurasthenia is a term that denotes a condition with symptoms of fatigue, anxiety, headache, heart palpitations, high blood pressure, neuralgia, and depressed mood, by early neurologist George Miller Beard in 1869. It is currently a diagnosis in the World Health Organization's International Classification of Diseases (and the Chinese Society of Psychiatry's Chinese Classification of Mental Disorders). However, it is no longer included as a diagnosis in the DSM-5 by the American Psychiatric Association.

[5] Stanford University's Asia Pacific Brain Drain Project highlighted Malaysia as one of the countries most affected by brain drain. The full report can be accessed at https://cs.stanford.edu/people/eroberts/cs181/projects/2010-11/BrainDrain/Malaysia.html

[6] Investigation into the Mental Health Support Needs of International Students with Particular Reference to Chinese and Malaysian Students, September 2011, University of Nottingham.

[7] Estimated breakdown based on active clinical psychologists registered under the Malaysian Society of Clinical Psychology (MSCP) as provided by the 2017 MSCP committee.

[8] Guang Ming Daily reported on an alleged misrepresentation of an infamous 'psychotherapist' among CIM on 11 November 2009; the alleged 'psychotherapist' also received a formal disciplinary misconduct reprimand from the British Psychological Association for false claims on his qualifications and certification.

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Chapter 59
Recent Trends and Issues in Vocational Rehabilitation of People with ID

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ABSTRACT

Employment has many advantages for people. Besides earning an income, work provides opportunities for social interaction, a means of structuring and occupying time, enjoyable activity and involvement, and a sense of personal achievement. Work is considered therapeutic and essential for both the physiological survival and psychological well-being of people in contemporary societies and hence it's importance in people with intellectual disability. The rights of people with disabilities have been given new attention with the entry into force of the United Nations Convention on the Rights of Persons with Disabilities (CRPD) in May 2008. The various policies, issues and trends in vocational rehabilitation of people with intellectual disabilities in existence in different countries need to be examined along with different models in existence to develop appropriate executable models whereby such rehabilitation services could be made available early in life to such individuals and after training they could be provided with supported employment or integrated employment as the case may be.

INTRODUCTION

Vocation or employment is central to human existence. It enables an individual to possess a valued social position and identity that has a significant influence on self-concept and relationships with others. As an important aspect of life in today's society, work has a substantial effect on our fundamental aspects of personality and is a major contributing factor to our levels of self-esteem. Besides earning an

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income, work provides opportunities for social interaction, a means of structuring and occupying time, enjoyable activity and involvement, and a sense of personal achievement. In addition, work provides an opportunity for improving skills while also providing income and financial security. Employment as a basic right of citizenship is often taken for granted. Yet, many people with intellectual disability through the non-availability of evidence-based services are excluded from this basic right. Work is considered therapeutic and essential for both the physiological survival and psychological well-being of people in contemporary societies. Conversely, unemployment can produce high levels of stress, anxiety, and depression; low levels of self-worth; and decrease opportunities for self-development, autonomy, and social contact. The shift from being employed to unemployed is significantly associated with not only an increased risk of depression, alcohol dependence, anxiety states, and psychosomatic reactions, but also stigma, aimlessness, and poverty, which combine to trigger or amplify mental health problems. Recognizing the importance of work, vocational rehabilitation professionals such as rehabilitation counselors, have consistently advocated for work as a fundamental human right of people with disabilities. (Rubin &Roessler, 1995; Wright, 1980).

The rights of people with disabilities have been given new attention with the entry into force of the United Nations Convention on the Rights of Persons with Disabilities (CRPD) in May 2008. The provisions of the CRPD contribute to other international standards concerning persons with disabilities, signaling a dramatic shift in international policy terms. In relation to training and employment, for example, states are called on to provide opportunities for disabled people alongside non-disabled people.

People with intellectual disabilities are entitled to benefit from the provisions of the CRPD and ILO Convention concerning the Vocational Rehabilitation and Employment (Disabled Persons), ACT 159 in 1983 as well as people with other kinds of disabilities. Yet, they are frequently not well placed to gain from this changed emphasis on inclusion. In many developing countries, in particular, they are often excluded from school and deprived of opportunities to acquire relevant vocational skills at all, presenting further disadvantages when it comes to seeking jobs. Yet, experience in many countries shows that, with the right training, support in the workplace as required, and the right opportunities, they can make valued contributions in the workplace and to a country's economy (ILO,2008).

Research has shown that people with intellectual disabilities often have multiple secondary impairments, including complex physical and mental health problems (Beange et al., 1999; Einfeld et al., 2006; Hofer et al., 2009). These co-existing disabilities are particularly likely to be problems of agility, mobility, speech and language; and emotional problems including anger control, anxiety and depression. They are also more likely to experience loneliness and lack of friends (McVilly et al., 2004).

It is acknowledged that people with all categories of disabilities have experienced discrimination and stigmatization throughout the centuries. Yet, an intact intellect has historically been highly valued and often seen as the essential characteristic of being fully human (Parmenter, 2001), and people with intellectual disabilities are often the last within the community of disabled persons to receive attention. In the not-too-distant past a person with an intellectual disability "was viewed not as a second-class citizen, but rather as one who possessed no citizenship" (Stevens, 1967).

In the planning and delivery of educational and vocational programs for people with intellectual disabilities, a support needs approach to classification has significant benefits in contrast to the earlier practice of classification based on IQ levels (mild, moderate, severe and profound). Areas of functioning important to employment, where people with intellectual disabilities may need specific supports, include (ILO,2011)

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- Literacy and numeracy;
- Comprehension of instructions and information;
- Interpreting non-verbal language;
- Short-term and long-term memory;
- Attention span and concentration;
- Motivation;
- Problem-solving and decision-making skills;
- Making choices;
- Following instructions;
- Time telling/management and organization;
- Ability to travel and/or live independently;
- Appropriate behaviors and social skills;
- Grooming and self-care.

The degree of difficulty and the extent of support required will vary from person to person.

Undoubtedly the early work of Gold and Tizard was a catalyst for change in promoting a deeper understanding of the learning potential of people with even the highest level of cognitive impairment. Later research focused on a more systems-based approach where emphasis has been placed on adaptations and accommodations in a person's environment, in addition to effective skills training (Parmenter, Trevor R.,2011)

Research helped to lead the development of the "place and train" model of employment support services, in contrast to the more traditional rehabilitation approach of "train and then place". Experience has shown that, to be effective, teaching and training of people with intellectual disabilities should take place using real work in practical situations to the extent possible. Support staff should also be aware that making modifications to the person's environment may be an alternative way to assist individuals in handling the requirements of a job. Therefore, support staff should be encouraged to target both their learning needs and adjustments to the workplace. In addition to a good knowledge of work practices, support staff require training in the basic teaching procedures and principles used by special educators (Parmenter, Trevor R., 2011).

Evidence indicates that, irrespective of the culture or the economic circumstances of a country, the employment circumstances for persons with intellectual disabilities are equally alarming, if not worse (Dempsey and Ford, 2009; Department of Health, 2009). Just as they have been denied education, they have been denied access to jobs. This dismal state of affairs has come about largely through ignorance and superstition (Parmenter, 2001).

In Canada, for example, a survey reported by Staintonet. al. (2006) in a survey found that people with disabilities that are working, work only half as many weeks per year as people who do not have a disability; are unemployed longer; and spend three times as long outside the labour force. People with intellectual disabilities were found to experience even lower rates of employment, with only 27 per cent being employed at the time of the survey, while 40 per cent had never worked. In terms of income, nearly 50 per cent of people with intellectual disabilities had incomes below the Statistics Canada low-income cut-off, a widely used measure of poverty.

In Australia, people with intellectual disabilities made up 41 per cent of those served in government funded employment services in 2010, with more males than females benefitting (64 per cent vs. 36 per cent). They represented 27 per cent of all participants with disabilities n open employment, but 73 per

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cent of those in segregated business enterprises, formerly called sheltered workshops. There has been a gradual decline in the proportion of people with intellectual disabilities accessing inclusive employment services. And finally, there is evidence of 'creaming'—that is, providing services to people who have relatively low support needs and are easier to place in employment - by providers of both employment options, leading to increasing numbers of people with high support needs being referred to state/territory day option programmes. Parmenter, 2011).

In European Union countries, the unemployment rate for people with intellectual disabilities was found to approach almost 100 per cent (Greve, 2009). The vast majority who do work are found in sheltered workshops and those with high support needs are generally directed to day activity centres. A similar picture was reported by Verdonschot et al. (2009), who found from a systematic review of the literature that people with intellectual disabilities were three to four times less likely to be employed than people without intellectual disabilities. In Northern Finland a follow-up of those born with intellectual disability in 1966 had revealed a similar position (Taanila et al., 2005). As per Strategic Social Report Finland 2015, there are 25 000 people with intellectual disabilities of working age in Finland, 13 000 people with intellectual disabilities are engaged in sheltered work or day activities in activity centers.

Employment options for people with disabilities, and those with intellectual disabilities in particular, can be broadly distinguished as those in which people with disabilities work in a segregated environment of only workers with disabilities; and those in which they work in an integrated or inclusive environment of workers largely without disabilities. Employment models under these headings, currently accessed by people with intellectual disabilities in countries around the world, are described below. (Kregel & Dean, 2002).

EMPLOYMENT MODELS/OPTIONS

- **Day Programmes/Centres:** Traditional day centres were initially based on the principles of occupational therapy and were created as respite for family members caring for their adult children or siblings with disabilities. This is slowly changing, however, as programmes offered become more skills-based and focused on increasing independence. For instance, in New South Wales, Australia, one of the post school options initiatives for school leavers classified as not being ready for open employment, is the "transition to work" programme. Since the programme's inception in 2004, Jobsupport, the most successful agency delivering the programme, placed 60 per cent of the 179 school leavers it supported into paid open employment. This agency specifically targets young people with intellectual disabilities who have been classified as having moderate support needs, referred to under the older classification system as "moderately intellectually disabled"(Trevor R. Parmenter, 2011).

Under a medical model of service delivery, people with intellectual disabilities who were assessed or deemed to be unsuitable for employment were catered for in "activity therapy centre" programmes, where one of the goals was to prepare them for employment options. Typically, only a very small number "graduate" to sheltered employment. In practice, these centres in the past became the life-long option for people assessed as not being suitable for employment. Some of the constraints to moving to other employment options may arise from the reluctance of persons with intellectual disabilities themselves to move from a day centre where they have built up friendships over many years. This reluctance acts

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as a barrier to change, unless opportunities are open to maintain friendships outside of work. This pattern has been highlighted in the UK context by Beyer et al. (2004), who also found that people with intellectual disabilities in day centres were considered to have had restricted lives, leading to a poor attitude to employment, low desire to work, and little self-confidence, in combination with the lack of the experience to make a judgement about what work they might want to do.

- **Sheltered Workshops:** Sheltered workshops, initially established by parent groups, were essentially segregated facilities established for people considered unable or unlikely to obtain or retain a job in the open labour market. The majority of those employed have tended to have intellectual disabilities. The workshops engage in remunerative work to cover some of their costs. Workers are often paid a training allowance in addition to any welfare payments they might be entitled to, and very minimal or no wages - sometimes in the form of a bonus if production targets are met. In many countries, these facilities are described as rehabilitation and training facilities, but very few workers ever graduate to the general employment market, even when financial incentives are offered. In fact, there was a major disincentive to progress the more skilled workers to real jobs in the open labour market, as their productivity was crucial for the financial viability of the organization (Murphy & Rogan, 1995; Parmenter, 1980).

Given the results of research studies, in combination with the realization that a real job in the community gives people a strong sense of identity, it came to be recognized that segregated settings send a message to people with disabilities, and to the population at large, that they are different from the rest of society, and that alternatives were needed to allow them to have the same conditions of life as everyone else (Nirje, 1985). This gave rise to a debate about sheltered workshops that continues to the present.

Arguments have been put forward in favour of sheltered employment. These include the avoidance of perceived physical risks in the outside world (Dudley and Schatz 1985; Migliore et al. 2008); the high complexity of jobs in outside employment being beyond the skills range and psychological capacity of people with intellectual disabilities (McConkey and Mezza 2001; Visier, 1998); that sheltered workshops provide greater opportunities for the development of friendships than outside jobs (Dudley and Schatz 1985; Weikle 2008); and that sheltered employment tends to provide surety of employment across the person's life span without affecting disability benefits. Sheltered workshops are also seen to provide an option for people who fail to secure or maintain employment in the open labour market.

Yet it is widely recognized that change was and continues to be required. In recent years, for example, high-income countries, such as Australia, have re-badged sheltered workshops as "Australian Disability Enterprises" where a much greater emphasis has been placed on good business practices and productivity. Wages and working conditions for the disabled employees have improved, in some cases as a result of Trade Union support. In New Zealand, legislation has ensured workers receive the minimum wage unless an exemption is granted in individual cases, based on assessed productivity rates. In Australia, wages are linked to assessed productivity of the individual employee, compared to the normal industrial award. (Hedger S., 2012**).**

The rate of successful transition of people with disabilities from sheltered workshops to the open labour market has been minimal, ranging from under one per cent to about five per cent (Beyer et al., 2002; US Government Accountability Office, 2001). However, Cimera (2011) found that two matched cohorts of employees—one in which employees had previously worked in sheltered workshops and the other in which they had not had prior sheltered workshop placement—were equally likely to be employed

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in the open labour market. There was a difference in the rates of pay with the non-sheltered workshop cohort earning significantly more than those from the sheltered workshops. The former group also worked more hours per week and cost less to support.

Studies conducted in Northern Ireland, Spain and the US have shown that people working in sheltered workshops would like the opportunity to work in outside employment (McConkey and Mezza, 2001; Migliore et al., 2007; Verdugo et al., 2009).

In the US, a network of 23 state developmental disabilities agencies have developed policies under the umbrella of Employment First which has led states and providers to adopt service delivery strategies for persons with disabilities, including those with the most significant disabilities, that embrace the principle of integrated competitive employment (Kiernan et al., 2011). This initiative is strongly supported by self-advocates (Walker, 2011).

There are increasing signs that many sheltered workshops are transitioning to community employment options. In Australia, Greenacres, a large employment agency for people with intellectual and other disabilities, conducts an open employment programme in parallel with its sheltered workshop. It has a policy of actively seeking to move its employees into the competitive employment labour market7. In the US, Rogan and Rinne (2011) have described the processes followed by ten organizations that have shifted their service delivery from sheltered to community employment.

- **Supported Employment:** Alternatives to sheltered employment and day activity centres emerged in the early 1970s. In the US, in addition to the factors described above, the establishment of the President's Panel on Mental Retardation (now 'The President's Committee for Intellectual Disabilities') in 1961, and the subsequent research agenda under the auspices of the newly created National Institute on Child Health and Human Development (NICHD), saw the development of energetic research teams which targeted the post-school options for this population. These influences led to the establishment of an Employment Initiative for Persons with Developmental Disabilities, which promoted the concept of supported employment (SE) to business leaders, community groups, and journals, and to the enactment of two public laws that provided a mandate for the national development of SE: The Developmental Disabilities Assistance and Bill of Rights Act of 1984 (P.L. 98-527), and the Rehabilitation Amendments of 1986 (P.L. 99-506).

Researchers working with people with very high support needs developed four alternative pathways, all of which were characterized as 'supported employment' (Mank et al., 1986). The first was called the 'supported jobs' model, which later became the SE model described above. Other alternatives were the 'enclave' model, the 'mobile crew' model and the 'benchwork' model. Each of these models specifically targeted people with intellectual disabilities who had high support needs.

- **Supported Jobs Model:** The 'supported jobs' employment model involves a 'place and train' approach, rather than the practice in rehabilitation facilities where the model is 'train and then place'. Therefore, to provide employment, a job is required at the outset of the service, and not at its completion. The 'place, train and support' model for SE usually involves job coaches working with the potential employee to identify interests and skills. This is followed by job seeking, matching and placement. The employer might also be encouraged to make adaptations (i.e. accommodations) to a specific job in order to match it with the abilities and skills of the employee with an intellectual disability. In many cases the job coach might learn to do the job first, in or-

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der to subsequently teach the employee with the disability. In other circumstances, the employer might prefer for a regular staff member to teach the skill. This person may subsequently become a 'mentor' to the person with the disability, thus becoming part of the natural support for the person within the workplace (ILO, 2010).

- **Enclave Model:** The enclave model consists of a group of people with disabilities who are trained and supervised among workers who do not have a disability, usually in an industrial or commercial environment. In its original design, the workers were to be paid at a level commensurate to the non-disabled workers, often adjusted according to their relative productivity. This meant that wages for the person with a disability continued to be paid by the sheltered workshop, at the sheltered workshop rates. Storey and Horner (1991) found that individual and enclave job sites were more likely to involve interactions between disabled and non-disabled workers. However, the authors suggested that it could possibly be the features of specific job sites rather than the employment model in itself that result in positive interactions.
- **Mobile Crew Model:** This model is a combination of service and business. It may consist of a crew of five people with disabilities working from a van, rather than a building, performing service jobs in community settings. Examples of work carried out may include lawn cutting, window cleaning, and general ground maintenance. In its original conception, a mobile crew is set up as a small, single-purpose business, rather than as an extension of a large organization. (Parmenter,2011), (ILO, 2011)

Kregel, Wehman and Banks (1989) reported that group settings such as enclaves and mobile work crews provided significantly fewer opportunities for both physical and social interactions. They also found that people with very high-support needs were more likely to be placed in enclaves than any other supported work placements.

- **Benchwork Model:** This model was developed in the early 1970s by the Specialized Training Programme at the University of Oregon, US, as an alternative to day-activity programmes to provide long-term employment to people previously denied access to any vocational services. This model operates as a small, single purpose, not-for-profit commercial operation providing a range of goods or services. The model requires a number of highly qualified staff skilled in instructional technology with no more than a 1:5 staff-to-worker ratio. The size of the business was limited to 20 workers and they were located in close proximity to stores, restaurants, and other community venues that can provide opportunities for integration and participation into the regular community activities during lunch breaks as well as before and after work. At first the model was faithfully replicated in five states of the US and in Australia. The costs of operating the facilities were no more than those incurred in the day-activity centres, but employees received wages based on their productivity for the first time in their lives. Follow-up studies showed that some opportunities for community participation were realized, especially during meal breaks when employees could access local shopping centers. CNS Precision Assembly is an Australian example of a bench work model. Although designed for people with very high support needs, who would not normally be employed in a sheltered workshop because of their supposed low productivity, the bench work model shares many characteristics and constraints with traditional sheltered workshops. (Fletcher-Janzen,Reynolds,2007)

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The four models described above have undergone some transformations since their original conception. Supported Employment has expanded and has become the preferred option internationally, particularly as it embraces the core values of the UN Standard Rules on the Equalization of Opportunities for Persons with Disabilities, and the more recent UN CRPD, which advocates employment options in inclusive work settings for all people with disabilities, irrespective of their level of support needs. Even in high-income countries, however, the penetration of SE has not been sufficient to encompass all people with intellectual disabilities wishing to work. This has resulted in an increased emphasis on job matching and making adjustments to jobs, so that all or part of a job can be performed by people with a range of disabilities, including intellectual disabilities. This has led to a modified version of SE developed in US called "Customized employment", a term first defined by the Office of Disability Employment Policy in 2001, (ILO, 2001)

- **Customized Employment (CE):** This model embraces a 'person-centred' approach, beginning with the person's needs, aspirations, talents and skills. This profile serves as a basis for contacting potential employers (Inge, 2006; 2008). It also emphasizes the person's choices, strengths and abilities. It is employed in One-Stop Service Delivery Systems (Blanck et al., 2009; Inge, 2008) where workforce investment, education, and other human service programmes work together to optimize access to services and long-term employment outcomes. Similar principles are used by Jobsupport Inc., one of Australia's most successful SE programmes, in its transition from school to work initiative (Tuckerman, 2008a).

Beyer and Robinson (2009) reported on a 2005 study conducted for the US Department of Labor, which found that CE had been used successfully with people with high support needs. In the first round of the study 345 people had been placed in competitive employment. The majority had found highquality jobs, with 95 per cent earning the minimum wage or above, and over 50 per cent placed in jobs with the potential for career advancement. A second round of data collection on 536 randomly selected individuals yielded similar results. Approximately 42 per cent of the sample disclosed a psychiatric or emotional disability, with 20 per cent reporting an intellectual disability. In essence, the major contribution of the CE model to the SE model has been the recognition that a person's job choices play a crucial role in achieving a successful job match. It is another example of the application of the social model of disability, in that environmental adjustments may be more important than trying to change the person.

- **Self-Employment, Self-Directed Employment, Microenterprises:** Neufeldt and Albright (1998, p. 6) defined self-directed employment as:

Income-generating work where disabled people, to a significant degree, have a prime decision-making role in the kind of work that is done, how time is allocated, what kinds of investment in time and money should be made, and how to allocate revenue generated.

Duce and Biersdorff (2002) suggested that business considerations for people with intellectual disabilities are little different from those for people who do not have a disability. In the case of the former, it is usual for someone to perform duties not dissimilar to the role of a job coach. Sometimes this is a family member. They proposed five major steps in the process of establishing a business: i) developing a business plan; ii) obtaining the required skills; iii) securing start-up capital; iv) implementing the busi-

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ness plan; and v) expanding the business. Again, the skills necessary to support self employment will be very similar to those for SE, and may include job analysis, skills training and on-going provision of support. It is also possible for the support worker to initiate contacts with natural supports such as unpaid volunteers and mentors who have experience as entrepreneurs who can act as an on-going resource.

This model has also been described as a micro-enterprise: a small business created around one person. Beyer and Robinson (2009, p. 65-66) reported that the main strengths of the model for people with intellectual disabilities are that:

- It respects the capacity and the assets of people with intellectual disabilities, by focusing on people's interests and strengths, and can be more flexible than mainstream employment and working conditions;
- It pursues equality by opening up the self-employment sector of the labour market, where people with intellectual disabilities are not represented;
- It reflects aspects of governmental thinking on increasing employment for disadvantaged groups, and on developing services to meet individual needs;
- It is for some people a way of gaining income from a hobby or an interest, with support and funding through person-centered planning, direct payments and individualized budgets; and
- It provides another way for a person with intellectual disability to move from being a client to being a citizen.

A review by Neufeldt and Albright (1998) of over 120 self-employment projects across low-, middle- and high-income countries found that there was considerably more experience in low- to middle-income countries in supporting entrepreneurship for people with disabilities than in high-income countries. In the context of people with intellectual disabilities, the small amount of research conducted on this model has addressed the best practice processes involved, rather than outcomes (Okahashi, 2001).

Despite it being a popular option for people with other disabilities, self employment was not considered a viable option for people with intellectual disabilities during a recent technical cooperation project in Zambia, on the grounds that they lacked business skills (Koistenen, 2008). While family-based businesses were seen as an option suited to those with higher support needs, involving support to the well-being of the family as a whole, they provided only limited opportunities for social integration and, in some cases; the people with intellectual disabilities were not receiving wages for their work efforts.

- **Social Firms:** Social firms are a type of social enterprise initially developed in the European context for people with psychosocial disabilities following the closure of the large 'mental asylums'. The specific social purpose of social firms is to create jobs for people who find it hardest to get them. (Sayce, June 2011).

Sheltered workshops have sometimes established small businesses which are labelled as 'social enterprises'. In Singapore, for example, MINDS (Movement for the Intellectually Disabled of Singapore*)*, an organization which provides sheltered employment for people with intellectual disabilities in Singapore, has established a car-wash business in a regular community setting. In this case, all of the workers are people with intellectual disabilities with limited opportunities to engage in regular work related or social activities within the general community. (Tay Tiong Beng & Aaron, 2003)

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There is limited research information on the outcomes achieved by social firms for workers with intellectual disabilities. In a comparison of 40 people with intellectual disabilities working in a social enterprise and 40 others attending day centres, Forester-Jones et al. (2010) found that people in the social enterprise scored significantly higher on measures of life experience, self-esteem and satisfaction than those in day centres. They concluded, however, that while social enterprises represented better training settings for future employment compared to the day centres, social inclusion was still inadequate.

EMPLOYMENT MODELS/OPTIONS: DIFFERENT COUNTRIES

Recent decades have seen growing recognition of the working capacity of persons with intellectual disabilities in many countries around the world and a flourishing of initiatives to provide them with opportunities to perform meaningful, productive work in ordinary workplaces. Supported Employment has been the main approach adopted, in a variety of forms reflecting the different levels of support required by different persons with intellectual disabilities.It must be recognized, though, that the SE model was developed in high-income countries with well-established formal services. In low-income countries, the informal economy, especially in rural and less developed areas, is the major source of employment. People with intellectual disabilities are often employed in village-based industries, including farm work, similar to the patter in western countries in the pre-industrial era.(Parmenter, Trevor R.,2011) (ILO, 2011).

- **United States:** A feature of the SE programmes in the US, not always present in other countries, is the legislative base supporting inclusive employment options for people with disabilities in general. This strong legislation supported the initial growth of SE programmes across the country. At the same time, the strong support the US Federal Government gave to research and to research centres specializing in the study of intellectual disability was another significant factor in the growth and support of SE programmes. Legislation and subsequent funding initiatives led to better educational services for this population, including an emphasis on the transition of students with disabilities from school to work and further study.

Despite this enabling environment, there is consistent evidence that there has not been a parallel diminution in the number of people with intellectual disabilities in segregated sheltered employment settings (Braddock et al., 2008). And the latest State of the States in Developmental Disabilities, conducted by David Braddock and associates at the University of Colorado, reported that the proportion of Supported Employment workers among recipients of day/work programmes declined from a high of 24 per cent to 21 per cent in the period 2000 to 2006. The report also indicated that there is approximately a 3:1 ratio of non-competitive to competitive work outcomes for people served in day work, and sheltered employment programmes (Braddock et al., 2008).

Experience in the US indicates that the anti-discrimination provisions in the Americans with Disabilities Act (ADA) of 1990 appear not to have stimulated effective employment outcomes for people with intellectual disabilities. Therefore, it is assumed that there is still a strong belief that a person with cognitive limitations is incapable of gaining an integrated employment outcome, despite evidence that even those with high support needs are capable of learning complex tasks with adequate training and support (Bellamy et al., 1988; Gold, 1972, 1975; Horner et al., 1988).

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- **Australia:** The development of employment services for people with intellectual disabilities in Australia has followed a similar trajectory to that of the US. In the early 1970s, the Australian Association for the Mentally Retarded (now the National Council on Intellectual Disability, or NCID) expressed concern about the high numbers of people with mild intellectual disabilities entering sheltered workshops rather than open employment (Rigby, 1973). The Australian Federal Government, through the Commonwealth Rehabilitation Service subsequently established seven Work Preparation Centres for school leavers with mild intellectual disabilities in a number of state capital cities. After 12 to 18 months of intensive job skills and social skills training, trainees obtained permanent employment in the open labour market, generally in manufacturing industries, which were the major employers in those years in Australia (Parmenter et al., 1977; Ward et al., 1978). During their ten years of programme development, the Work Preparation Centres commenced trials of SE models, based on the research work being conducted in the US.

In order to stimulate the development of paid employment in integrated settings, the Australian Government sponsored several open employment demonstration pilot projects, a number of which concentrated on supporting people with high support needs. One of these, Jobsupport, has continued since its inception in 1986 and has achieved one of the best records in the country for supporting people with intellectual disabilities and high support needs (Tuckerman, 2008a; Tuckerman, et al., 1999).

The overall picture currently for integrated employment in Australia is not dissimilar to that in other countries. There has been no reduction in the numbers of people with disabilities employed in segregated settings. In fact the Commonwealth Government, despite earlier attempts to limit funds to this area of employment, has given way to the strong lobby groups including parents and service organizations by accepting segregated options as a viable employment alternative. This is also in spite of strong anti-discrimination legislation and a formal commitment to the various United Nations Declarations and Conventions.

- **Canada:** Neufeldt et al., (2000) found that the SE model was fairly well established in the four provinces of Nova Scotia, Ontario, Manitoba and Alberta. Canadian SE programmes are funded by the federal government under the Opportunities Fund, some Labour Market Development Agreements and by provincial/territorial governments, or by cost-sharing with the federal government.

In Canada, as in other countries, there is a pattern of SE agencies rejecting applicants with complex needs, such as those with intellectual disabilities. Stainton et al. (2006) have suggested that the increasing market competition in service provision and the emergence of for-profit organizations into the disability 'industry' have increased the 'commodification' of disability (in other words people with intellectual disabilities become commodities from which to make a profit), resulting in competition among agencies for clients who are easier to support. Special incentives may have to be built into the funding systems to counter the trend towards 'creaming' practices.

- **Finland:** With Finland's entry into the European Union (EU) in 1995, the country could access the Community Initiative Programmes of the EU Social Fund (ESF) to start several pilot projects on SE for people with intellectual disabilities. Regular surveys of the state of SE in Finland have been conducted since 1998 (Saloviita and Pirttimaa, 2007).

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It is concluded that since the introduction of SE programmes in 1995, no more than 100 people had been supported. Clear changes in the composition of the people being supported changed markedly during the period 2001–2003. There was a major increase in the proportion of people with mental illness and a similar decrease in the proportion of those with intellectual disabilities being supported. The original concept of SE appears to have been distorted to be used to facilitate employment of people from different marginalized groups and, in the process, people with significant intellectual disabilities have found themselves barred, with sheltered employment and day care centres being the main options (Saloviita and Pirttimaa, 2007, p. 233). It clearly indicates that there are differing moral, political and economic value systems operating when the question of how best to support people with intellectual disabilities is considered, in contrast to other marginalized groups in a society.

- **Ireland:** Ireland has also been at the forefront in pilot-testing SE, the first programme being introduced in the late 1980s when a not-for-profit organization, St Michael's House, set up the "Open Road" demonstration project designed to provide job coaches for adults with moderate to severe intellectual disabilities to support them finding regular entry-level jobs. Soon after, several other similar programmes were initiated by other not-for-profit organizations, including St John of God's STEP Enterprises, Sunbeam House's Dargle Employment Centre and KARE's Employment Assist Bureau. At a conference Disability and Employment - What the Research tells Us, sponsored by the National Disability Authority, McCormick and McRae (2005) cited the 1996 RISE evaluation study by Lynch, McCormack, Pierce and Kelly into the status of SE in Ireland which found that 388 individuals in 30 agencies were in part-time employment, using the individual Supported Employment model, increasing to 449 by 1999. By 2005, McCormick and McRae reported that almost all agencies supporting people with intellectual disabilities offered supported employment to at least some of their service users.

In their paper McCormick and McRae (2005) highlighted that many people with intellectual disabilities who were working in Dublin supermarkets did not progress beyond entry-level jobs and did not get opportunities to move onto jobs of their choice. They emphasized the need for job development and career enhancement through additional on-the-job training. They also raised the possibility that low expectations of employers were placing a ceiling on the potential of people with intellectual disabilities. Kelly, Craig and Kelly (2010) reported that in 2009, 951 persons with intellectual disabilities were in some form of SE, whereas a group four-fold in size attended sheltered workshops. Still, questions remain as to whether the extension of the SE model to people with other impairments, such as those with mental health disabilities, has led to discrimination against people with intellectual disabilities who have higher support needs; the very population for which it was originally designed.

- **The Netherlands:** In the Netherlands, in addition to special secondary schools, there are two options for students with intellectual disabilities within the mainstream system - the 'supported learning route' and the 'practical education' route. The former is more appropriate to students who will graduate with a diploma, provided they receive special needs support. The pre-vocational practical education route is for students with higher support needs who would not qualify for a diploma even with additional support as reported in (The Netherlands Monitoring Report, 2005). The situation for people with intellectual disabilities in the Netherlands is not dissimilar to other countries with a history of welfare provisions for people with disabilities. Likewise, its extensive

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legal and policy framework establishes an approach that supports active independent living and access to employment for this population. The Netherlands is attempting, as are other high-income countries, to rein in burgeoning numbers of people who are in receipt of unemployment and disability welfare payments. This policy is having a negative effect on open employment opportunities for people with intellectual disabilities, as government initiatives to increase the employment participation rate of people with disabilities tend to target people with lower support needs. Despite some strong attempts to increase numbers of people with intellectual disabilities accessing SE, sheltered employment appears the preferred option for this population for the majority of parents and government. (Trevor Parmenter, 2011).

- **New Zealand:** The repeal of the 1960 Disabled Persons Employment Promotion Act and the adoption of the Minimum Wage Amendment Act in 2007 ensured that people with intellectual disabilities are guaranteed the same employment rights as other workers, including the payment of the minimum wage to people employed in sheltered workshops, unless an individual work has an exemption.

A partnership between IHC New Zealand and Tokanui Psychiatric Hospital led to the development in 1990 of the Teawamutu Gracelands Trust to support patients moving out into the community. The Graceland Group of Services has expanded its services across New Zealand, supporting people with disabilities (including intellectual disabilities) in inclusive employment opportunities and helping them to live independently or semi-independently. In the early 1990s a small group of people who had been pioneering SE in New Zealand set up the Association for Supported Employment New Zealand (ASENZ). ASENZ has developed and refined a set of principles of SE which are universally applicable. These are now accepted as the core principles and are central to all aspects of SE in New Zealand. The Association has given significant attention to training and development for people who work in SE. To date, New Zealand has not developed a significant research profile in SE. Thus, data on SE outcomes are unavailable. However, ASENZ has a considerable number of association and individual members, indicating that SE is seen by government and service providers as a strongly viable employment option. (Annual Report, New Zealand Disability Support Network, Annual General Meeting, 25 September 2014).

- **United Kingdom:** Supported Employment had its early beginnings in the United Kingdom (UK) around 1985, about the same time as pilot programmes were being sponsored in Australia and Ireland (Beyer et al., 1999). The term 'supported employment' in the UK at that time was used by the UK Government's Employment Service, responsible for vocational rehabilitation of people with disabilities, to describe sheltered workshops and a wage subsidy scheme that operates largely without job coach support. This is similar to the way the terminology is currently used in Australia.

Three important UK Government initiatives provided a useful framework in which to examine the penetration of SE in improving the life quality of people with intellectual disabilities. The first is the Disability Discrimination Act (UKDDA), which was passed in 1995. The UKDDA defines a person with a disability as someone who has a physical or mental impairment that has a substantial and long-term adverse effect on his or her ability to carry out normal day-to-day activities. The Act seeks to prevent discrimination on the grounds of disability in employment and other areas. The second important initiative was the release in 2001 of "Valuing people: A New Strategy for Learning Disability for the 21st Century", which identified significant difficulties in the coordination and delivery of services to

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people with intellectual disabilities in the UK (Department of Health, 2001). In recognition of the slow progress being made in achieving objectives in employment for people with intellectual disabilities, the UK Government has recently released Valuing Employment Now – Real Jobs for People with Learning Disabilities (Department of Health, 2009). This strategy sets out an ambitious goal to radically increase the number of people with intellectual disabilities in employment by 2025. The strategy will focus on people with moderate and severe intellectual disabilities, because they have benefited least from previous initiatives. This was a major landmark policy event in the UK, being the first Government White Paper in 30 years dedicated to people with intellectual disabilities (UK,Department of Health, 2009).

REMPLOY, the leading UK provider of specialist employment services for people facing complex barriers to employment, offers a combination of supports to placement in mainstream employment along with work opportunities in businesses which it runs in different parts of the country, catering solely to persons with disabilities. Following a review of its future business options in 2006, to enable it to support more disabled people into open employment in a cost effective manner, REMPLOY has taken steps to expand its network of tailored employment support services ('Interwork'). While people with intellectual disabilities (called 'learning disabilities' in the UK) are acknowledged to have high support requirements when it comes to mainstream employment, Interwork reports considerable success in its placement rates for job-seekers with this type of disability (see: http://www.remploy.co.uk).

- **Other European Countries:** The unemployment rate for people with intellectual disabilities in Eastern European countries was found to approach almost 100 per cent (Open Society, 2006). The vast majority who do work are found in sheltered workshops, and those with high support needs are generally directed to day activity centres. However, there was evidence of attempts to increase the participation of people with intellectual disabilities in SE. In a comparative study of Supported Employment in ten countries of Europe, undertaken in 2006-2007, it was found that over a third of users of SE services (35.3 per cent) were people with intellectual disabilities (Jordan de Urries, Beyer and Verdugo, 2007).

The European Union of Supported Employment (EUSE), established in 1993 and now with 19 national associations for SE, is a driving force in the endeavor to increase employment opportunities for their clients. EUSE conducts regular conferences and training workshops across Europe. It recently received support from the European Union Leonardo Partnership to develop a European Supported Employment Toolkit which was completed in mid-2010. This toolkit consists of a range of position papers and 'How To' guides, and has been designed to increase the knowledge and skills of professionals responsible for the delivery of Supported Employment services. To increase the replication of good models at the national and international levels will require strong government support. (EUSE Toolkit 2010)

- **Singapore:** Educational and employment services for the majority of people with intellectual disabilities are provided by two large voluntary agencies: the Association for Persons with Special Needs (APSN), which conducts schools and employment services for those with 'mild' intellectual disabilities; and the Movement for the Intellectually Disabled of Singapore (MINDS), which conducts schools, employment services, day activity programmes and residential living for those in the 'moderate' to 'severe' range. Both organizations conduct traditional sheltered workshops and programmes known as 'social enterprises'. Examples of social enterprises in Singapore are a car wash 'crew' which works in a regular community setting, and a 'thrift shop' that sells recycled

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clothing. While in some cases, these enterprises are located in regular community settings, they tend to project a welfare impression, rather than a regular commercial image. (Parmenter, Trevor R., 2011)

- **Japan:** In 1966, Japan adopted a voluntary employment quota policy to benefit workers with disabilities. Since 1976, under amendments to the Law for Employment Promotion for Persons with Disabilities, the quota is now a legal obligation, initially relating to persons with physical disabilities only. In 1998, amendments to the Law extended its provisions to people with intellectual disabilities. Two hundred and forty two such companies existed, employing 7,700 persons with disabilities. Over 40 per cent of these employees were persons with intellectual disabilities. (Parmenter, Trevor R., 2011)

The Japan Association for the Employment of the Elderly and Persons with Disabilities (JEED) plays a major role in implementing the nation's policies for people with disabilities. As part of its role, JEED conducts research into employment support methods for various disability groups, including those with intellectual and other developmental disabilities.Through its network of Local Vocational Centres for Persons with Disabilities, JEED provides support to people with intellectual disabilities in work experience and job coaching in order to facilitate a smooth transition to work opportunities. JEED also provides extensive support services to employers, including general information, counselling services, employment management support and technical advice.

The Japan International Cooperation Agency (JICA) has been active in assisting the development of SE and the training of job coaches in the Asia Pacific region. (Parmenter, Trevor R.,2011)

- **Malaysia:** In July 2008, the Malaysian Government passed the Persons with Disabilities Act, marking a shift from the former charity model to a rights based approach for people with disabilities in Malaysia. This Act stresses the importance of accessibility, equal opportunities and protection and assistance from the government, private sector and NGOs to ensure the full participation of disabled people in society. The National Council for Persons with Disabilities was subsequently established and a National Action Plan for Disabled Persons 2007-12 was developed.

The Joy Workshop in Melaka was founded in 1999 to improve the quality of life of persons with learning disabilities through integration into society through employment opportunities and enhanced community living skills. Its INTOWORK programme supports the transition of workers from the sheltered workshop environment into SE. Inspiration for this initiative was the work of the late Marc Gold and his "Try Another Way" approach to training people with intellectual disabilities. The approach starts from the underlying conviction that everyone can learn. It involves a planning process with the individuals with disabilities, their families and employers; proposed job matches, based on the requirements of jobs and individuals; actual job match based on job analysis; commencement of work, with on-site assistance, fading and transfer; and on-going support where needed (Warner, G. 2010)

- **South America:** Centro Ann Sullivan del Peru (CASP) was inaugurated in 1979 by DrLiliana Mayo with the help of her parents and colleagues, teaching eight children with different abilities in the garage of her parents' home located in the district of La Punta, Callao, Peru. Since 1985, Dr Judith M. LeBlanc, from the Schiefelbusch Institute for Research in Life Span Studies of the University of Kansas, joined the CASP as principal consultant. With Dr LeBlanc's specialist edu-

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cation input, CASP has turned into an international model centre where a series of unique teaching procedures have been developed into what is known as the Functional-Natural Curriculum. (Mayo,LeBlanc,2000).

The CASP SE programme is aimed at youths and adults with different abilities (such as autism, Down syndrome, cerebral palsy or developmental delay) of 16 or more years of age, who have the skills to be included full-time or part-time paid work in a real workplace. For example, student workers of the SE programme started working at the Ministry of Health (MINSA) in February, 2011. Tasks such as putting codes on documents, filing and other clerical duties have been assigned to them. They have become the first young people with different abilities who work for public institutions in Peru. An agreement reached between CASP and MINSA in October 2010 made possible this important hiring. It is part of a plan for promoting inclusion for people with different abilities into the Ministry of Health, a policy the present administration strongly supports. The CASP SE programme follows the principles first established by researchers in the US, including job coaches and on-going support in real jobs in the community. (Parmenter, 2011)

- **India:** The prevalence of intellectual disability is 94 out of 1,000,000 population (NSSO 2002). There is a paradigm shift in the approach to disability rehabilitation from charity mode to right based. However, Persons with intellectual disability have been proving their skills in specific jobs. Department of Adult Independent Living (DAIL) of National Institute for the Mentally Handicapped (NIMH) strives towards improving quality of life of Persons with Intellectual Disability through vocational training and placement services. As part of these services, the Adult persons with intellectual disability are trained to acquire vocational and independent living skills. Independent living means living like anyone else with same limitations and same opportunities. Persons with intellectual disability also observe the same style of living like other individuals of their society. The ability of Persons with intellectual disability to be productive was linked to social behaviour and practice and bore very little relationship to their intelligence (Cornelius D.J.K, 2009).

The Government of India has set up the Vocational Rehabilitation Centre for disabled at Bangalore and the same has been functioning from 1991. The Centre is providing vocational training in Computers, Carpentry, Welding, Fitter, Electrical, Embroidery, Book Binding and Tailoring etc. The Vocational Rehabilitation Centre has provided 100% placement for all the trainees who have undergone training. The Vocational Training Centre also provides counselling services for children/ persons with intellectual disabilities. The Government also has a scheme to provide incentive employers. for providing employment to persons with disabilities in the private sector. The Rehabilitation Council of India (RCI) was set up as a registered society in 1986. On September, 1992 the RCI Act was enacted by Parliament and it became a Statutory Body on 22 June 1993. The Act was amended by Parliament in 2000 to make it more broad based. The mandate given to RCI is to regulate and monitor services given to persons with disability. There is a need to study on the prevalence of employed persons with intellectual disability. Further more studies need to be done involving more number of HR professionals in different locations of the country. These efforts will enhance awareness creation among HR professionals regarding vocational potential of persons with intellectual disability. This in turn boosts inclusive employment of persons with intellectual disability in Govt. and Corporate sectors. HR policies may be developed and

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implemented to recruit the persons with intellectual disability. Data bases of trained persons with intellectual disability potential for employment need to be developed by the Govt. agencies in collaboration with all organizations working for empowerment of persons with intellectual disability. Employment exchanges need to register potential candidates and enable providing suitable employment (Bino S. Berry and K. Ravi Kymar).

- **Low-Income Countries - Examples from Africa:** There is a dearth of examples of SE in Africa for people with disabilities in general, and those with intellectual disabilities in particular. This is not surprising, given the degree to which this section of the community has been discriminated against for a variety of complex reasons; a major factor being general community negative attitudes toward this population (Mung'omba, 2008). Even in countries where SE has been an employment option for several decades, the take-up has been difficult. One of the reasons for this is the lack of government initiatives to ensure the long-term sustainability of programmes for people with high support needs, despite the cost benefits that can be achieved. There also remains a tension between the welfare and human rights approaches to support for people with disabilities.
- **South Africa:** The Living Link, a non-profit organization, founded in 2000 in Johannesburg, South Africa, supports the inclusion of people with intellectual disabilities in society and facilitates their transition from school to work to independent living. Students at the Living Link complete an Adult Integration Programme aimed at integrating them into society and into the community. The programme is life-skills based and focuses on practical components of daily living that are essential. After students have graduated from the programme, the Living Link assists in placing their members in suitable positions in the open labour market using a SE approach. Adults are placed in ordinary working environments, doing regular work where salaries and benefits are realistic and reflect work performance. Supports are provided to the employers and employers, in a mutually beneficially way. (Julia, Ingrid, 2000).

The Ntiro Project for Supported and Inclusive Employment, founded in 2000 in the Tschwane South District of the Guateng province of South Africa, targets the multiple barriers that people with intellectual disabilities face in the areas of education and work. Of particular significance is the Ntiro Project's emphasis on changing attitudes and building integrated community-based support. It gives strong focus to providing information and skills to district officials, NGOs and community organizations, and to building partnerships among them. The inclusive model has proved extremely successful, serving to progressively replace older segregationist models throughout the district. The project gives concrete expression to the new vision of inclusive education in South Africa and to the call for more inter-sectoral approaches. (Permenter, 2011).

- **Zambia:** The concept of Supported Employment for people with intellectual disabilities has been introduced in Zambia through a project funded by the Government of Finland. Implemented by the Finnish Association on Intellectual and Developmental Disabilities (FAIDD), in association with the Zambia Association on Employment for Persons with Disabilities (ZAEPD), the project focused on examining the relative benefits of an SE model in formal and informal economies, small business ventures and self-employment (Koistinen, 2008). Through this project, which ended in 2005, more than a hundred graduates were placed in employment either in the formal economy (as kitchen assistants, agricultural workers, office orderlies, cleaners, tailors and weavers) and in the informal economy (as housemaids, gardeners and poultry workers) which absorbs up to 70 per

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cent of the Zambian labour force. This project is an excellent example of collaboration between a high income country with experience in SE policies and practices, and a low income country. The issue remaining to be addressed, however, is how to ensure the sustainability of such initiatives, especially job retention, when the foreign aid programme concludes. (Koistinen, 2008).

CHARACTERISTICS OF SUCCESSFUL PROGRAMMES

- **Commitment of Stakeholders:** Programmes in which all the stakeholders, including government, employers, service providers and families, were committed to the principle of equity for people with intellectual disabilities led to successful and sustainable integrated employment outcomes (Mills, 2006; Wehman et al., 2006).
- **Programme Size:** Programme size appears to play a role in the type and range of day and/or employment services offered. In a national survey of rehabilitation agencies in US, Kiernan, Gilmore and Butterworth (1997) reported that smaller agencies, providing support to 50 people or fewer, were found to be more likely to provide integrated employment exclusively than larger organizations. In the current globalized climate of business amalgamations, based on the principle of economies of scale, the loss of a personalized service militates against the delivery of effective outcomes for individual beneficiaries.
- **Support Needs Assessment:** A comprehensive support needs assessment of the person with intellectual disabilities has been shown to be important, not only for the purposes of employment, but also for other life activities, including community living and leisure activities (Riches et al., 2009a, 2009b; Thompson, et al., 2004). It has been shown that work cannot be dealt with in isolation from other life activities (Halpern, et al., 1986). In terms of the sustainability of integrated employment, there is overwhelming evidence that people with intellectual disabilities tend to lose jobs, not because of their inability to perform the job tasks, but because of negative social behaviours (Chadsey et al., 1999; Knox and Parmenter, 1993). On the other hand, Chadsey et al. (1997) warned against too much emphasis being placed on a 'deficit-remedial model', rather than emphasizing the congruence or 'ecological fit' between the person and his/her environment. It may be more efficacious to find the right environment, rather than changing a particular social behaviour. This principle is especially relevant for people with intellectual disabilities and high support needs.
- **Person-Centred Planning:** Person-centred planning puts the person with the disability at the centre of the decision-making processes, taking into account the person's wishes and desires (Coyle and Moloney, 1999; Wiese and Parmenter, 2009). In the employment area, strong motivation on the part of the person seeking a job has been shown to be a significant predictor of a satisfactory outcome. Whilst more work remains to be done on assessing the impact of person-centred planning on client outcomes and satisfaction, research to date has shown promising results (Robertson, et al., 2006). In the pilot SE project in Zambia, Koistinen (2008) found, that good job matches were made when job-seekers' preferences and needs were recognized, leading to better long-term outcomes.
- **On-Job Support:** The 'place, train and support' model for SE usually involves job coaches working with the potential employee to identify interests and skills. This is followed by job seeking, matching and placement. The employer might also be encouraged to make adaptations (i.e. ac-

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commodations) to a specific job in order to match it with the abilities and skills of the employee with an intellectual disability. In many cases the job coach might learn to do the job first, in order to subsequently teach the employee with the disability. In other circumstances, the employer might prefer for a regular staff member to teach the skill. This person may subsequently become a 'mentor' to the person with the disability. Another role for the job coach is as support to families who may initially have negative attitudes to their son/daughter working in a regular work environment, because of fears that they may be victimized. Parents of children with a disability are frequently over-protective. For others, cultural factors may encourage them to persist in hiding their child with a disability because of negative community prejudices (Mung'omba, 2008).

- **Parental Support:** Griffin et al. (2008) and Lindstrom et al. (2007) stressed the importance of families' attitudes toward their adult children's capabilities as being a critical determinant in their support for community-based employment options. Since the first point of contact in the diagnostic process is the medical and allied health professions, limited expectations are often entrenched in the child's early years. Lack of career choice was highlighted in a study of attitudes of parents and primary caregivers of people with high support needs towards SE (Ford et al., 1995). This study also emphasized the need for greater communication between the service providers and families. Donelly et al. (2010) have shown the importance of family networks to the person with intellectual disabilities achieving satisfactory employment outcomes. Koistinen (2008) concluded that parental support was important, though often lacking in Zambia, especially at the vocational training, job-seeking and placement levels.

CONCLUSION

Since its inception in the 1970s, SE has provided inclusive employment options for people with intellectual disabilities across several continents. The personal stories of what having a job means to people with intellectual disabilities is testimony to how important this issue is in terms of social justice and human dignity. A key factor in the growth of initiatives has been a clear policy commitment by governments to support such initiatives. However, experience from both high- and low-income countries indicates that on-going support is required for these initiatives to be sustainable. Low-income countries, given their rural nature and severe fiscal constraints, may be in a better position to test a number of the alternative models described above. For instance, self-employment, small business enterprises, and, at a regional level, CED, may be viable options, but these have not as yet been critically analysed. The evidence from a study conducted in Zambia questioned the viability of the small business enterprise model for people with intellectual disabilities, as it was suggested they lack the necessary business skills (Koistinen 2008, p. 32). An alternative would be to employ a person with business experience and a strong commitment to assisting people with intellectual disabilities, as the manager. The SE principles, including the important 'place and train' and on-going support features, can be used in each of these approaches. A positive feature is the growth of national SE organizations which provide advocacy and training support to their constituents. As these organizations gain strength, they may be in a position to mentor initiatives in low-income countries.

Two phenomena are emerging in countries where SE has a longer history. First, there is a natural tendency to extend SE to other disability groups; for instance, to people with mental health disabilities. This has had the effect of lessening the take-up for people with intellectual disabilities. The second, and

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related, issue is the tendency for agencies supporting SE to select easier-to-place people for SE programmes. To further complicate the matter, the exponential growth of people receiving welfare benefits has led governments in many parts of the world to tighten the criteria and the assessment processes in an attempt to rein in welfare expenditures. However, a contrary position has been taken by Heath (2010), whose analysis suggest that welfare benefits to people with disabilities reduces poverty, but does not necessarily discourage employment.

Various countries have clear policies concerning employment for people with disabilities in general, which affirm the goal of community integration and support for individual choice. Despite this, however, the reviews highlight the reality that the vast majority of people with intellectual disabilities still do not have access to integrated employment; and in many cases, no access to any meaningful day activities.

At National level, Governments in consultation and collaboration with civil society and social partners bear responsibility for promoting opportunities for people with intellectual disabilities to take part in their communities and the broader society. They have to conduct a systems analysis of current situations, develop a set of goals and objectives to guide the implementation of SE initiatives and develop a national policy on integrated employment for people with intellectual disabilities. They have to develop a national implementation strategy and have in place an effective data collection system designed to track progress. Further they have to communicate the results of programmes to assist the process of attitudinal change among social partners in the community and widely disseminate positive results of pilot projects through all available media, since success stories can stimulate further successes. Also they must involve social partners and community leaders to act as 'champions' who can assist this process.(Parmenter T.,2011)

At Regional level it would be of value to develop a Regional Association of Supported Employment. To assist in the sharing of information and technical assistance, consideration may be given to the establishment of a regional support organization modelled along the lines of the European Union for Supported Employment (EUSE) or the World Association for Supported Employment (WASE), which would have Links with the EUSE and similar national associations for supported employment would give access to training materials and other technical assistance. These would subsequently organize workshops and training programmes at regional and/or national levels.

Despite enormous challenges, including extreme poverty and difficulties faced from attitudinal and policy perspectives in the provision of support to people with disabilities in general, and those with intellectual disabilities in particular, there are some positive trends. Of special significance is that the majority of countries around the world have subscribed to the various contemporary human rights principles relating to people with disabilities. What remains is the need for a genuine commitment to ensuring these principles are not only incorporated into national disability policies, but are put into practice and monitored to the best level possible in terms of the socio-economic conditions prevailing. Most countries have signed and ratified the UN Convention on the Rights of Persons with Disabilities. Article 27 of the Convention states:

States parties recognize the right of persons with disabilities to work on an equal basis with others; this includes the right to the opportunity to gain a living by work freely chosen or accepted in a labour market and work environment that is open, inclusive and accessible to persons with disabilities. States parties shall safeguard and promote the realization of the right to work.

This statement provides a compelling reason to explore how a country, even with limited resources, might embark on a programme to assist one of the most disadvantaged groups in its society to become

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engaged in work 'that is open, inclusive and accessible'. The fact that countries around the world have enacted specific disability legislation is a positive feature, but as noted throughout this chapter, people with intellectual disabilities are often left until last in the provision of support.

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Chapter 60
Effectiveness of Internet Based Psychotherapeutic Intervention in Common Psychiatric Disorders

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ABSTRACT

The rationale of the article is to describe the use of the Internet for psychological treatment in a clinical setting. Internet-based psychotherapy as a therapeutic tool, that offers an anonymous way for people to search for information and participate in treatment. Research studies on web-based psychotherapy for the major depressive disorder, anxiety disorders and other psychological conditions has grown swiftly in the last decades. Findings revealed that some forms of Internet-based treatments often lead to results similar to those of traditional face to face psychotherapy. The advantages of Internet-based interventions are high-cost effectiveness, greater access to evidence-based treatment, and greater access to patients in remote locations. The deterioration of symptoms, the emergence of new psychological symptoms, a high rate of abandonment and the frustration caused by technical problems are some of the negative effects of Internet interventions. In conclusion, there is now ample evidence that Internet based-interventions work for common mental disorders such as depression, anxiety disorder, alcohol consumption, smoking cessation, eating disorders, headaches and insomnia. Research on interventions on the Internet is advancing at high speed, while the proliferation and prolonged implementation of interventions on the Internet in regular assistance is still in its infancy.

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INTRODUCTION

Internet-based psychotherapeutic intervention is mainly a self-directed psychotherapeutic intervention program implemented via a potential website program used by patients seeking mental health assistance. These are categorized into psycho-education intervention on the Internet. Therapeutic intervention on the basis of self-directed Internet-based therapeutic interventions on the Internet with human support. The benefits of Internet-based psychotherapy are highly cost-effectiveness, better access to evidence-based management, and feasible approach to patients in remote locations (Carlbring & Andersson, 2006). The worsening of symptoms, the appearance of new psychosomatic symptoms, elevated rate of abandonment, the lack of positive effect expected in the symptoms of the target and the annoyance caused by technological problems are some of the disadvantages of Internet interventions (Boettcher et al., 2014). The Internet has the potential to have a great impact on society and human behaviour. One of the most promising applications of the Internet is within the psychological and therapeutic fields. There are many potential benefits to providing psychotherapy and assessment on your computer. Internet-based therapy is a form of psychotherapy conducted over the Internet rather than in face-to-face sessions. Therapeutic sessions may be conducted using instant messaging, chat rooms, or e-mail messages. Internet-based therapy is also called online therapy or e-therapy.

There are pros and cons to both sides of the online versus face-to-face therapy issue. First, communicating through e-mail, online chat, or instant messages has the same drawbacks of any written-only communication: The non-verbal cues such as tone of voice, facial expression, and body language are missing, making interpretation of the message more problematic than in a face-to-face situation. On the other hand, the relative anonymity of online interactions makes such therapeutic relationships more attractive to those who would hesitate to go into a therapist's office for fear of being found out by others, fear of embarrassment, or unwillingness or inability to get to the office. In addition, online therapy tends to be less expensive than in-office therapy, a consideration for many clients. As with any service provided over the Internet, one must be an informed consumer not only before choosing an e-therapist but even before deciding to use Internet-based therapy itself. Because Internet-based therapy is an emerging field, there are still many issues to be resolved. Obviously, one must check the professional credentials of a therapist to make sure that he or she is licensed, whether one is choosing a therapist for online or in-office therapy. In addition, it is unclear at this time whether it is legal for a therapist licensed in one state to treat a patient in another state. Choosing a therapist in one's own state makes this issue irrelevant, but requires research.

Client/therapist confidentiality is important in any therapeutic relationship. When choosing an online provider of psychological services, one must be certain not only that the therapist subscribes to a professional code of ethics, but also that any information—including personal data about the client—is kept confidential and not sold to or shared with third parties. Similarly, it is important to check that the Web site used in online therapy is secure and that conversations, instant messages, and e-mail transmissions between client and therapist are not recorded on the site's secured host computer.

Internet-based therapy shows promise for helping people who could not or would not otherwise engage in a therapeutic relationship. This potential is beginning to be tested in research. However, much of this research also recommends that Internet-based therapy is used in conjunction with face-to-face sessions. There are still many technical, logistical, and ethical questions to be answered regarding how the Internet best can be used for therapy.

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According to these authors, internet-based psychotherapeutic interventions are not a new phenomenon but have been around for at least 15 years. Internet-based psychotherapy has multiple formats:

1. Self-help web-based therapy (web-based therapy without human interactions)
2. Online communication-based therapy, internet therapy (with therapist support)
3. Synchronous delivery, therapy in real-time via the world wide web (chat)
4. Asynchronous delivery, delays between therapeutic exchanges (email, forums)
5. Therapeutic exchanges via instant typed messaging platforms
6. Audio-only therapeutic exchanges (with or without telephone support)
7. Therapeutic exchanges via video/webcam (with or without telephone support)
8. Group therapy
9. Individual therapy
10. Cognitive behaviour therapy
11. Psycho-education
12. Behaviour modification

Challenges of internet-based psychotherapy include confidentiality concerns, licensing laws, legal jurisdictions, professional insurance, special training requirements, and most importantly, lack of face-to-face visibility important for nonverbal communication, which is thought to be essential for the therapeutic exchanges. None of these concerns has stopped numerous professionals from utilizing this new mode of delivering therapy. The limit seems to be a dependency on electricity and access to the World Wide Web.

Advantages of internet-based psychotherapy include better therapist availability, high acceptability by clients, a greater variety of modes of communication, availability of anonymity should it be desired, psycho-education enhancement by video technology, graphics, and interactivity. Evidence suggests that therapeutic bonding or working alliance is still achievable. Evidence also suggests that Internet-based psychotherapy appears to be more or less effective as part of the treatment for a variety of psychological, psychiatric, and physical problems: chronic stress, loneliness, hazardous behavior, body dissatisfaction, eating disorder, over-eating, binge drinking, pre-surgery anxiety, smoking, depression, post-traumatic stress, anxiety, panic, social phobia, agoraphobia, bed-wetting, insomnia, tinnitus, traumatic brain injury, chronic headache, and chronic back pain.

Challenges and Future Directions in Researching Internet Psychotherapy Interventions

Some of the most important issues are:

1. for whom and how Internet treatments work
2. how Internet treatments can and should be disseminated and implemented in regular healthcare
3. how Internet interventions can best be combined with face-to-face treatments

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Treatment Models for Internet-Based Psychotherapy

Most Internet-based psychotherapy treatments are based on cognitive-behavioural models (Andersson, 2009), but other approaches such as psychodynamic, interpersonal and eclectic (or integrative) treatments have also been evaluated (Andersson et al., 2012).

A recent development is the use of trans-diagnostic and tailored treatments that address the problem of high co-morbidity rates in patients with common mental disorders (Titov et al., 2010). While trans-diagnostic treatments target common elements of several disorders, Internet-based tailored treatments do not use the same protocol for all patients but individually tailor the self-help material to the symptom profile of a patient.

Most of the growing body of evidence comes from studies evaluating guided self-help treatments in which the main component of the intervention is a Web-based self-help program. Such programs are typically arranged into a series of lessons or modules that include exercises and homework assignments.

While patients work through the program, therapists assist and support patients. The amount of contact between patients and therapists and the time therapists spend working with patients varies between studies. However, the majority of interventions only involve minimal guidance via e-mail, which requires considerably less time than face-to-face psychotherapy. Often, minimal guidance consists of a weekly feedback to patients on their behaviour and progress in the self-help program. It is mainly aimed to motivate and reinforce the patients' independent work with the self-help guide and to provide patients with a time structure that corresponds to the weekly scheduling of face-to-face therapy.

Efficacy of Internet-based Guided Self-help Treatments

Independent replications have shown moderate to large effect sizes for Internet treatments in comparison with control groups for the efficacy of Internet-based guided self-help treatments for anxiety disorders and depression (Hedman, Ljótsson, & Lindefors, 2012). Moreover, in some direct experimental comparisons between Internet-based treatments and face-to-face therapy, no differences have been found between the two approaches.

An important limitation of the evidence is that most of the studies were efficacy trials conducted in university-based research settings with participants recruited from the community. However, in a recent review, four controlled trials and eight open studies conducted under clinically representative conditions were identified showing that the promising effects of Internet-based guided self-help treatments can also be observed when the treatment is transferred to regular clinical settings.

Combining Internet-based Psychotherapy Treatment and Face-to-Face Therapy

Blending internet-based treatment with traditional face-to-face therapy has gained in popularity (see e.g., www.ecompared.eu). It is likely that therapists are getting more and more used to providing some interventions online, while still having face-to-face therapy sessions. However, more research is needed on how Internet interventions can best be blended with traditional forms of care.

The Internet has the potential to have as great an impact on society and human behaviour. One of the promising applications of the internet lies within the psychological and therapeutic domains. There are several potential benefits to offering psychological treatment and assessment over the computer.

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1. As a therapeutic tool, the computer offers an anonymous way for people to seek information and engage in treatment.
2. Being able to access information and services from the comforts of home or another private location reduces barriers that may significantly hinder a patient from receiving necessary care.
3. Delays in seeking treatment may stem from several concerns: shame/embarrassment, lack of time, and lack of nearby services. Thus, it may be easier for patients to disclose information about themselves.
4. It also is believed that people may be less self-conscious without the pressures of face-to-face interactions. Also, it may reduce social desirability and pressure for a patient to respond in a particular way (Skarderud, 2003).
5. It can be implemented in a cost-efficient manner and can create written records of patient interactions that can be examined and used as treatment progress (Miller &Gergen, 1998). These records may facilitate treatment compliance, as tracking devices can be utilized to determine whether a participant viewed a particular Web page or opened an e-mail (Murphy & Mitchell, 1998).
6. Another important benefit is that they are not time-dependent; in other words, participant-to-participant or participant-to-provider communications can occur asynchronously at any time—electronic bulletin boards are available 24 hours a day, seven days a week, making support accessible on an as-needed basis.

The internet offers many applications for treatment of various psychiatric disorders. The basic types & the principles underlying their use are as follows:

Applications with Minimal or No Therapist Interaction

Applications with minimal or no therapist interaction range in intensity from Web-based self-help treatments with little or no feedback to fully automated applications where the computer "functions" as the psychotherapist. The major advantages to these treatments lie in the ability to widely disseminate them much more inexpensively than traditional therapies.

Applications Involving Asynchronous Computer Contact

Asynchronous computer contact facilitates communication among those with the same disorders (Internet support groups) and for communications between patients and providers (Internet therapy) It is characterized by messages between people that do not take place simultaneously (e.g., e-mail, list servers, and electronic bulletin boards). Messages can be sent or posted by one individual to be read and responded to by others at their leisure. Asynchronous, online social support groups have been studied for a range of disorders including sexual abuse, suicide and depression (Finn, 1995).In general, results have found that online groups provide therapeutic factors and support similar to face-to-face formats. The main advantage of internet therapy is the convenience offered to consumers. The time spent travelling to the treatment centre and actual time spent in psychotherapy can be greatly reduced utilizing e-mail or chatrooms. Behavioural treatments for less sensitive disorders have been delivered via e-mail. Internet behaviour therapy includes structured behavioural lessons posted on the Web site each week, tips and links to other sites, reporting of self-monitoring information via Web-based diaries, opportunities for group support via electronic bulletin boards, and participant–therapist interactions via e-mail.

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Applications Involving Synchronous Computer Contact

Synchronous communication is more interactive and better mimics face-to-face interactions, as every sentence typed is immediately displayed on the screen for other participants to respond to in real time. They take place in common areas, or chatrooms, where participants can simultaneously log onto a particular Web location to interact and communicate with each other. It also allows for discussion and practice of particular skills, such as cognitive restructuring or role-playing.

Computer-Based Cognitive Behavioural Therapy for Psychiatric Disorders

The highly structured approach of Cognitive Behavioural Therapy (CBT), with clearly defined processes and concepts, is particularly well suited to an online format and predominates the current pool of online interventions (Carlbring & Andersson, 2006). Computer-assisted CBT typically consists of presenting aspects of CBT via computer, including the rationale for treatment, instruction in various anxiety management techniques, and instruction in exposure. Computers have been shown to be effective in delivering several standard aspects of CBT used mainly in the treatment of depression, post-traumatic stress disorder & panic disorder. An overview of a few studies depicting various interventions are as follows: (Amstadter et al,2009)

Table 1. Table showing Studies related to Internet-based interventions in various psychiatric disorder

Studies	Intervention conditions	Sessions
Depression		
Selmi et al (1990)	Computer CBT v/s Therapist CBT v/s wait list	6 sessions
Patton (2003)	IB-CBT v/s Psycho education	4 modules
Spek et al (2007)	IB CBT v/s Group CBT v/s wait list	8 modules v/s 10 sessions
Christensen et al (2004),Mackinnon et al (2008)	Mood Gym v/s IB Psycho education v/s control	6 CBT sessions
Anxiety & Depression		
Proudfoot et al (2003)	Computer CBT v/s TAU	Weekly sessions
Post-traumatic stress disorder		
Wagner et al (2006)	IB-CBT v/s Waitlist	5 weeks
Litz et al (2007)	IBI-CBT/s Supportive counselling	8 weeks
Panic Disorder		
Newman et al (1997)	Computer CBT v/s Therapist CBT	4 v/s 12 sessions
Carlbring et al (2001)	IB-CBT v/s Waitlist	6 modules
Klein & Richards (2001)	IB-CT v/s self-monitoring	1 week
Carlbring et al (2003)	IB –CBT v/s IB AR	6 V/S 9 Modules
Marks et al (2004)	IB Exposure v/s Clinician Based Exposure v/s IB Relaxation	10 weeks

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- Studies have found the internet behavioural interventions to attenuate symptoms of various anxiety disorders when compared to the waitlist group. No significant differences were found between the computer- and therapist-delivered treatment groups.
- In cases of anxiety & depression, Internet-based intervention (IBI) was superior to the treatment-as-usual condition in terms of decreasing depression and anxiety, as well as work and social adjustment (Proudfoot et al, 2004). Generally, IBIs have been found to be highly effective in treating panic disorder, as well as affording a treatment modality that has higher availability and lower cost than traditional face-to-face services.
- Studies utilizing a self-monitoring control group have demonstrated the superiority of the IBI condition to the control condition in amelioration of panic disorder symptoms. Carlbring et al. (2003) compared CBT to relaxation, both administered via the internet and found that both treatments were equally and significantly effective in reducing symptoms.
- The majority of studies identified measures of distress, disability, quality of life, or work force participation as secondary outcome measures. While changes in these secondary outcome measures were not as large as in the primary outcome measures, they were significant and demonstrate that internet treatment has the capacity to change health status not merely reduce specific symptoms (Andrews et al., 2010).

Treatment for Depression

Problem-Solving Technique

The problem-solving technique is used to recover a person's capacity to solve problems whilst treating signs of depression. The series is usually implemented for five weeks with one session per week via e-mail. The main essentials of this method are to resolve the problem by operationalizing the problem, brainstorm, best possible solution, solution implementation plan, solution and evaluation (Warmerdam et al., 2012).

Internet-Based Cognitive Behaviour Therapy

This is a doctor-supported management consisting of 8 online tutorials with a summary of the consequent session that includes a practising one lesson per week using the transcript, aural and video exercises. The wizard will be communicated with the patient by means of e-mail. the specific mechanism is psychoeducation, self-discipline, cognitive restructuring, behaviour activation, structural problem solving, relaxation techniques and social skills training (Warmerdam et al., 2012).

Acceptance and Commitment Therapy

The therapeutic goal of this intervention is psychological flexibility, defined as "contacting the present moment fully as a conscious human being, and based on what the situation affords, changing or persisting in behaviour in the service of chosen values". Hayes et al., 2006 draw on six processes of cognitive diffusions, acceptance, awareness with the present moment, self-as-context, value, and committed effort. The session consists of text, video, and animated images. The patient also has been facilitating with a workbook and a CD (Segal et al., 2002).

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Mindfulness-Based Therapy

Is an empirical intervention to instruct clients emotion management skill to diminish residual depressive symptoms and evade relapse triggers which could lead to chronic disease. Is an eight-week module with 10 interactive sessions underneath training. Clients are trained to exercise formal meditation techniques (body scanning, conscious movement, sitting meditation, breathing for three minutes) and informal mindfulness technology (incorporating mindfulness into daily activities) A module is delivered through downloadable videos, sound clip, coursework, and emails (Segal et al., 2012).

Clients are required to finish a module per week and perform mindfulness exercises twice a day for 6 days a week. Participants can access the following module once the previous session has been completed. The most used technique in mindfulness is mindful mood balance over the internet. It has 8 sessions of 60-90 minute programs with each course incorporating mindful meditation and cognitive behavioural therapy (Segal et al., 2014). At present, three online application is most popular for being easily accessible without a penny to consumers: Blue Pages, MoodGYM and ODIN.

Treatment for Anxiety disorder

Internet-based cognitive behavioural therapy has become an increasingly popular treatment based on empirical evidence of various anxiety disorders. Evidence suggests that the Internet-based CBT for panic disorder (Carlbring et al.,2003), social anxiety disorder (Andersson et al., 2012), generalized anxiety disorder (Titov et al., 2010), PTSD (Lange et al., 2003) and Specific phobia (Andersson & cuijpers, 2009).

Internet-based Cognitive Behavioural Therapy

It is a self-help therapy based on a text consisting of ten treatment therapy modules administered over 11 weeks under the supervision of the treating mental health professional and physician. The session aims at cognitive restructuring, exposure prevention, self-focus, social skills and prevention of relapse. Patients receive questionnaires and tasks to finish as a home assignment. The patient is provided with feedback as quick as 24 hours (Heldman et al., 2012).

Treatment for Substance Use Disorder

Alcohol electronic screening and brief intervention proved to eliminate harmful consumption of alcohol in patients with dependence on alcohol. The client is required to finish the online screening questionnaire and is provided with personal comments with short patient intervention via e-mail. Alcohol Anonymous is a type of self-therapy, which is available online as well. Many researchers have analyzed that participation in AA is associated with better outcome for alcohol consumption (Humphrey & Tucker, 2002). The widespread utilization of Internet-based psychotherapy is helpful to quit smoking, very well known (quitnet) showed that the sustainable use of quitnet was associated with better abstinence from smoking. Intervention is provided through interactive websites and personal emails. Smoking interventions can be provided online as well as individual or group counselling or pharmacotherapy (Graham et al., 2007). Cognitive behavioural therapy and motivational enhancement therapy are the main approach used to treat cannabis addiction and are available over the internet also. web-based treatment for Cannabis and

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other illicit drugs use is at a premature stage, but their effectiveness in reducing cannabis abuse has been supported by some studies (Tait et al., 2013).

Alcohol Consumption

The first randomized trial of alcohol consumption was conducted in 1997 (Hester & Delaney, 1997). Compared to the control group, those who received the intervention over the internet had less alcohol drinking, binge drinking episodes and interpersonal problems followed up for six weeks. Similarly, CBT-IBI found to be more effective in reducing alcohol consumption than psycho-educational control in RCT (Riper et al., 2008).

Smoking

Many smoking cessation programs are available on the Internet but few research has been conducted to scrutinize the effectiveness of these interventions. Schneider et al., 1990 conducted the first RCT of the computer-based cessation program and found online treatment is more effective over healthy controls prominently in terms of abstinence rates. Although most published research has found positive results over the control group, abstinence rates remain very low, underscoring the continuing need for improvement in smoking cessation programs. However, these studies point to the first RCTs for smoking cessation, providing substantial data on the benefit of the Internet in addressing this health-risk behaviour (Amstadter et al., 2009).

Treatment for Insomnia

Insomnia is important for overall wellbeing which is having significant mental, physical and spiritual consequences. accessibility of treatment options for insomnia, cognitive behavioural therapy through the Internet, is severely inadequate. The Internet can be a major channel for this intervention. Online intervention relies on well-established offline cognitive behavioural therapy, which includes the main components of sleep restriction, stimulation control, sleep hygiene, cognitive restructuring and the prevention of relapse. Participants who received Internet-based Intervention, their insomnia significantly improved. Improvements in sleep after the use of "Sleep Healthy Using the Internet" (http://www.shuti.net, SHUTi) are very similar to those of other treatments for the treatment of insomnia. In fact, the proportion of change in sleep efficiency (16%) was almost identical to that of other self-help groups of CBT (15%), telephone (21%) face to face (17%) and pharmacotherapy (13%) (Bastien et al., 2004).

Treatment for the Eating Disorder

Weight gain in teens is a major problem related to dissatisfaction with the body and Eating disorder (ED). Cost-effective methods of early intervention for obesity as well as diabetes prevention are imperative due to the non-compliant nature of both. This multi-site RCT evaluated an online intervention aimed at the loss of weight and eating attitudes/behaviours in adolescents. Because of the magnitude of the impact of obesity on public health and the challenge of treating the population exclusively through face-to-face programs (for example, due to transportation and economic constraints (Newmark-Sztainer et al., 2000), innovative and cost-effective interventions are needed for the hour. Internet interventions are a

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promising way of providing services because of the possibility Accessibility and convenience (Zabinski et al., 2003) Online weight-loss interventions were tested for adults with moderate success (Gold et al., 2007). A study of African American adolescent girls and their parents showed short-term results for online intervention along with 18 months of follow up (Williamson et al., 2006). The Internet-based interventions have succeeded in reducing risk factors of an eating disorder, as well as the onset of eating disorder risk (Heinicke et al., 2007). So far, the findings indicate that online-delivered intervention showed a slight decrease in weight after four months of treatment and ED attitudes/ behaviours did not improve significantly. Group differences in weight loss were not substantial after 4 months of follow-up due to parallel improvements in groups.

Treatment for Headache

Web-based cognitive-behavioural self-help therapy is a promising novel place to treat recurring headaches. To study the contribution of a therapist-initiated telephone contact in the treatment of frequent headaches over the Internet, the telephone contact initiated by the therapist in a randomized trial in 44 patients with headaches was randomly assigned an online help program with email support or to the group receiving weekly phone calls. additional 8 controls were assigned to receive similar treatment outside the study. The attrition rate was 29% in the telephone support group and 35% in the control group, indicating that telephone calls did not affect attrition. The results showed significant reductions in disability due to headaches, depression, and maladaptive coping strategies and perceived stress, but little to indicate outstanding performance in the Internet group, and a slight improvement in the headache index. In short, the therapist-initiated telephone calls did not affect the results. Internet-based therapy for headaches is not affected by the minimal therapist-initiated telephone contact. Although it's cost-effective, there are indications that this modality may be associated with high dropout rates (Andersson et al., 2003).

CONCLUSION

The web can possibly make psychological interventions more effective, more precise, and more affordable. Internet-delivered treatment gives off an impression of being as viable as face to face therapy for treating anxiety disorder and depression and can be conveyed at a lower cost. However, utilization of this innovation is in the beginning periods. A high need is to exhibit the viability of this approach, especially contrasted with standard face-to-face, "manualized" interventions that have been appeared to be dominant for common psychological disorders. multiple studies have demonstrated that both the mode of therapies have no comparable statistical differences. Moreover, more research is needed to further evaluate the effectiveness of internet-based e-psychotherapy. If it can be proved that Internet-based treatment is effective, it could be a very promising line of treatment, reaching people who otherwise would not receive treatment. Despite the fact that exploration in numerous aspects of internet-delivered therapy is required, the Internet is probably going to assume a logically imperative role in giving emotional psychological assessment and interventions to patients. Consequently, the psychologist should choose how they will fuse such programs into their practices.

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CONFLICT OF INTEREST

The author(s) declare that they have no competing interests.

AUTHORS' CONTRIBUTIONS

Shilpa Bisen has made substantial contributions in drafting the manuscript or revising it critically for important intellectual content and Dr Yogesh Deshpande has given final approval of the version to be published.

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Chapter 61
Psychotherapeutic Interventions in Emotional and Behavioural Problems with Adolescents

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ABSTRACT

Children undergo a variety of interrelated changes in their adolescence and at times most children exhibits difficult behaviours. The problem becomes more severe in adopted children because such status of adoption affects various aspects of the developing personality. Feeling of rejection in early childhood generates a tendency of insecurity and fear in these children and to overcome from these beliefs they adopt aggressive behaviour. Psychotherapy with adolescents is different in a number of substantive ways from adults, because an adolescent is a person who is no longer a child but is not yet an adult. They are special population for whom psychotherapeutic intervention needs to be customized considering the emotional and behavioural exigencies. Identification and changing unhealthy thoughts and behaviours is the central idea of CBT and is becoming the treatment of choice for children and adolescents. The chapter deals with application of CBT in adolescent.

INTRODUCTION

The origin of the term psychotherapy dates back to 1891, and first appeared in the paper entitled '*Hypnotism, suggestion, psychotherapy'* by Hippolyte Bernheim. Then it was discussed in psychoanalytical approach as a talking cure. In 20th century psychotherapy grew manifold and various form of psychotherapy emerged. Across time, many professionals and writers have defined psychotherapy in their own words. However, the most accepted definition of psychotherapy was given by Wolberg, (1995) who defined psychotherapy "a psychological treatment of emotional problems in which a trained person

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deliberately establishes a professional relationship with the patient in order to: (a) remove or modify or retard existing symptoms; (b) mediate disturbed patterns of behavior; (c) promote positive personality growth and development". In simple term we can say that psychotherapy is a meet between a clinician and an individual taking place in a trustful environment, and clinician talks through the patient's concerns with the goal of bringing about changes in his thoughts, feelings, and behaviours. It is essential to clarify what not qualifies as psychotherapy. The interventions that use biological means of producing change, such as medication, diet, exercise, and psychosurgery are not psychotherapy. Other intervention such as tuitions and counselling aiming to enhance academic performance and achievement are also excluded. Engagement in leisure time activities such as chatting with friends and relatives, sports activities, or other individual or group activities like dancing, singing; and merely spending time with one's spouse or significant other are also omitted from the standard definitions of psychotherapy, though each of these can be a part of intervention for therapeutic benefit in improving.

TYPES OF THERAPIES

Wolberg, (1995) in his book "The techniques of psychotherapy" discussed psychotherapies in three major categories: Supportive Psychotherapies, Re-educative Psychotherapies and Reconstructive psychotherapies. According to him all psychoanalytical and psychodynamic therapies comes under re-constructive therapy and all time framed, short form, aiming on symptomatology comes under re-educative psychotherapies. While, techniques that are sympathetic in nature and provide hope, and sympathy and are basically uses as an adjunctive therapy are supportive therapies.

Every schools of psychology have different view toward mental illness and their management. Theoretical development of each school was based on particular target group and specific problems. Hence each school have their own understanding for casual and maintaining factors of all type of psychological problems. Therefore, founders and developers of different schools have generated and adopted a little unique way of management. Therapies developed on the theories of these schools are different in nature and we can divide them as follows.

1. Psychoanalysis and Psychodynamic psychotherapies,
2. Humanistic psychotherapy,
3. Gestalt psychotherapy,
4. Existential psychotherapy,
5. Cognitive behaviour therapy,
6. Transactional therapy,
7. Family therapy,
8. Reality therapy.

APPROACHES OF THERAPIES

Psychotherapeutic need of every client differs from another client and Therapists too employ different approaches as per the need. Approaches differ from anything between a few sessions to a number of years of intensive contact between client and therapist. Professionals select a type of psychotherapy for

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a variety of reasons, including its empirical effectiveness. There are three broad categorical approaches toward all type of psychotherapies. In this, the oldest psychodynamic psychotherapy tends towards a pessimistic view of the human condition whereas a humanistic and integrative approach is essentially optimistic in nature and procedures. Psychodynamic model of psychotherapy give more emphasis on conflict and attempts to resolve it.

Humanistic and integrative psychotherapy includes many different schools of psychotherapy in which there is not one accepted theoretical approach. Most of these have a unique theoretical and methodological approach to psychotherapy. There are some general principles that can be found to lie in all schools related to this group or form of approach. The basic idea of this form of psychotherapy is as being intrinsically involved in facilitating the client's development of their potential. A recent development in this form of psychotherapy is the emergence of integrative psychotherapy. Safran and Messer (1997) have identified three most popular forms currently in practice.

1. **Technical Eclecticism:** Approach in which the therapist selects some core ingredients from different therapies that share common features, with aim to develop more efficacious treatment. (Norcross & Grencavage, 1989).
2. **Common Principles:** In this approach some common factors are identified from variety of psychotherapeutic approaches and are brought together. (Nuttall, 2002) argues that one such 'common principle' is the primacy of the therapeutic relationship as a factor for change. Therefore, an integrative interventionist utilizing this approach is giving more attention to develop the therapeutic relationship.
3. **Theoretical Integration:** Integration is described as "two or more therapies are integrated in the hope that the result will be better than the constituent therapies alone" (Norcross, 2005). In this approach therapist constructs his own theory of psychotherapy that draws on other approaches.

The third major approach was identified as Cognitive and behavioral therapy (CBT). Identification and changing unhealthy thoughts and behaviors is the central idea of CBT. Mainly used in a one-to-one setting, CBT is symptom-based, and in a collaborative effort client and therapist both decide the outcome from the therapy and measures its success as therapy progress. Homework and willingness to engage in activities between sessions is the main ingredient of CBT approach.

PSYCHOTHERAPIES FOR ADOLESCENTS WITH EMOTIONAL BEHAVIOURAL PROBLEMS

Psychotherapy with adolescents is different in a number of substantive ways from adults, because an adolescent is a person who is no longer a child but is not yet an adult. Children undergo variety of interrelated changes in these years. The physical changes are associated with puberty, cognitive changes are likely to be intellectual, social changes appear in increased peer-focused orientation, and educational move from elementary to secondary education (Moshman, 2005). In this period of development, most children are prone to exhibit difficult behaviour such as temper tantrums or occasional aggressive outbursts, but this behaviour becomes problematic when it is persistent. The problem could become more severe in special cases like adopted children, who spent their early childhood in and orphanages. The child who is placed with adoptive parents at or soon after birth misses the mutual and deeply satisfying mother

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and child relationship (Clothier, 1943). The belief of "I'm no good: because my parents gave me away, because I was no good and I am going to prove them right" is common in adoptive children (Schechter, 1960). There are various emotional and psychodynamic issues behind this recurrent behavioural and personality pattern that are specifically linked to adoption. Studies support that extreme provocative, aggressive, antisocial, and delinquent conducts are much more consistently among adoptees than their non-adopted counterparts (Kirshner, & Nagel, 1988). Large percentage of adopted children eventually comes to psychiatric or other professional attention because of emotional, educational or social problems (Toussieng, 1962). The most common behavior problems among these adopted children are externalized behavior problems indicative of children diagnosed as having "conduct disorders," who are acting out anti-socially in response to a number of internal negative feelings such as anger, powerlessness, low self-esteem, fear, and anxiety (Smith & Howard, 1991). Rejected children are more physically aggressive and more disruptive and used more verbal threats than other children (Coie, 1990; Newcomb, Bukowski., & Pattee, 1993) when confronted with social problems, conduct disordered children generate fewer solutions than children who do not have conduct disorder. There are also long term consequences for such children as they grow into adulthood, as about 80% of youths who demonstrate severe acting-out are likely to meet criteria for some type of psychiatric disorder in the future (Kazdin, 2004). It is also reported that girls significantly have more number of problems and lower self-esteem then boys (Harper & Marshall, 1991). Moreover, fathers play a much important role in the life of girls, who feels rejected by their fathers often have more adjustment and personality problems (Fish & Biller, 1993). Cognitive behaviour therapy (CBT) usually targets the attitudes and beliefs underlying such type of behaviours. Behavioural problems in children may be affected by both family and child factors, and problems may occur during interactions with parents. Individual intervention strategies are more desirable and effective in adolescent groups. There is some evidence that CBT interventions for adolescents administered in groups may make conduct problems worse (Fonagy et al., 2002). A meta-analysis based on 50 studies incorporating 1640 subject reveals that CBT recipient was better than 76% of untreated subjects in term of anger reduction (Beck & Fernandez, 1998). Cognitive behaviour and skills based approaches are the most widely studied and empirically validated treatments for anger and aggression in youth. Commonly used therapeutic techniques include affective education, relaxation training, and cognitive restructuring, problem solving skills, social skill training, and conflict resolution. These techniques tailored to the individual child and or families need and can foster the development of more adaptive and pro-social behaviour (Blake & Hamrin, 2007). A study revealed that CBT has improved the self-confidence and self-esteem of adolescent and effectively worked in adolescents with depressive and anxiety features (Tripathi & Sridevi, 2014).

It is important to note that anger outburst, aggression difficulties in regulating negative emotions are significant psychological problems of adolescent. Anger and aggression can be understood as a part of other psychological disorder such as conduct disorder, anxiety disorder or as an independent problem maintained by contingencies in the environment. They facilitate negative emotions and impact in interpersonal relationships. Therefore, it is necessary to adapt a little different psychotherapeutic approach in order to assist adolescents in managing such changes. It is also important to adopt a contextual and developmental perspective for describing, understanding, and treating adolescents. Usually, a difficulty in relating with other people and circumstances brings adolescents to psychotherapy, irrespective of the etiological factors of their problems. When specific type of treatment or intervention, especially meant for the adolescents uses psychological constructs and mechanisms it is known as 'adolescent psychotherapy'. Different therapists have developed their own strategies to work with children and adolescents.

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Like, Kazdin, (2002) described self-instructional program including cognitive problem-solving skills to help adolescents in building competencies to deal with anger and aggression. Social skill training (SST) proposed by Bandura (1977) is another approach to deal with adolescents' problems. This include behavioral and social skills training, which involves accurate interpretation of social cues from others, self-instruction/self-regulation training. Other strategies involve the use of self-talk, self-reinforcement in response to appropriate social behaviors, social problem-solving skills. SST also includes the reduction of inappropriate, inhibiting or competing social behaviors that interfere with appropriate social interactions. SST is an essential component of therapeutic program designed for emotional and behavior disorders.

CBT FOR ADOLESCENT

CBTs include a variety of cognitive and behavioural techniques that target on symptom reduction and changes through identification and modification of dysfunctional thoughts, cognitive errors and interpersonal skill building. It is derived from learning theories and gradually moved on to incorporating the mediational role of cognitions in the perpetuation of emotional disorders. All CBTs have some common features consists a comprehensive cognitive and behavioural assessment of thoughts, emotions and behaviours. The core ingredients of cognitive therapies are negative automatic thoughts, cognitive errors or distortions and schema and CB therapist works on these components simultaneously. However, CBT in its conventional form for adults may or may not be indicative for adolescents. There is a need to adopt evidence-based therapies in order to make interventions scientific and effective. Evidence-based interventions are practices that are based on empirical research studies and interventions have been demonstrated to be superior to no treatment or alternative interventions for people with specific diagnoses (Sudhir, 2015).

An integrative approach to psychotherapy may often be a necessity due to the unique demands of working with children and adolescents (Coonerty, 1993). Through integration of different perspectives, both in conceptualizing and responding to child or adolescent difficulties, therapists may ensure a better fit between the interventions and the individual's specific needs. Child and adolescent cognitive styles and self-concepts are still developing, so interventions must be tailored to match these emerging abilities. Furthermore, because children are more contextually dependent than adults (Fitz Patrick, 1993), effective treatments often focus on creating a developmentally appropriate environment and modifying patterns of reinforcement, in addition to improving self-regulatory skills. For example, clinicians could respond to a child's problem behaviours by helping parents implement appropriate sleep routines to address inadequate sleep, as well as helping the child learn to better modulate his or her feelings. Integrative approaches allow clinicians to address interpersonal challenges while also addressing external realities. CBT is becoming the treatment of choice for children and adolescents because it is flexible and includes a variety of behavioural and cognitive strategies that the therapist can choose and apply during the progress of therapy.

STRUCTURE OF CBT SESSIONS

- Review of mood state and recent events,
- Setting agenda,

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- Review of homework,
- Working on targets, like defining problems, identifying & challenging negative thoughts,
- Establishment of home practice (Homework) based on work during the session,
- Feedback and planning for the next appointment.

Literature

CBT is a well-established therapeutic approach for adult as well young people and there are various studies to support the effectiveness in adolescent's behavior and emotional problems. In a meta-analysis of all psychological treatments for depression in child and adolescence CBT was found to be more effective (Weisz et al., 2006). The treatment effects were described as modest compared with outcomes for other disorders, such as anxiety. Watanabe et al., (2007) conducted a further meta-analysis of psychotherapies used a different methodology, including intention-to-treat analyses, and took a clinical perspective on outcomes and found that psychotherapies, especially CBT, which had the largest body of evidence, and interpersonal therapy (IPT) were more effective than no treatment, waiting list or attention placebo at post-treatment in youths. Effectiveness was greatest for 12–18-year-olds. A meta-analysis of child and adolescent psychotherapy outcome research indicates positive and highly significant effect. These effects were more positive for behavioural than for non-behavioural treatments, and samples of adolescent girls showed better outcomes than other Age and Gender groups. Results supported the specificity of treatment effects: Outcomes were stronger for the particular problems targeted in treatment than for problems not targeted (Weisz, Weiss, Han, Granger., & Morton, 1995). Though there is a strong empirical support for CBT in dealing with various disorders of all age groups. Most of the studies has been conducted on adolescent are targeting on externalizing behaviour, especially substance abuse, risk sex behaviour, and aggression but most of the studies are carried out in orphanage or institutions. Only few studies are available on adopted adolescents emotional and behaviour problem whose early life was belonged to an orphanage. There is no such study available in Indian context where cultural attributes are very prominent and adaptation is still not so popular, accepted and children or families both are facing different type of difficulties after adaptation. Therefore, there is strong need to find out some effective treatment strategy to address the issues related to anger and interpersonal conflict. Our aim is to find out a better comprehensive intervention plan to deal with such problems.

Case Study of CBT in an Adopted Adolescent

The authors worked with a case of an adopted adolescent, on whom CBT was employed. Miss "A", 14 yrs old girl, studying in IXth grade, belongs to nuclear family, from Hyderabad, India. She was adopted from a Government Orphanage home at the age of 2 yrs 6 months. She was dropped at orphanage when she was 15 days old. Initially she used to sit alone and remained aloof but gradually, she started interacting with family members. She was short tempered and impulsive since her childhood and she used to break her toys and her belongings whenever she became angry or frustrated. She was admitted in the play school at the age of 2 and ½ years and she loved to go to school and used to participate in all activities. She was an average student since her childhood and no disciplinary complaints from school about her. She maintained a good and healthy relationship with classmates and teachers and had good number of friends in school from both genders. She was a Gymnastic player at national level and practised till 8th standard but discontinued as her father did not want to continue it. She participated in a science exhibi-

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tion during current academic session and was appreciated by the school. According to school authorities she was a well-disciplined, regular, obedient student and always respected the teachers and staffs. She was very much kind towards poor people and beggars since her childhood as she used to bring extra pencils, erasers and sharpeners to donate among needy children. She also used to give her pocket money to beggars and poor children.

As per history, patient A's mother' nature was calm, quiet and sensitive while father had very low emotional tolerance and he used to become aggressive for simple reasons and used abusive language at that time. However, he was a responsible person to his family and always fulfilled the demands as far as possible. But he used to scold 'A' whenever she did any mistake and mentioned that she was an orphan child. While both parents were suffering from some health conditions, Miss A was sympathetic towards mother only as whenever mother felt sick she used to take care of her and always seems worry. She made three attempts to harm her mother in past 8 months, first time she bought acid bottle, second time pushed her, and last time she mixed excessive sleeping pills in her food. After each attempt she felt guilt and accepted her fault (all attempts were on planning phase and before execution of act she was caught by family). She gave the explanation to her mother for such behaviours that she wanted to throw her out from home and send her to other people as she is an orphan child.

Child was diagnosed as "Other mixed disorder of conduct and emotion" as per ICD-10 classification and CBT techniques were used in intervention program. Pre- post research design was used to study the efficacy of Cognitive Behaviour Therapy. She was assessed using Human Figure Drawing Test (HFDT) (Mitchel, Rechard., & Roland,1993). Bender-Gestalt Test (BGT-II) (Brannigan, & Decker, 2003), Malin's Intelligence Scale for Indian Children (MISIC), (Malin,1971). Rorschach's Test, Strength and Difficulties Questionnaire (SDQ-Self report) (Goodman, 1997) and Beck Depression Inventory (BDI-II) (Beck, Ward, Mendelson, Mock., & Erbaugh, 1961). BDI-II and SDQ was administered for pre-post assessment of the intervention.

INTERVENTION

Procedure and Therapeutic Process

Therapist targeted emotional and behaviour problems with integrated therapeutic approach. Intervention was done in two sessions in a week, each session for 55 minutes and total 24 sessions within 12 weeks were planned. Component of intervention comprised with psycho-education, relaxation therapy, anger management, cognitive restructuring, activity scheduling, role playing, social skill training, positive self -statement, and yoga.

Therapeutic Formulation

Miss "A" showed affective, cognitive, and behavioural features consistent with a diagnosis of other mixed disorder of conduct and emotion, increased since last 3 years. In addition, she shows a variety of emotional problems with fluctuation since early childhood. Predisposing factors for her emotional disorder included orphan and institutionalized in infant age. Perpetuating factors were father's aggressive nature and mother's over-concern on her studies. She has deep feeling of inferiority and father's critical approach toward her provoking to negative thoughts. Her anxious and irritable state was maintained

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by her self- criticizing style of thought, and the fact that she and her parents have developed a style of interacting that is either critical or over involved. These maintaining factors occurred within a family situation. There were a number of important protective factors in this case which suggested that could be a positive outcome. These included her average overall level of academic ability and problem solving skills; ability to make and maintain friendships and effective behaviour with relatives; at times she cared for both parents.

Initial Sessions

In the initial session informal conversation including sharing of likes, dislikes, interests and hobbies were carried out to develop rapport with the client. After successfully establishing rapport she was psycho-educated about the nature, course, prognosis and management program. Psycho-education was also given to the mother to gain her support in psychotherapeutic process as psycho-education to the family members improves social functioning and adolescent-parent relationships and it provides great satisfaction with treatment (Stanford et al., 2006). She was educated about the functions of anger and about her personal anger patterns.

Initially clinical interview technique was used for assessing cognition, emotion and behaviour in which client was asked to describe the thoughts, feelings and actions. It has been argued that much important cognition is not accessible to self-monitoring and that individual's reports concerning their own cognitions are often no more accurate (Nisbett & Wilson, 1977). She was asked to maintain a self-monitoring record (thought sheet) and demonstration was given to her by hypothetical examples. It was a three column DTR chart in which she has to write stimulus situation, emotional response, and cognition that helps as a database for discussion of therapeutic principles and goals (Freeman et al., 1990). Through interview, thought sheet (dairy), and with the help of Socratic questioning, following triggering events were identified-

- Mother's excessive concern towards study.
- Father's shouting and criticizing attitude.

Middle Sessions

These sessions were purely cognitive in which underlying cognitive errors or beliefs were indentified with the help of thought challenging and Socratic questioning. She has belief that, her parents do not love her as she is not their biological child and they leave her. Initially thought challenging was used by examining the evidence such as she was asked to explain that how she came to know that her parents do not love her? She described some incidents where she felt that father was humiliating her and mother also support him. She was also elaborated the situations which made her to feel the same. The logical disputing was also used to change her irrational belief with some examples such as biological parents are more demanding and authoritarian. It was also noticed that her mother and maternal family has accepted her very well and she remained happy with them but father and few members of paternal family were used to criticize her. Initially she tried a lot to defend her beliefs but when other meanings of interactions were introduced, she started to accept that, maybe I was wrong. After convincing the patient that her underlying beliefs were maladaptive by providing lot of examples and she was suggested to write sentences which consisting positive and motivating words, for (e.g., My parents and friends likes me,

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as they take care of me, "I am also the part of society and there are so many children like me, I am in better place than other orphan children" and 'I have to take care of my parents).

The next target was to make her understand about the determents of the anger and distinguish anger from aggression. She was explained regarding expectation and appraisals which are linked with anger arousal. Particular attention was paid to inordinately high expectations of others behaviours and to the appraisal of the events as personal affronts or ego threats. This was done to increase her cognitive flexibility. Therefore, started intervening for skill acquisition in which first target was to create ability to "not take things personally", and the behavioural strategies were introduced such as self- instructions in the form of coping and self-statements were designed for specific provocative events (Bellack & Hersen, 1989). E.g (translated) – "when angry, my father can say anything, but my father cares for me, and that's why he scolds me". After setting set of instructions she was asked to start repeating the self-instructions out loud. With practice she learned to use the instructions and eventually instruction become automatic. Behaviour change can be brought about by changing the instructions that Patient give themselves, away from maladaptive and upsetting thoughts to more adaptive self-talk (Meichenbaum, 1977).

Two sessions were planned with parents to involve them in therapy process mainly the father because he did not believe in psychotherapy but after seeing some improvement he willingly came for the session. Initially his point of view was listened carefully. Therefore, He was psycho-educated about the maintaining factors. Therapist explained him the procedure of therapy and he was happy with the progress. Finally, he asked that in what way he can support in the therapy and he was advised to avoid criticizing or comparing with others and to spend quality of time with her. Mother was very much co-operative and ready to follow each and every instruction she was instructed to appreciate and appraise her, whenever she controls her temper. She was also advised to hug the child to make her calm whenever she becomes frustrated. Relationship between the adolescents and their fathers is particularly important for therapy prognosis and one has to consider the respective relations with both parents for therapy prognosis. Interest and readiness of parents (mothers as well as fathers) for a close cooperation are higher than generally expected (Mattejat & Remschmidt, 1997).

In these sessions relaxation technique was introduced and rationale behind this technique was discussed in detail. She was taught to relax muscles (e g, arms, face, jaw, tongue, neck, shoulders, trunk, and lower limbs) one by one. In first session all the procedure regarding relaxation was taught by demonstration. She was instructed to sit on the chair comfortably, close eyes and try to concentrate on breathing and asked to follow the instructions. (Ex- Clench the right fist, feeling tension in the fist and forearm, clinch the left fist, feeling the tension in the fist and forearm, bend the elbows and tensed the biceps keeping the hands relaxed, straighten the arm and tensed the triceps leaving the lower arms supported by the chair with the hands relaxed and so on). Initially she was not able to concentrate and used to open her eyes in between but later she started doing well and immediate after each session her subjective feeling was recorded on 10-point scale. After third session she rated 6 on 10-point scale. She was advised to follow the procedure by her own and also asked to practice it two to three time at home and she went fluent in next few sessions.

Meanwhile, she was targeted on communication skills as it was found through interview and thought dairy that she had a problem in interaction with parents. The role play technique was introduced and initially, she was asked to play her father's role and demonstrated how to control and divert the situation. Some communication strategies were taught to handle her mother that starts the conversation with mother after reaching home before she asks. Role playing is a very common strategy to assess and train clients in social skills training (Bellack & Hersen, 1989).

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To improve her mental well-being and positive attitude toward self, she was introduced to yoga techniques in which five Asna's including Padmasna, Sarvangasna, Pashchimottasna, Bhujang asna and "Om chanting. Yoga was introduced for arousal reduction as it is personally suited program (Bellack & Hersen, 1989). In fact, later mother was also advised to join the client in yoga session.

Terminal Sessions

In these sessions homework dairy was checked and self-rating and evaluation of therapy was obtained. Activity scheduling was done to bring her in more active and worthy life which was done on the basis of her previous routine such as early morning yoga, spend time with parents, fix time for homework and other studies, playing outdoor game (Badminton), weekly visit to grandparents or outing, etc. All scheduling was done with her concern which helps in reducing an apparently overwhelming mass of tasks (Hawton, 1989). Post therapeutic assessment was carried out with BDI-II, and SDQ. In the terminal session she was encouraged to maintain the improvements and advised to follow up once in a month for three months and reported the progress. Parents reported that her behaviour was significantly improving and she was doing well in academics as well as at home. She has started to maintain herself calm at home and used to help her mother and prepares favourite food for her father on holidays. She is developed to be clam when her father shouts on her. She practiced yoga regularly with her mother. Overall an integrated approach had good prognostic effect on the client.

IMPLICATIONS FOR CBT OUTCOME RESEARCH

Parental Involvement in therapeutic process with adolescents becomes an important for many of the behavioral and emotional problems. Research evidence suggests that parent involvement is likely to improve treatment outcome in anxious children and adolescents (Albano & Kendall, 2002; Barrett, Dadds., & Rapee,1996). Parents can be involved as a co- therapist, as collaborators or as a consultant who provide important assistance during therapeutic process. Parents are also instructed to provide positive reinforcements during the course of therapy and their active involvement in the therapeutic plan will vary depending upon degree of impairment, co-morbidity, age, and gender. Conflict resolution skills and handling negative self talk affect regulation skills such as learning to relax or use social problem-solving skills that are used in the management of problems related to anger (Novaco, 1979).

CONCLUSION

Integrated psychotherapeutic approach will improve the self-confidence, feeling of security and improving self-esteem, self-respect, confidence and emotional well –being of an adopted adolescent with emotional and behavioural problems. Yoga could be effective in improving emotional well- being and anger management techniques helps to control the emotions in adolescents. Parental involvement in therapy with adolescents is much needed. Findings of the case study mentioned in the chapter are difficult to generalize, however, the case was unique in nature and finding a group for such type of problems is a difficult task. CBT techniques with yoga can be applied with techniques such as stress inoculation and anger management in adolescents.

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FUTURE RESEARCH DIRECTION

The assumption that a single form of therapy can be generically applied to a broad range of adolescent problems has been laid to rest. Similarly, the assumption that all forms of therapy are equally effective has not been supported. A range of adolescent disorders and a number of widely practiced forms of therapy have not been adequately evaluated. Although anxiety, depressive, and conduct disorders make up the bulk of adolescent referrals, there are a number of clinical problems in adolescents that need to be evaluated and evidence based managements for them.

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KEY TERMS AND DEFINITIONS

Adolescent: In the process of developing from a child to an adult.

Adoption: The action or fact of adopting or being adopted.

Aggression: Feelings of anger or antipathy resulting in hostile or violent behaviour; readiness to attack or confront.

Cognitive Behaviour Therapy: A type of psychotherapy in which negative patterns of thought about the self and the others or world are challenged in order to alter unwanted behaviour patterns or mood.

Integrated Psychotherapy: An openness for various ways of integrating diverse theories and techniques.

Intervention: The action or process of intervening.

Sessions: A fixed time for therapy.

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Chapter 62
Play Therapy for Children With Neurodevelopmental Disorders

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ABSTRACT

A play is referred to the language of children through which they express and communicate their feelings, thoughts, and behavior in a playful way. Play therapy enables children to gain an understanding of themselves and the world around them and helps them to overcome behavioral, emotional, social, and various other issues through play activities. The chapter majorly focuses on the effectiveness of play therapy in different neurodevelopmental disorders. Recent trends and studies suggested that play therapy is one of the most favored therapeutic approaches used in the children with various neurodevelopmental disorders.

INTRODUCTION

Human life begins from childhood to adulthood. From the first day of life, everyone has their own temperament, perception and meaning to strive for survival which we call as "individual differences". Childhood is the initial stage of the circle of development. It is the utmost factor to be followed appropriately for achieving all the developmental milestones successfully. If this stage of childhood does not function properly, it may lead to the psychological, social, emotional and behavioral issues.

Presently, increased numbers of children have been diagnosed with neurodevelopmental disorders such as intellectual disability, autism spectrum disorder, attention deficit hyperactivity disorder (ADHD), and specific learning disorders. There are many therapeutic practices that help in the management of these disorders; one of them is play therapy. The most prominent activity, in which children mostly involve, is playing. Through playing children are availed with valuable cognitive, emotional, and interpersonal

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learning opportunities. For children playing is the way to express their significant emotions, feelings and behavioral pattern of life. By the process of play therapy, children work on their own emotional and psychological problems in their own way. It is a natural expression of play where the therapist provides a secure and comfortable environment for children to express their feelings, thoughts, and behaviors within the acceptable limits. The present chapter focuses the use of play therapy and its effective application among children with neurodevelopmental disorders.

DEFINITIONS OF PLAY AND PLAY THERAPY

Play provides a developmentally responsive means for expressing thoughts and feelings, exploring relationships, make sense of experiences, disclosing wishes, and developing coping strategies. (Landreth, 2002)

"For children, play is the natural, spontaneous, and comfortable medium through which children express themselves" (Axline, 1947).

Play therapy is a developmentally-sensitive intervention to help the children with significant emotional problems. It:

is a well thought-out, philosophically conceived, developmentally-based, and research-supported method of helping children cope with and overcome the problems they experience in the process of living their lives. (Landreth, 1996)

Play Therapy is defined as:

the systematic use of a theoretical model to establish an interpersonal process wherein trained play therapists use the therapeutic powers of play to help clients prevent or resolve psychosocial difficulties and achieve optimal growth and development. (Association for Play Therapy, 2011)

HISTORICAL DEVELOPMENT

The famous Greek philosopher Plato (429-347 B.C) stated that "You can discover more about a person in an hour of play than in a year of conservation". The effective use of play as an intervention with childhood problems was initiated by Freud (1909) who published his work with the classical case of "Little Hans," a five-year-old boy with phobia. During his treatment, it was based on the father's notes about Hans' play that Freud advised the father to resolve his son's underlying conflicts and fear. It was the first recorded case of "Little Hans" in which a child's difficulty was understood in the terms of emotional problems. Hug-Hellmuth (1921) was the pioneer therapist who provided play materials in the therapy with children to promote their self-expression. Hug-Hellmuth discouraged psychoanalysis of children below six years of age and opined it to be potentially dangerous. Hug-Hellmuth introduced play as an intervention in child therapy. Klein (1955) started using play to analyses children under the age of six years. Klein believed that a child's play was served same as that of free association used among adults for their underlying conflicts. Freud (1946) applied the basic principles of psychoanalysis to children in therapy. Freud described that the children's play may be a conscious repetition of their day-to-day life

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activities. On the other hand, Klein used play as a medium for the verbalized free association to work with children. Levy (1938) developed a structured play approach known as "release therapy". It helped children in recreating their feelings and thoughts or any other experiences towards a specific traumatic situation through play. Levy described that when a child feels comfortable, gets support, and security, along with appropriate play materials then the child may be able to play out a previous traumatic event over and over until the child will be able to let go of his/her fear, anxiety and other emotions related to those traumatic situations or events.

Axline (1947) was the most well-known personality in the field of play therapy. Axline developed a concept of non-directive play therapy to work with children and also revealed the value of the relationship between the therapist and the child via play, which allows the child to feel safe so that the process of growth may occur. Through establishing the rapport with the child in play therapy, the therapist will be able to balance his/her emotional maturity and could easily develop varied emotional expression and exploration of the various levels of the emotional process. Axline (1969) created eight basic principles as a help to guide the child-centered play therapist: (1) the therapist should develop a trusting and affectionate relationship with the child; (2) the therapist must accept the child the way he or she is; (3) the therapist should be lenient enough for the child to experience freedom in expressing his or her emotions completely; (4) the therapist should recognize the feelings and reflect them back to the child in a genuine manner; (5) the therapist must truly believe that the child is able to solve his or her own problems; (6) the therapist must refrain from directing any actions, speech, or play for the child; (7) the therapist should have patience throughout the gradual therapeutic process, and; (8) the therapist should be the one to create limitations necessary to anchor the relationship in the world of reality.

Rogers (1951) developed "client-centered therapy". Basically, it was the foundation for "child-centered play therapy". Carl Rogers emphasized deeply the relationships between the child and the play therapist based on trust and acceptance. It was a new perspective on emotional and psychological difficulties and the altered process within the therapy. Solomon (1938) developed an "active play therapy" in which a procedure was used with acting out and making children impulsive. It is a technique of abreaction that may occur through the safe play and also a supportive relationship. A child can play out difficult feelings and experiences, and thereby avoid acting them out through socially inappropriate behaviors.

In the year of 1982, Schaefer and O'Connor established the Association for Play Therapy (APT) who showed a major advancement in the field of play therapy. Later, the concepts of play therapy were applied and extended into many other various situations and ways such as in different clinical settings and among a diverse population. According to Landreth (1991), the different objectives of child-centered play therapy were to help children with various problems:

- To develop the positive self-concept.
- Become more self-directing.
- Become more self-accepting.
- Become more self-reliant.
- Experience a feeling of control.
- Become sensitive to the process of coping.
- Become more trustworthy.
- Develop an internal source of evaluation.

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RATIONALE FOR PLAY THERAPY

The rationale of play therapy is to act as the symbolic language of self-expression in the children with maladjustment. Normally, adults communicate their emotions and thought process through verbal language. It is a process which transforms personal experiences into abstract skills. Children do not have that specific skill to perform complex operations until eleven years of age (Piaget, 1962). Children express their emotions and experiences through play (Ginott, 1960). Jernberg (1979) suggested the technique of touch to reconnect and provide a secure relationship between parents and the child. The parents were taught to respond empathically and to understand the nonverbal communication of the child through a playful approach.

Packman and Bratton (2003) found an activity-based intervention for children with learning disability. They described this specialized treatment to be very effective on those children who exhibited problem behavior at home and school. These kinds of interventions often involve the use of the symbolic expression which helps adolescents to develop their expression and exploration. It also allows children to have a safe distance between themselves and reality (Bratton & Ferebee 1999; Malchiodi, 2005). Harvey (2006) has developed a concept of "dynamic family play therapy". Basically, it is an action-oriented therapeutic process in which family members are involved in therapy sessions. Parents are instructed to display their creativity and help them adapt to traumatic situations. There are various techniques used to rely on the strength of the parent-child relationships as a significant factor in the healing process. Schaefer (2003) promoted and suggested play therapy for adolescents to encourage the use of language and benefits of play across the lifetime. The major goal of play therapy with adolescents was to help them feel more secure, comfortable and talk willingly about their feelings and experiences (Gallo-Lopez & Rubin, 2012).

GOALS OF PLAY THERAPY

Though there are various types of psychotherapies, the basic goals of play therapy are to decrease and modify maladaptive behaviors and also to help improve the adaptive ones. Some major goals of play therapy include:

- Improving communication pattern with verbal expression.
- Enhancing problem-solving and coping skills.
- Improving mood and affect.
- Improving impulse control.
- Developing underlying conflict.
- Developing self-awareness.
- Improving self-confidence.
- Developing greater self-esteem.
- Developing the more positive self-concept.
- Improving social skills.

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FORMS OF PLAY THERAPY

In different types of play therapies, some basic concepts were originated from the past and several most influential forms of therapies that are existing in the current scenario.

Psychoanalytic Play Therapy

Freud (1928) published comprehensively about how they incorporated play as a therapy into the psychoanalytic approach. As free association technique was used in adult clients, they substituted the natural tendency of the children to play together with free association. They described that the process of play uncovered the underlying problems or conflicts of children. In support to the therapy, the study done by Clausen, Ruff, Wiederhold, and Heineman (2012) applied the treatment for foster children who received psychodynamic play therapy over three years. Researchers found significant improvements with regard to reduction in anxiety, aggressive behavior, depression, interpersonal issues and problems related to school.

Structured Play Therapy

Structured play therapy is the exact opposite of non-structured approaches because the functions of play therapy is considered to be within the confined limits which are organized by various play materials provided in various play situations. Levy (1938) described structured therapy as a directive approach where the therapist provides security, support and other materials required to recreate stressfully or deal with any traumatic events of the child so that the child may cognitively understand the negative emotions and feelings associated with those adverse situations.

Adlerian Play Therapy

Adlerian play therapy is the most flexible approach which is based on the human needs regarding feeling the sense of "belongingness". The goal of the therapy is to meet the individual needs of the child as well as to give a sense of control and mastery to the participant. Taylor and Bratton (2014) applied Adlerian play therapy in their study with a four-year-old boy who was experiencing bereavement after the loss of his mother. After the treatment sessions, the authors found significant changes, as well as, an increased in his feelings of belonging.

The responsibility of the therapist is not only to explore children's lifestyle but also to gain knowledge about their emotions, behavior, relationships and perceptions towards self and others. The therapist should also conceptualize the thought pattern, behavior and feelings of the child's parents because it will be beneficial for him to understand the underlying factors of parents with regard to their in the relationship with children (Schaefer, 2003). Many play therapists include even parents or caregivers to train them on the methods to communicate with the child in a constructive way.

Client-Centered Play Therapy

Axline (1947) discussed that client-centered play therapy emphasizes the therapist's role including the qualities of genuineness, unconditional positive regard and empathic understanding towards the children. In the therapy, the therapist provides an acceptance, support and secure feeling instead of focusing on

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the problems of children. Axline indicated that therapist ought not to be in hurry of the problems of the child. The primary goal of client-centered play therapy is self-directed growth and change in the child. Moustakas (1959) indicated that this process develops the exploration of feelings and culminates in the child's an increased sense of self-worth. Ray, Armstrong, Balkin, and Jayne (2015) conducted a systematic review and meta-analytical study on 23 children who received child-centered play therapy in school. The conclusion of the study revealed that play therapy generated statistically significant outcomes in the children with internalizing problems, disruptive behavior, and academic problems.

Cognitive Behavioral Play Therapy (CBPT)

Knell (1993) developed the concept of cognitive behavioral play therapy in which cognitive and behavioral interventions are incorporated into a play therapy paradigm. Knell described six steps of CBPT:

- CBPT focuses on all the children through play in therapy.
- It incorporates children's imaginations, thinking, fantasies and environment in therapy sessions.
- It provides various techniques to improve appropriate behavior and positive thinking.
- It is a directive and goal-directed approach and not open-ended.
- It involves demonstrated techniques into therapy such as modeling.
- It involves an empirical examination of treatment into therapy.

Hall, Kaduson, and Schaefer (2002) used 15 techniques of cognitive behavioral play therapy with the children of age range between 4 to 12 years diagnosed with ADHD. After the completion of the therapy, children showed the significant reduction in the symptoms of hyperactivity and attentional problems.

Filial Play Therapy

Guerney (1964) developed filial therapy. It became the most popular therapy in the field of play therapy. This technique was unique as it allowed parents to implement play therapy sessions at home. The basic concept of this therapy was to make the parents and caregivers get involved in play therapy sessions. In the sessions, parents were the primary participants so that the lack of family intimacy, knowledge and the emotional conditions of the child can be eliminated. Furthermore, Schaefer (2003) described that if the parents understand the problem and psychological state of the child, they need not seek any psychological help from any professional play therapist. They will involve in the therapy sessions on their own as a primary play therapist with the child.

TECHNIQUES OF PLAY THERAPY

The Feeling Word Game

The Feeling Word Game allows children to express and connect their emotions and feelings in a non-fearful and non-threatening way. It is very difficult for children to express their emotions verbally because sometimes they do not connect themselves with emotion-provoking situations. When they are involved in play activities, they talk and express their feelings via play.

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The therapist narrates a story regarding himself including both positive and negative feelings. At the end of the story, therapist place poker chips in front of the child for every appropriate feeling. It shows that everyone can have more than one feeling at the same time. Then therapist tells another story which is completely non-threatening to the child including both positive and negative feelings. Now, the child receives a tin of feelings and is instructed to put down what he may feel under those situations. After that, child narrates another story to the therapist to put down his feelings in the tin of feelings. It continues until major issues are discussed.

Application

The specific technique is effective to the children with conduct problems, ADHD and anxiety issues.

The Pick-Up-Sticks Game

The Pick-Up-Sticks Game was developed by Barbara McDowell (see Kaduson & Schaefer, 1997, pp. 145–149) for the purpose of improving affective expression in children. It is a technique designed for the children to express their emotions and pair various affective states related to the environmental conditions. To use the technique, children must know color-feeling pairs which mean Color- Your- Life.

Therapist starts with reviewing color-feelings pairs by playing Color-Your-Life. It may be discussed verbally also. Then the therapist describes the use of Pick-Up-Sticks in therapy sessions. Now, either the therapist or the child holds sticks in his fist and drop it on the table. Basically, they have to remove one stick without moving any other sticks. The game ends up when one of the players move other sticks accidently. Every time the stick is removed, the child must tell about a time when he had a feeling associated with the color of the stick. Once the therapist gets his turn, the therapist gives the response, tailored to the particular need of the child. This technique evaluates and interprets the color of the sticks chosen and avoided by the children and the overall affect during the play session.

Application

This technique is used among children individually or by making them into or in a small group. The child must have adequate verbal skills and knowledge about color-feeling pairs. This therapeutic strategy is more successful with children who are competitive because they have a particular desire to win that force them to choose the particular Pick-Up-Sticks which they normally avoid.

The Mad Game

The Mad Game is designed by Patricia Davidson (see Kaduson & Schaefer, 1997, pp. 224–225) to provide awareness to the children with anger suggesting that anger is a primary emotion which is easily acceptable. During the session, therapist divides blocks between himself and the child. Then, he instructs the child to put each block on the top of the previous one once the turn comes. Every time they have to express any incidence which makes them angry. All events are acceptable either it is silly or serious. Once all blocks are stacked then the child would be instructed to mention one last event which made him seriously angry. At last, the child has to make a mad face and knock down all the blocks.

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Application

This technique can be used to show the slightly altered emotions rather than anger such as fear, anxiety and sadness.

Relaxation Training: Bubble Breaths

Bubble breaths technique is a very effective relaxation technique which involves teaching children deep and controlled breathing to make them aware regarding their body and mind connections. The therapist will take the child into a specific room where the child blows bubbles. The child and the therapist can pop those bubbles before they fall. After that, the therapist instructs the child to blow only one big bubble. Now, the therapist tells the child to take a deep breath from the stomach and exhale in very slow manner. Here, the therapist discusses with the child that whenever he gets angry, his brain demands more air and lungs cannot provide it. When they breathe slowly then the brain will not demand more air and heart and lungs will work slowly in a far better way. If they get angry and take a deep bubble breath they can prevent their anger easily.

Application

It is very simple, non-expansive and non-threatening technique, especially for those children with anger and anxiety.

Using a Puppet to Create a Symbolic Client

The use of puppets has a precious role in play therapy. All children attribute their emotions onto puppets. There are various children who are extremely anxious, fearful and withdrawn towards involving in therapies. But puppet is very useful as a symbolic technique so as to engage these kinds of children into therapy. The therapist observes anxiety and fear of the child and shows him a puppet. Then he remarks the puppet as anxious and fearful. Therapist discuss with the child to make the puppet comfortable. Actually, the therapist is achieving three major goals:

- Show empathy to child's emotions.
- Involving in the child's participation in the therapy.
- Establishing rapport with the child.

Application

The age range of children to adopt this technique is, between 4 and 8 years and is especially applicable to those children who are anxious and withdrawn regarding the therapy.

The Spy and the Sneak

The Spy and the sneak technique were developed to change the adverse and the negative interactions among family members in a positives way. Once it is transformed, it increases the enjoyment among

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each other. Parents start observing positive and adaptive qualities of their children and give positive reinforcement towards their adaptive behavior. It gives an insight to the children as well, that they are getting more attention from the parents in an adaptive manner.

The therapist discusses with the child about a sneaky positive behavior that makes the parents surprised. The therapist guides the child to be a "sneak" and the parents are the "spy" who will find out what the sneak has done. He has to do brainstorming for the child to do at least three to four behavior related to the treatment goals. In the further sessions, parents will be informed about the role of the spy and will be invited to the session. They have to jot down all the good behaviors of their child for a week at home. Both the parents and the child are instructed not to discuss the findings with each other. Finally, the therapist will set a discussion regarding how the parents and the child feel about the child's engagement in positive activities. The child also gets pleasure to receive the positive attention followed by surprising the parents more.

Application

It is an excellent technique to be used among families experiencing negative interactions. After few therapeutic sessions, therapist switches the roles of parents and the child with each the sneak.

PLAY THERAPY IN NEURODEVELOPMENTAL DISORDERS

Various evidence-based studies have assessed the effectiveness of play therapy among different populations. Only very few experimentally designed studies were done. Some of them were in the form of case studies while others were anecdotal reports. Gall et al. (1996) described that case studies are the weakest method to measure the outcome of the treatment due to its lack of internal and external validity. All the experimental studies have been mostly preferred with various case studies since it has increased the validity of the studies that controlled their effects by confounding variables. In this section, controlled studies showed the effectiveness of play therapy, especially, all those studies that investigated the effectiveness of play therapy with children.

Intellectual Developmental Disorder

Morrison and Newcomer (1975) did a study to measure the effectiveness of directive and non-directive play therapy for children with mental retardation. The study concluded that no evidence revealed more effectiveness regarding directive and non-directive play therapy. Swan and Ray (2014) did a study related to CCPT on the children with intellectual disabilities who were showing the symptoms of irritable behavior and hyperactivity. The study showed the reduction in irritable behavior and hyperactivity after following the treatment. After three weeks, despite the treatment sessions, all the improvements were maintained by the children with intellectual disability.

Kachalaki and Faghirpour (2015) conducted a study on "The effect of play therapy in the development of cognitive skills, social and motor educable mentally retarded students". The research findings suggested that play therapy indicated improvements in the concept of mental development such as "length, weight, volume, appropriate eye-hand coordination, social development, academic achievement and motor developmental skills among educable children who were already diagnosed with intellectual

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developmental disorder. Jacob and Brinda (2017) did a study on "The effect of non-directive play therapy on development among mentally challenged children in selected institutions of Coimbatore". The major findings of the study showed that non-directive play therapy has a significant effect on the development of mentally challenged children.

Autism Spectrum Disorder

Kenny and Winick (2000) utilized the techniques of directive play therapy in the treatment of children with autism. The treatment showed significant changes in the children with Autism. Josefi and Ryan (2009) took 16 sessions of non-directed play therapy with 6 years old boy who was diagnosed with severe autism. After receiving all the sessions, he developed the ability to engage in pretend play, increased autonomy and showed improvement regarding the level of empathy. Parker and O'Brien (2011) discussed regarding a 7 years old boy diagnosed with ASD and showed a significant improvement after receiving sand play activity as part of play therapy in his/her school. Ware (2014) did a single case design study on play therapy for children with ASD. The study was to find out the impact of non-directive play therapy on social competence, empathy and self-regulation with the children who diagnosed with ASD. The results supported play therapy as an intervention that helps children to develop all these areas.

Attention Deficit Hyperactivity Disorder

Naderi et al (2010) conducted a study on "efficacy of play therapy on ADHD, Anxiety and Social Maturity in 8 to 12 years aged clientele of Ahwaz metropolitan counseling clinics". The results revealed that play therapy is an effective intervention for children who experience various problems such as ADHD, and anxiety. Barzegary and Zamini (2011) did a study to examine the effect of play therapy of 14 male participants with ADHD. The results found that play therapy was an effective method of treating children with ADHD. Robinson et al. (2017) conducted a study on "The effects of child-centered play therapy on the behavioral performance of three first grade students with ADHD". The findings suggested that CCPT was an effective intervention for the first-grade students with ADHD in school settings.

Learning Disorders

Blanco and Ray (2011) revealed in their study that children who received Client Centered Play Therapy (CCPT) as an experimental group showed significant improvement in their academic performances as compared to the children with the control group. Khaledi et al. (2014) did a study on "The positive impact of play therapy on writing performance of students with dysgraphia". Results revealed that play therapy had a positive impact on the students with dysgraphia who had spelling difficulties. Sarpoulaki and Kolahi (2016) did a study to evaluate the efficacy of play therapy on children with spelling disorders and aggressive behavior. The result found that after using play therapy there was a significant reduction in aggressive behavior. They also noted an improvement in spelling disorder among the subjects. Esmaili, Shafaroodi, and Zardkhaneh (2017) conducted a study on:

Effect of play-based therapy on the meta-cognitive and behavioral aspect of executive functions, a randomized, controlled, clinical trial on the students with learning disabilities.

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The result concluded that play-based therapy is highly effective on meta-cognitive and behavioral aspects of executive functioning among the subjects.

PLAY THERAPY IN OTHER CHILDHOOD DISORDERS

Play therapy is the best therapeutic technique which provides opportunities to the children to express their underlying conflicts or various other problems in a better way. In India, the prevalence rate of substance abuse is very high which lead to domestic violence, family crises, conflicts in interpersonal relationships and major psychiatric illnesses. Substance abuse or multiple addictions cause violence at home. Mostly, parents are the primary suspects in children with physical abuse. Once it is cleared, the child has to be removed from his home for security and safety. There are thousands of children who can get benefits from the long-term treatment of play therapy. It includes all kind of children such as children with sexual abuse (Hill, 2006), violent abuse (Chazan & Cohen, 2010), traumatic events (Webb, 2011), and children who lost their loved ones (Rakesh & Srinath, 2010).

Most of the time in an extreme case, children and adolescents experience unresolved anxiety, fear and sudden traumatic events that may not exhibit any negative behavioral changes; however, they develop aggressive, rebellious and withdrawn behavior which may lead to severe psychological problems in their life (Schaefer, 2010). In addition, children with grief reaction experience differently than an adult individual. They display their pain and the reaction of grief in "short bursts" which is opposite to prolonged period of time due to their short attention span (Landreth, 1996). It may affect their temperament, family dynamics as well as other resources even more if they do not receive any psychological help or treatment. (Collins & Collins, 2005). Schaefer (2003) described that children who experience grief must participate in filial therapy until they bereaved both the parents. However, it is a must for the parents or caregivers to observe initial sessions of play therapy and then to receive specific training for further treatment process (Schafer, 2010).

Various research studies have shown that after receiving play therapy, children who have been abused in any way such as sexually, emotionally, physically and neglectfully has come up with stability and positive effects in their lives (White & Allers, 1994). These studies also found a strong correlation between faster and effective healing progress from the use of play as a therapy either by a trained play therapist or parents. A research study conducted on 26 children with sexual abused showed improvement in their coping skills and behavior after receiving 10 sessions of play therapy (Blankenship & Lawver, 2008). Although, 10 sessions were not well enough to generate the appropriate outcome of the study. Due to that researcher monitored the study for a longer period of time. After that, approximately one-third of all the children showed significant improvement with regard to the reception of play therapy.

Flahive and Ray (2007) discussed that those samples, who received sand tray/play therapy in their study, showed significant differences in the problem of externalizing & internalizing disorders as compared with a control group. Ray, Schottelkorb, and Tsai (2007) conducted a study on the children, exhibiting symptoms of ADHD. After receiving play therapy, there was a positive impact on the overall symptoms such as internalizing and externalizing problems, depression, anxiety, self-concept, and treatment compliance.

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IMPLICATIONS OF PLAY THERAPY

Play therapy is a non-threatening and effective treatment for the children with emotional and behavioral problems. Basically, it is an issue for the adults who use their energies to change the maladaptive behavior of their children and deal with their emotional problems. Therefore, play therapy is a very effective intervention to provide help to those children with various problems.

Play therapy is also very effective across all settings, age, race, gender as well as clinical and non-clinical populations. It is extremely useful in a school setting with all age groups. There is an implication in Indian scenario where it applies for different children belonging to diverse socio-economic backgrounds. Even the involvement of the parents is very common in both Indian as well as western studies. It is also found that the role of the parents in therapy sessions showed a significant treatment outcome. To give proper training to parents regarding how to help the child while play at home is worthwhile.

Various research studies suggested that play therapy may take approximately 30 sessions to indicate the improvement and overall functioning of the children. The understanding views of all trained play therapists are crucial towards their small and young clients who receive therapy sessions with its full effects. This approach prevents all the future problems which may develop in children across their life-span.

INDICATIONS OF PLAY THERAPY

Play therapy has been used as a major psychotherapeutic technique to treat disorders among children with:

- Specific phobia
- Panic disorders
- Generalized anxiety disorders
- Obsessive-compulsive disorder
- Depression
- Post-traumatic stress disorder
- Separation anxiety disorder
- Selective mutism
- Autism spectrum disorders
- ADHD
- Enuresis
- Sleep problems
- Learning disorders
- Conduct disorders

CONTRAINDICATIONS OF PLAY THERAPY

There are very few disorders to which play therapy cannot be applied. They include:

- Chronic illnesses
- Burn victims

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- Children with deaf
- Children with physically challenged
- Dissociation
- Schizophrenia

FUTURE RESEARCH DIRECTIONS

In the field of play therapy, the future research needs to take into consideration the following factors:

- Play therapy still works on the small number of participants which cannot be generalized to a normal population. Sample size must be large for future studies.
- Mostly, studies do not report work experience of the therapist in this field. Various studies also do not show any standardized protocol, even though all the procedures of play therapy provide clear guidelines and clarity.
- There are significant research studies which reveal the design of therapy versus absence of treatment but still, researchers are not able to provide clarity about play therapy being the most effective intervention. It must be compared with other therapeutic treatment with children.
- Different studies focused on specific play therapy treatment among specific populations. The most important question is that whether the interventions facilitate play and it ought to be empirically researched. There are few research guidelines regarding how to facilitate play but of those only very few are based on empirical works.

CONCLUSION

Play therapy is a universal, dynamic and upcoming field in the ground of psychotherapy. From the earlier period, play therapy has been used as a most effective psychotherapeutic treatment for different psychiatric disorders. The present chapter mainly focused on the efficacy of play therapy as an intervention in the children with neurodevelopmental disorders. Through various evidence-based research studies, it is found that play therapy is an intervention which may be significant to reduce symptoms of disorders and improve adaptive behavior. The conclusion of the chapter revealed the effectiveness of play therapy in various neurodevelopmental disorders.

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KEY TERMS AND DEFINITIONS

Bubble Breaths: It is a technique of relaxation which involves teaching children deep and controlled breathing to make them aware regarding their body and mind connections.

Feeling Word Game: It allows children to express and connect their emotions and feelings in a non-fearful and non-threatening way.

Mad Game: It is designed to provide awareness to the children with anger suggesting that anger is a primary emotion which is easily acceptable.

Neurodevelopmental Disorders: It is a group of disorders that occur during the developmental period and affects all the developmental aspects of the child such as communication, cognition, social, etc.

Non-Directive Play Therapy: It is a psychological intervention method used to help children communicate their inner experiences through the use of toys and play.

Play: It is a physical or mental activity that engages the individual either for enjoyment or recreation.

Play Therapy: It is a form of psychological intervention where the play is used as a medium to help children to express or communicate their feelings.

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Chapter 63
Cyber-Victimization and Cyber-Aggression:
Personal and Situational Factors

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ABSTRACT

This chapter review some of the principal personal and situational factors established through recent international research that contribute to explain the phenomenon of cyber-victimization and cyber-aggression among adolescents, as well as its relations with socio-demographic variables (age, sex, grade level). Personal factors, like emotions, motives, normative beliefs, and moral disengagement were discussed jointly with situational factors, as the role of peers, friends, school and family environments, in addition to the possible interactions of these variables on cyber-bullying. The chapter ends with a discussion of future directions about the research on this phenomenon, namely in what concern educational programs that can use digital technology to help adolescents, schools and families to deal with cyber-bullying.

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INTRODUCTION

In the last decade cyberbullying has been the focus of attention of several researchers that emphasize the transcultural and transnational nature of the phenomenon (e.g., Kowalski, Giummetti, Schroeder, & Lattanner, 2014; Menesini, Smith, & Zukauskiene, 2010; Paladino, Menesini, Nocentini, Luik, Naruskov, Ucanok, … & Sheithauer, 2017) as well as its association with the proliferation of digital technologies use among children and youth (e.g., Livingstone, Haddon, Gorzig, & Olafsson, 2011; Twyman, Saylor, Taylor, & Comeaux, 2010).

Several studies (Beran & Li, 2007; Li, 2007; Ortega, Calmaestra, & Mora-Merchan, 2008; Ortega, Elipe, Mora-Merchan, Calmaestra, & Vega, 2009) suggested that cyberbullying is not a new type of bullying, but it's rather a new manifestation of bullying through digital means. Cyberbullying has been generally defined as repeated aggressive and intentional actions (as was bullying) but with the use of electronic devices (e.g., cell phones and computers) and associated programs (e.g., e-mail, social networks, and other Internet tools), by means of sending messages and/or creating websites that insult, denigrate, threaten, or harass others in some way (Amado, Freire, Matos, Vieira, & Pessoa, 2012; Amado, Matos, & Pessoa, 2009; Li, 2007; Kowalski, Limber, & Agaston, 2008; Martins, Veiga Simão, Freire, Caetano, & Matos, 2016; Smith, 2009; Willard, 2005). So it consists of an indirect form of bullying and frequently represents continuations of face-to-face bullying situations that amplify the roles played on face-to-face bullying or change those roles (Caetano, Amado, Martins, Veiga-Simão, Freire, & Pessoa, 2017; Kowalski, Giummetti, Schroeder, & Lattanner, 2014; Ortega, Calmaestra, & Mora-Merchan, 2008; Ortega, Elipe, Mora-Merchan, Calmaestra, & Vega, 2009; Twyman et al., 2010). Paladino et al. (2017) in study aimed to examine the role of different criteria in the perceived severity of cyberbullying incidents, and the differences between four countries (Estonia, Turley, Germany and Italy) found that the criteria used by adolescents are the same across the four countries, and include imbalance of power, intentionality, repetition and anonymity. However, the specific level of severity associated with each factor differs from country to country.

In contrast with other types of bullying, cyberbullying does not tend to decrease with age or grade level; generally it is found a pattern of increase from elementary to secondary education, and this tendency can also be found in college and university students (Francisco, Veiga Simão, Ferreira, Martins, 2015; Kowalski et al., 2014; Souza, Veiga Simão, Ferreira, & Ferreira, 2017; Walker, Sockman, & Koehn, 2011).

The enormous amount of research done in the last decade about cyberbullying allowed to identify several variables that are associated either with cyber-aggression as well as cyber-victimization and these variables can be grouped in three types: socio-demographic (sex, grade level, age); personal (emotions, motives, moral beliefs, moral disengagement); and situational variables (role of peers and friends, family education and support, school climate) (Kowalski et al., 2014).

SOCIO-DEMOGRAPHIC AND PERSONAL FACTORS ASSOCIATED WITH CYBER-VICTIMISATION AND CYBER-AGGRESSION

In what concerns the prevalence of cyberbullying, the studies reveal some diversity from country to country and from school to school. For example, Li (2010) and Bartlett (2015) indicate values of 30% of adolescents that had been victimized. In a meta-analysis study on cyberbullying research conducted by Kowalski et al. (2014) it was estimated a prevalence of approximately 10% to 40% for cyber-victimization.

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A more recent literature review conducted by Aboujaoude, Savage, Starcevic, and Salame (2015) revealed that most cyber-victimization rates have ranged between 20% and 40%. Several authors (Matos, Vieira, Amado, Pessoa, & Martins, 2018; Smith, 2015) pointed out that this diversity reflects not just differences in the behavior itself but also some variations in the methodology used in the different studies, namely the definition of cyberbullying adopted.

In the exploratory study carried out in a private school (Freire, Alves, Breia, Conceição & Fragoso, 2013) in the frame of the research project "Cyberbullying – A diagnosis of the situation in Portugal", with participation of 87 students of the 8th grade (44 males and 43 females, aged 13 to 14 years), from middle-class / high-middle-class with diverse nationalities, almost 20% considered themselves victims of cyberbullying, and the most said they were observers, particularly of the victims. Only less than half of the students reported feelings of well-being in this school, with 17% explicitly expressing feelings of malaise (discrimination, fear, humiliation, exclusion and indifference), which they justified through the difficulty of living with the difference, namely cultural differences, in which predominate tensions linked to different national and cultural identities. These results alerted for better understanding of the relation between school climate and cyber-bullying.

In what concern the large sample used in the frame of the "Cyberbullying– A diagnosis of the situation in Portugal" project, with 3525 pupils from 6th, 8th, and 11th grades (mean age 13.6 years; 47,9% males and 52,1% females) from 23 middle schools and high schools located in Portugal, results showed that 7.6% (267) of the participants admitted to be cyber-victims sometimes and 2.6% (90) of these participants admitted to be cyber-victims at least once a month in the previous year. The percentage of cyber- aggressors was 3.9% (138 participants), with 1.5% (51) admitting to be involved in cyberbullying as aggressors at least once a month in the previous year (Martins et al., 2016; Matos et al., 2018). Websites were the most frequent medium used to cyber-bully, whilst sending insulting and harmful messages was the most frequently reported type of behavior. This study also aimed to understand the strategies used by students to deal with cyber-bullying. The strategies most frequently cited by the participants were technological strategies (e.g., changing passwords, blocking the bully), data that are in line with other studies (Parris et al., 2012). Active strategies like talking to the bully and becoming more careful were also reported by high percentages of students. Social strategies were cited by varying percentages of victims (Matos et al., 2018), although these are recommended as effective strategies in the literature (McGuckin et al., 2013).

Matos et al. (2018) also examined if victims knew the identity of those who cyber-bullied them and whether or not they are colleagues. Contrary to the spread idea that cyberbullying is mainly anonym (Ortega et al., 2008; Smith, 2009) this study reveals that just 26,8% of the victims stated they didn't know who was the bully, while 39,3% of the victims identify the aggressors as a classmate and 33,8% stated they knew they were not classmates.

In general studies revealed that boys are usually more involved in physical bullying but when sex are compared in terms of cyberbullying practices these differences don't emerge with the same consistence and this trend is not always found (Barlett & Coyne, 2014; Vieira et al., 2018).

Barlett and Coyne (2014) in a meta-analyses study about sex differences in cyberbullying found that males are usually more involved in cyber-aggression than females but this was not a big difference and it was moderated by age in the sense that females were more likely to report cyber-aggression during early adolescence and males were more likely to be cyber-aggressors during late adolescence. The authors consider that the interactive effect of sex and age could suggest the fact that cyberbullying is an indirect form of bullying, although not in a conclusive way (Barlett & Coyne, 2014).

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In the project "Cyberbullying – A diagnosis of the situation in Portugal", rates of victimization were higher for females as well as for students in the 11th grade when compared to 6th grade and 8th grade. A two-way Anova on victimization frequency scores showed no significant interaction between sex and school grade. Regarding cyber-aggression, the interaction between sex and school grade was statistically significant, suggesting that that incidences of cyberbullying others are more frequent among boys in the 11th grade (Matos et al., 2018; Pessoa, Matos, Amado, Freire, & Caetano, 2017). As in other studies (Olweus, 2012; Ortega et al., 2009), data of the study cited above showed that, in both sexes, the tendency to become a cyber-perpetrator correlated positively with cyber victimization, revealing that some of adolescents played both roles (Matos et al., 2018; Vieira et al., 2016).

Motives most frequently mentioned for experiencing and engaging in cyber-aggression by girls, in the above cited study, were the breakdown of friendships and social rejection by peers and they were more able than boys to disclose the motives and emotions involved in cyber-acts. Taking gender socialization values and norms and the characteristics of this stage of development into consideration, we found that the motives for cyberbullying perceived by both groups of victims and the aggressors revealed two common sex differences, reflecting what tends to be valued more by girls than boys in their relationships with peers: the breakdown of emotional ties in friendships and fears of social rejection by others. These findings are consistent with the characteristics of relationships established by adolescent females with their same-sex peers, which tend to foster self-disclosure with their friends more than boys and display emotionally deeper interactions with them. Adolescent boys, who practise cyber-aggression, reported they do it because they were upset with the victim, as a justification of their behaviour, more than girls (Vieira et al., 2016).

The cited research also analysed the emotions associated with the experiences of cyber-aggressor or cyber-victim and data reveal that those experiences are different accordingly with the role played in cyber-bullying. So, cyber-victims feel more frequently the emotions of sadness, anger with will of revenge, and fear and cyber-aggressors feel more frequently happiness, indifference and relieve. It was also found that there were significant differences between the emotions experienced by cyber-victims and those that cyber-aggressors attribute to them, revealing that they have difficulties in understanding the impact of their behaviour on victims. Contrarily with what usually happened in studies in face-to-face bullying, guilty was not frequent in cyber-victims. In some of the schools it was also noticed the presence of emotions related to impotence and feelings of lack of support in cyber-victims and some feelings of guilty in cyber-aggressors, revealing the importance that moral ambience of schools could have on these behaviours (Caetano, Freire, Veiga-Simão, Martins, & Pessoa, 2016). These data are congruent with those from other studies (e.g. König, Golwitzer, & Steffegen, 2010; Li, 2010; Ortega et al., 2009; Ortega et al., 2012) that also found that negative emotions of sadness, anger with will of revenge, and fear were more experienced by cyber-victims and that positive emotions like satisfaction, relive, pleasure, amusement, and lack of empathy for victims were frequent in cyber-aggressors, even when adolescents play both roles, as cyber-aggressor and cyber-victim (with revenge mediating the transition of the role of cyber-victim to cyber-aggressor for some of the adolescents).

Ak, Özdemir and Kuzucu (2015) in a study about the mediating role of anger in cyberbullying with undergraduate Turkish students found that cyber-victimization had both direct effects on cyber-aggression and indirect effects mediated by anger-in (emotion of anger experienced inward). More recently, Görzig (2016) also report that suicidal ideation is associated with nasty web exposure and that this incident had a bigger impact if the adolescents were being targeted as cyber-victims.

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In what concern motives attribute to display cyber-aggression, in the study cited above there were divergences in the perceptions of cyber-aggressors and cyber-victims. The most frequent motives reported by cyber-aggressors were pleasure, amusing, escape to boring, affiliation with groups, friendship rupture, and revenge in reaction to previous aggression. Cyber-victims perceive as the most frequent motives of cyber-aggressors envy, jealousy, lack of respect, immaturity, and a need to exercise power of cyber-aggressors over others (Caetano et al., 2017; Li, 2010). As noted above motives were different for both sexes: girls use more affiliation motives and boys use more hedonistic motives (Caetano et al., 2017; Vieira, et al., 2016). Motives were also related with age, with younger adolescents reporting more reactive motives as affiliation and envy, while the oldest ones reported more proactive motives, as amusing and enjoyment. These results are congruent with other studies that found that the youngest ones used more reactive motives for bullying (Caetano et al., 2017; Salmivalli & Niemenen, 2002). Other studies also report that cyber-victims can also experience stress and suicidal ideation (Gôrzig, 2015; Kowalski et al., 2014; Ortega et al., 2012).

Motives and emotions related with cyberbullying seem to be coherent, in the sense that enjoyment and amusing emotions were associated with hedonistic motives and emotions of revenge were associated with reactive motives as friendship rupture and reaction to previous aggressions (Caetano et al, 2017). These data seem to fit some theoretical suggestions about aggression that propose to divide it in reactive aggression and proactive aggression in face-to-face situations, accordingly to its nature and actuation. So amusement and hedonistic motives can be associated with proactive cyber-aggression and friendship rupture and revenge can be associated with reactive cyber-aggression, suggesting that the two types of aggression found in face–to-face situations are also valid in cyberspace (Caetano et al, 2016; Poulin & Boivin, 2000; Salmivalli & Niemenen, 2002).

Peluchette, Karl, Wood and Williams (2015) in a study with American and Australian young adults, about the risky social network behaviors that could contribute to cyber-victimization, concluded that extroversion, openness, and self-disclosure in social networks, as facebook, could be predictors of cyber-victimization, results that suggest some lines of action in order to help adolescents to learn about how to protect themselves on social networks.

In the meta-analysis study referred above about cyber-bullying, Kowalski et al. (2014) concluded that the strongest associations with cyberbullying perpetration were normative beliefs about aggression and moral disengagement, and the strongest associations with cyber-victimization were stress and suicidal ideation. Perren and Gutzwiller-Heltenfinger (2012) in a study with Suisse adolescents found that: bullying was highly predictable of cyberbullying; moral disengagement justifications were more predictive of bullying compared to cyber-bullying; and moral emotions, as reduced feelings of guilt and lack of remorse, predicted both bullying and cyber-bullying. The authors concluded that moral standards and moral affect are important to understand individual differences in involvement in bullying and cyberbullying conducts.

SITUATIONAL FACTORS ASSOCIATED WITH CYBER-VICTIMISATION AND CYBER-AGGRESSION

In reference to situational factors, the results of several authors' research suggest that group of peers; family; and school variables can be associated with cyberbullying phenomenon. Variables as parental support, parental monitoring, school ethos, and pressure of the peer group influence both cyber-aggression

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and cyber-victimization (Hinduja, & Patchin, 2013; Kowalski et al., 2014; Martins et al, 2016; Veiga Simão, Ferreira, Freire, Caetano, Martins, & Vieira, 2017). In the meta-analyses research of Kowalski et al. (2014), the strongest associations with situational variables were related with school and family and suggested that school variables that were inversely linked to engagement in cyberbullying included positive school climate and school safety. Regarding family variables, it seems that less frequent cyber-victimization is associated with parental discussion about online behavior and that cyber-bullies had weaker emotional bonds with their parents and less frequent monitoring of online activities (Kowalski et al., 2014).

Specifically concerning relationships between cyber-bullying, family and peers Fanti, Demetriou and Hawa (2012) posited that Cyprus peers aged 11 to 14 influenced cyberbullying involvement, but parent support significantly decreased the probability of involvement in such conducts. The authors concluded that their results highlight the role of parents in protection against cyber-bullying, because adolescences that reported more family support also had fewer incidents of cyber-aggression and cyber-victimization a year later (Fanti et al., 2012). Hinduja and Patchin (2013) revealed that American adolescent' peers influenced cyberbullying but the expectation of punishment for such conducts from adults reduced the likelihood of involvement. According to Hinduja and Patchin (2013), cyberbullying offences are associated with the perceptions teenagers have of their peers' similar behavior, as well as the probability of adults' reprimands. What is more, respondents who were less likely to participate in cyberbullying believed that significant adults in their life would punish them.

Sasson and Mesch (2014, 2017) in a study with 495 Israelis adolescents try to understand how peers' norms and family mediation (active guidance, restrictive supervision and non-intervention) could influence involvement in cyberbullying. The results showed that restrictive parent supervision and active guidance could be effective in minimizing several on-line risks, however peers injunctive' norms about on-line activities seem to had a stronger influence on on-line risky behaviors when compared to parent mediation, confirming the idea that in adolescence the peer group has more influence on adolescent's behaviors than parents. The results also suggested that the likelihood of being bullied on the Internet is associated with both risky behavior online and the norms prevalent within the adolescent peer group, and that just restrictive parental supervision had a significant effect on behaviors. The authors conclude that adolescents that exhibit on-line risky behaviors are older boys with frequent use of platforms that facilitate communication with strangers, came from families with little cohesion and parents that don't supervise their internet use, and simultaneously are connected with peers that give support to those behaviors (Sasson & Mesch, 2014; 2017).

Wegge, Vendebosch, Eggermont, and Pabian (2016) conduct a longitudinal study, with Belgian early adolescents, to assess the reciprocal effects of cyberbullyingand traditional bullying on social status, assessed with two measures: sociometric popularity and perceived popularity. The authors evidenced that cyberbullying perpetration predicted perceived popularity over time but not sociometric status, although traditional bullying was not associated with subsequent popularity, neither with sociometric status. However perceived popularity didn't precede cyber-bulling perpetration. The authors conclude that cyberbullying can function as a tool to eventually change the hierarchy of perceived popularity at school and may explain why this behavior increases in the secondary. These data suggested that schools must deal and prevent this phenomena because even it doesn't happen inside the schools its antecedents and specially its consequences often occur in schools (Weege et al., 2016).

The role of peers has been also evidenced in studies (Ferreira, Veiga Simão, Ferreira, Souza, & Francisco, 2016; Olenik-Shemesh, Heiman, & Segal, 2015) that focus specially on the actions that bystanders

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display when they face cyber-bullying. Olenik et al. (2015) in a study with Israelis adolescents identified passive bystanders and active bystanders and noticed that just 36% of the bystanders of cyberbullying offered direct help to the cyber-victims. The authors identified the active bystanders as being more often older girls, having socio-emotional support from significant others and experiencing lower levels of loneliness, when compared to the passive bystanders.

Li (2010) in a study with Canadian children and adolescents found that victims often don't tell anybody because they were afraid of an escalation of the problem and also noticed that most of bystanders didn't do nothing about it, because they think nobody would do nothing, teachers included, and also because they were afraid of being cyberbullied.

Ferreira et al. (2016) in a study comparing Portuguese and Brazilian college studies tried to assess if the fact of being an active bystander of cyberbullying that intervene could influence the probability of becoming a victim or an aggressor later. The results showed that being a passive bystander of cyberbullying (with no intervention) predisposes more to be a victim or an aggressor of cyberbullying later, especially in the Brazilian sample were students also noticed more incidents of cyberbullying than the Portuguese. Bystander active intervention seems to be less associated with future active involvement in cyberbullying, as a victim or an aggressor.

In what concern the study cited above about cyberbullying in Portugal ("Cyberbullying– A diagnosis of the situation in Portugal"), the study had also as main objectives to examine the relation between family and school environments and cyberbullying conducts (as cyber-aggressor or as cyber-victim). After a hierarchical regression analysis it was evidenced that school climate was more predictive of conducts of cyber-victimization and family dimensions were more predictive of cyber-aggression. Although both variables have an effect on both behaviors, adolescent's perceptions of bad family environment were more associated to cyber-aggression and perceptions of bad school environment were more associated with cyber-victimization. When considering just the various family dimensions, assessed in the study, it was also evidenced that both perceptions of family support and family rules were situational factors that could protect against cyberbullying. Results showed that lack of family support was more predictive for cyber-victimization and lack of family rules together with lack of family support was more predictive for cyber-aggression or of the simultaneous condition (both cyber-victim and cyber-aggressor). These data suggested that schools can have a role in preventing these behaviors, investing in media education, and promoting safe and healthy environments that could prevent cyberbullying. Also parents that promote rules to use Internet, through dialogue with adolescents, under a warm and supportive relationship seem to provide a protection factor against cyberbullying (Martins et al., 2016).

The above-cited study intended also to explore how the perception of school climate could influence the reporting of episodes of cyberbullying by adolescents to teachers and school staff. Results showed that even though cyber-victims reported cyber-victimization more to friends and parents, those who told teachers about their experience, tended to report more positive perceptions of their school climate. Sex and age did not play a significant role in the relationship between cyber-victimization and perceived school climate. These data evidenced the important role of school because it focused on whether adolescent cyber-victims' perceived school climate was related to whom they turned to report the incident. Specifically, this study was able to provide an understanding of how these adolescents perceived their school climate and how teachers played an important role in these perceptions, when adolescents experiencing cyber-victimization need their help (Veiga Simão et al., 2017). Climate university campus seems also to affect the practices of cyberbullying of Portuguese and Brazilian college students, with more incidence in the Brazilian sample (Sousa et al, 2017).

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FUTURE RESEARCH DIRECTIONS

The results from research on cyberbullying that were synthesized in this chapter show the complexity of the phenomenon, its interactive nature and the challenges that researchers face when it comes to find a consensual definition and suitable way to measure cyber-victimization and cyber-aggression behaviors. The difficulties became ever greater if we think about what distinguishes those who were born in the age of technology – digital natives – and older generations, that are now considered digital immigrants (Prensky, 2001).

Livingstone et al. (2011), in a study with 25 000 adolescents about usage of Internet in several European countries, emphasize that one third of the families of these adolescents knew less about digital devices and Internet than their sons and daughters. Nguyên and Mark (2014) noticed, in a research about parents and educators perspectives about digital devices and Internet, that they have different knowledge about how adolescents use those devices, with parents having more difficulties keeping up to date the progress of technology and its use by their adolescents.

The complex and evolving world of digital technologies and Internet seem to require more effort in developing programs and manuals to parents and teachers in view to understand and deal with the phenomenon of cyber-bullying, as well as to the exposure to nasty themes on the Internet and diverse risky behaviors associated with it. In future it should be important to know better what knowledge parents have of what their sons and daughters do with mobiles devices and Internet and how they deal with on-line risky behaviors from their adolescents.

Although cyberbullying does not necessarily happen at school, because many adolescents have access to the Internet at home and other spaces (Festl, 2016; Livingstone et al., 2011), several studies (Twyman et al., 2010; Veiga Simão et al., 2017; Weege et al., 2016) highlight that school variables (as for example the fact that good school climate is important to deal with cyber-victimization) play a role in cyber-bullying. Furthermore, since cyberbullying can be a continuation of bullying at school, as various studies have already indicated (Olweus, 2012; Ortega et al., 2009, 2012; Twyman et al., 2010), the teachers are of special importance in aiding these students to deal with this phenomenon and prevent cyber-bullying. Also more studies about the bystander behavior when facing cyberbullying incidents, especially about their motives to intervene or not, could better clarify the role of peers in the interruption or escalate of cyberbullying behavior.

Some manuals (e.g., Jäger, 2010; Jäger, Stelter, Amado, Matos, & Pessoa, 2012) have been developed to help parents and teachers to deal with cyberbullying incidents, but these could be not enough. Educational programs could be designed to embrace a whole community approach, including schools, families and peers. These three domains are the main sources of efficacy information for children and adolescents and therefore, should be considered as part of the focus for effective intervention programmes (Paul, Smith, & Blumberg, 2012). Programmes could be developed and preview software to include in digital devices to help adolescents to detect, be alert and block nasty messages. Educational games with themes that include bullying and cyberbullying could also be developed in view to attract adolescents to use for educational purposes the same devices they use in a diary and routine base.

Cyberbullying specifically represents a phenomenon of social interaction (Souza et al., 2017) and studying the intentional and conscious use of language to harm others online offers prospects of an enriched psychological understanding of the cyberbullying phenomenon. We believe that the examining of adolescents' written expressions in incidents of cyberbullying and their perceived management of this language could be better identified by future innovative technological resources in online platforms.

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So for future research, greater use should be made of qualitative research strategies to listen and read to what adolescent, boys and girls, say about matters that researchers are still unaware of and therefore cannot apprehend using quantitative instruments. Cross-cultural issues may also play an important role in language usage, so future studies should include adolescent participants from several countries.

Although often been practiced in private rooms cyberbullying seems to be highly influenced by peers, family and school climates and the contribution and interaction of these factors should be considered in future research.

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Chapter 64
Psychotherapy and Christianity: Methods and Challenges

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ABSTRACT

Christianity is counted as one of the biggest religious groups in the world, numbering at over 2 billion individuals who identify themselves with this religion. As of the 2010 census, the Department of Statistics Malaysia Official Portal reported that an estimated 9.2% of the population in Malaysia identified themselves as Christians. In numerical terms, this equates to approximately 3 million individuals spread out all over the Malaysian peninsular as well as Sabah and Sarawak who consider themselves part of the Christian church. This chapter intends to do four things: 1) provide a brief history of the church and Christianity, 2) acquaint the reader with basic Christian beliefs, 3) provide insight into the methods and challenges of working with the population in Malaysia drawing from both local as well as international literature, and 4) provide the implications of the methods and challenges of working with the Christian population.

INTRODUCTION

He answered, "'Love the Lord your God with all your heart and with all your soul and with all your strength and with all your mind'; and, 'Love your neighbor as yourself.'" - Luke 10:27, NIV

Worldwide, Christianity (including Protestants, Roman Catholics, and others) is counted as one of the biggest religious groups in the world, numbering at over 2,000,000,000 individuals who identify themselves with this religion (BBC, 2011). As of the 2010 census, the Department of Statistics Malaysia Official Portal (2010) reported that there is an estimated 9.2% of the population in Malaysia identified themselves as Christians. In numerical terms, this equates to approximately 3,000,000 individuals spread

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out all over the Malaysian peninsular as well as Sabah and Sarawak who consider themselves part of the Christian church. This essay intends to do 4 things: 1) provide a brief history of the church and Christianity, 2) acquaint the reader with basic Christian beliefs, 3) provide insight into the methods and challenges of working with the population in Malaysia drawing from both local as well as international literature, and 4) provide the implications of the methods and challenges of working with the Christian Protestant population.

BRIEF HISTORY OF THE CHURCH

For many people, Christianity is synonymous from its founder from whom the name derives from – Jesus Christ. The following contains a short exposition on both the story of Jesus Christ and the history of the church as a means to provide the reader a basis for which to approach clients. This approach is presented from a Protestant point of view.

The Bible, Christianity's holy book, teaches that Jesus Christ (which means Yeshua the Messiah i.e. the Savior) was born in Bethlehem, Israel, to a virgin called Mary. Christians believe that Mary was pregnant not by human or physical means but by direct divine action through the Holy Spirit (BBC, 2009a). Jesus himself represented the fulfillment of prophecies of other parts of the Bible and was believed to have been born over 2000 years ago (approximately 4-7 BC) (BBC, 2009a; Robinson, 2008). The Bible covers Jesus' early life in brief and Jesus' public influence in detail in the books of Matthew, Mark, Luke, and John, reputed eyewitness accounts of Jesus' life (BBC, 2009a). During this period in the public sphere, Jesus gathered many followers, foremost of whom were the 12 disciples who later went on to lead the early church (BBC, 2009a). The climax of Jesus' story is when the religious leaders, critical of Jesus and believing him to proclaim falsehoods, apprehended and crucified Jesus (crucifixion is an ancient Roman means of execution, where the condemned is nailed to a cross and left to hang until he/she suffocates) (BBC, 2009a). However, the Bible teaches that three days after Jesus' death by crucifixion, Jesus was raised to life again by the power of God whereupon he was taken up to heaven a few days later after having spent time with many eyewitnesses (BBC, 2009a).

Jesus' ascension to heaven marked the beginning of the church where Jesus' disciples and followers spread His message throughout the Roman Empire (BBC, 2011). This was also when the term Christians (literally, Christ-followers) began to be used to refer to Christ's followers (Acts 11:26, New International Version). This early movement faced many troubles such as condemnation, torture, and execution by Roman emperors such as Nero, Domitian, and Diocletian who believed the religion to be heretical (BBC, 2009a). However, Christianity became more accepted under the rule of Constantine whose efforts resulted in the codification of Christian doctrine (BBC, 2009a). Over the centuries, various divides such as the Great Schism in 1054 and the Protestant reformation resulted in different ways of understanding Christianity (e.g. the Roman-Catholics versus the Protestants versus the Orthodox church) (Encyclopedia Britannica, 2017).

The verse from the Bible at the opening of this chapter is Jesus' summary of the teachings of the Bible which have been handed down throughout the centuries. Differences in doctrine and interpretation of teachings have also resulted in the various denominations today (e.g. the Methodists, the Anglicans, the Presbyterians, the Baptists, the Jehovah Witnesses, etc). However, it is beyond the scope of this chapter to cover the differences between denominations in detail and interested readers would do well to consult other sources. Regardless, most Christian denominations today believing these commands are thus

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motivated to be able to better the lives of others. While some efforts in the distant past were extremely misguided (e.g. the Great Crusades), in the present day, the Christian church's main efforts outside of the church are in helping those who need assistance wherever they can in different capacities (e.g. building schools and hospitals, working among the poor and needy, caring for the outcasts in society) (Velarde, 2009). Unfortunately, efforts in the mental health field have been slower as various disorders were seen as spiritual issues and religion itself seemed to be vilified by early mental health practitioners (CT Editors, 2018). However, today, there is more understanding and acceptance of differences between spiritual and mental disorders and the Catholic church has even included a catechism which states that before an exorcism is performed, it must be ascertained that it is not a psychological illness causing a certain behaviour (Catholic Church, n.d.; CT Editors, 2018).

In Malaysia, Christianity first landed on these shores via the arrival of the Portuguese as early as early as the 1500s, the Dutch in the 1600s, and subsequently the British which brought Roman Catholicism into the country (Roxborogh, 1989). Through the subsequent years of various colonial attempts, World War Two, as well as Malaysia's independence, the churches in Malaysia continued to expand resulting in a growing Christian movement especially among those from Sabah and Sarawak (Roxborogh, 1989). Today, the churches in Malaysia face various challenges including continuing to integrate into a multi-ethnic and multireligious society (Roxborogh, 1989).

Individual Christian denominations in Malaysia generally subscribe to a higher council (e.g. the National Evangelical Christian Fellowship) (Christian Federation of Malaysia, 2018). These federations and councils come together under the banner off the Christian Federation of Malaysia which unites the Catholic Bishops' Conference of Malaysia, the Council of Churches Malaysia (i.e. Anglicans, Lutherans, Methodists, Orthodox, Presbyterians and others), and the abovementioned National Evangelical Christian Fellowship (i.e Assemblies of God, Baptists, Brethrens, independent and free churches, and others) thus accounting for the majority of Christians in Malaysia (See Christian Federation of Malaysia, 2018 for the full list). Other churches include the Mormon Church (i.e. the Church of Jesus Christ of Latter-day Saints) and the Jehovah's Witnesses. It is important to note that evangelical parties (i.e. mainstream denominations) may not consider either of these two denominations as fully "Christian" as they subscribe to teachings that do not conform to the traditionally espoused doctrines of the church (McDermott, 2016). Interested readers can consult other sources for a more in-depth exposition.

In terms of mental health related work, there exist seminaries and higher learning institutions that provide courses related to the mental health field such as pastoral counselling (e.g. the Alpha Omega International College) or a variety of certificate and diploma level Christian counselling courses at places such as Seminari Teoloji Malaysia, Bible College Malaysia, and others. Christian counsellors and therapists in Malaysia also have the option of connecting with others through the National Association of Christian Counsellors which was founded in 2011 and aims to provide ethical mental health services to the Christian community (National Association of Christian Counsellors, 2018).

The Basics: Tenets of the Faith

To begin the work of therapy with Christians, it would be of great use to examine some basic Christian beliefs in order to begin understanding how Christians make sense of their faith and its relation to the world. For Christians who identify as Protestants (any mainstream Christian denominations such as Methodists, Baptists, and so on), the basic Christian beliefs can be summed up in five Solas. A Sola is a Latin word meaning "alone". The five Solas are as follows:

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- Sola Scriptura. The meaning of this phrase is "Scripture alone" and points to the belief that the Bible alone is the highest authority as the word of God. This phrase does not mean that truth is only found in the Bible but the Bible informs Christians about God's message and all other truth should be interpreted in light of the Bible (Holcomb, n.d.).
- Sola Fide. This phrase means "faith alone", and points to the belief that Christians are saved and justified as righteous in God's eyes only by their faith in Jesus Christ, his divinity, and his message (Holcomb, n.d.). This phrase reminds Christians that this salvation is not a result of any righteous or "good" actions that the individual may undertake or do. Essentially, this phrase states that one cannot "earn" one's salvation through good works.
- Sola Gratia. This particular phrase means "grace alone". Christians believe that they possibly match God's perfection and holiness and it is only through His grace alone that they are offered the opportunity for salvation, not our own goodness and regardless of our sin (Holcomb, n.d.).
- Solus Christus. This phrase means "Christ alone" and points to the belief that Jesus Christ is the revelation and incarnation of God in the flesh and only His death could redeem Christians from their sin (Holcomb, n.d.).
- Soli Deo Gloria. Meaning "to the glory of God alone", this belief helps the Christian put him or herself into the proper perspective, that all glory belongs to God alone and that God's glory is the primary motivator and purpose for the life of the Christian. However, this also reminds Christians that God is good, and that His purpose for the Christian is the enjoyment and improvement of life for themselves and others (not necessarily physical or material improvement) (Holcomb, n.d.).

These five phrases sum up some of the core Christian beliefs about God and His purposes for humanity as Christians believe is revealed in the Bible. Another often used method of expressing the basic doctrines of Christianity were codified in the creeds spoken in churches around the world as a reminder and proclamation of what the church and each Christian believes. One of the oldest declarations of the basics of Christian faith is the Apostles' Creed which is usually given as:

I believe in God the Father Almighty, Maker of heaven and earth, And in Jesus Christ his only Son our Lord, Who was conceived by the Holy Ghost, Born of the Virgin Mary, Suffered under Pontius Pilate, Was crucified, dead, and buried. He descended into hell; The third day He rose again from the dead; He ascended into heaven, And sitteth on the right hand of God the Father Almighty; From thence he shall come to judge the quick and the dead. I believe in the Holy Ghost; The Holy catholic Church, the Communion of Saints; The Forgiveness of sins; The Resurrection of the body, And the Life everlasting. Amen. (Billy Graham Evangelistic Association, 2004).

Some key points to note are that the beliefs espoused in this creed are ecumenical, key doctrines of the Christian faith that cut across all denominations and traditions (Tang, 2004). Another is that the term "catholic" (note the small "c") in this creed means universal and does not refer to the Roman Catholic church as a group (Billy Graham Evangelistic Association, 2004). Creeds were used as answers to perceived false teachings of that time and were used to present a summary of key teachings (Tang, 2004). Most creeds (including this one; others include the Roman Creed and the Nicene Creed) covers the basics of salvation, the understanding of God, the divinity and physical incarnation of Jesus, the crucifixion and resurrection of Christ, and the doctrine of grace (Tang, 2004).

A further elaboration of basic Christian beliefs include but are not limited to:

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- Monotheism; A belief in one God but present in three forms, elements, or aspects (the Trinity): the Father, the Son (Jesus Christ), and the Holy Spirit (BBC, 2009b).
- God's love: Christians believe that God is a personal God and loves all humanity unconditionally (BBC, 2009b). However, to receive salvation, the individual who desires must obey certain conditions as stipulated in the Bible (BBC, 2009b).
- Jesus' teachings can be summarized into two commands which Jesus himself proclaimed: Love God with all of oneself and, the second, love one's neighbour as one loves one's self (BBC, 2009b). This provides a point of entry for the therapist to discuss self-care in the Christian context.
- Christians believe in life after physical death, the spirit as eternal, and most believe in some conception of heaven and hell (BBC, 2009b).
- Prayer is the method of communication with God. Christians believe that the Bible gave a model of prayer from Jesus in the New Testament and are told to address God as Father (BBC, 2009b). Prayers can be both rituals or spontaneous (BBC, 2009b). Some groups believe that prayers should be directed through other individuals such as saints or Mary, the mother of Jesus (BBC, 2009b). Some groups believe in "praying in tongues", a form of prayer where the person praying utters sounds that do not appear to resemble any known language as empowered by the Holy Spirit (Got Questions.org, 2017).
- Baptism (i.e. the submerging and reemergence of the person's body) in water, whether as an infant or an adult (depending on the group) as an outward symbol of commitment to Christ and His teachings (BBC, 2009b).
- Communion or the Eucharist: A Greek word meaning thanksgiving, Christians believe that the Communion meal, consisting of bread and wine, are an emulation of the last meal (the Last Supper) of Christ before His crucifixion who commanded His disciples to continue the tradition in memory of Him (BBC, 2009b). Disagreement has arisen in between different denominations due to different understanding and interpretation of Christ's teaching on the Communion (BBC, 2009b).
- A personal relationship with God: Christians believe that God is active and in communication with the church as a whole and individual believers (Piper, 2008). God speaks to Christians through the Bible, through the Holy Spirit, through other believers, and through circumstances (Piper, 2008).

While these summarize most of the basic doctrines of Christian faith, it is also worth noting that there exist differences between different groups of Christians (e.g. Protestant versus Catholics) and between denominations (e.g. Methodist versus Baptist). Thus, it would be a worthwhile exercise for the therapist to explore the specific interpretations and beliefs of the Christian client's belief system while keeping in mind these basics to better grasp the religious and spiritual context of the client. Readers interested to delve into the differences between such denominations are encouraged to consult other definitive sources.

The Lay of the Land: Christians and Psychotherapy

It is undeniable that psychotherapies have been shown to be effective in treating relational and emotional issues but yet remain as one of the most controversial discussions in the church in this day and age (Christian Research Institute, 2009). Bob and Gretchen Passantino from the apologetics discipleship organization, *Answers In Action* illustrated that some members of the Christian community perceives psychology as a rival religion that challenges their Christian faith (Christian Research Institute, 2009).

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Christians were found to be more likely to attribute spiritual causes to psychological disorders (Choi, 2013) and amongst the difficulties of working with Christians, one of the main concerns was the idea that therapists were against religious establishments (Beck, 1997). However, in the 1960s and 1970s, there was a growing understanding that the usual spiritual methods in the church were not effective at treating relationship and emotionally-related issues (Esau, 1998). This coupled with the fact that psychotherapists are more likely to identify as "spiritual but not religious" (Post & Wade, 2009) all potentially contributed to the rift between Christianity and psychotherapy.

Some other debates surrounding the controversies of Psychology in the Christian community include the different views of Psychology vs. Christianity in topics such as personal suffering, self-love, and the sufficiency of recovery through biblical scriptures and Psychology being a "worldly wisdom":

- Personal suffering.

Barnes (2014) argued that modern psychology strived to remove all forms of personal suffering whether through the removal of guilt, or self-esteem improvements; while the Christian doctrine contended that personal suffering served the purpose of drawing Christians closer to God, builds character, and that Jesus Christ also suffered for a purpose (Philippians 3:10, Hebrews 5:8-9, 1 Peter 5:10, New International Version). Such Christians might not desire to eliminate personal life suffering but to learn how to live with it and adapt accordingly. For the therapist working with such a client, this means that being aware of such a mentality could change the approach that the therapist takes with his or her client e.g. working with them to accept their suffering instead of striving to remove it completely.

- Self-love.

Barnes (2014) also argued that some modern psychology approaches were intended to help an individual begin to develop love and acceptance of himself or herself to recover from self-destructive behaviours; whereas, the Bible teaches that Christians should learn to deny themselves, turn away from making themselves the most important person in their lives, and follow Jesus (Matthew 16:24-25). Biblical teachings also condemned the mentality of being a lover of oneself (2 Timothy 3:1-2). However, closer examination appears to reveal that the self-love espoused by Psychology has been taken out of context and equated to narcissism and the Scriptures themselves have been taken out of context by the arguments above. The first Scripture appeared to revolve more around the theme of learning to place God first before oneself; while the second Scripture seemed to put forth the proposition to focus more upon being mindful of not falling into self-absorption rather than condemning self-love.

- Sufficiency of recovery through biblical scriptures and Psychology being a "worldly wisdom".

Cole (1993) explained that the Bible provided warnings about succumbing to worldly wisdom as it opposed God's wisdom (Psalm 1:1-2; Isa. 55:8-11; Jer. 2:13; 1 Cor. 1:18-2:16, New International Version). He also argued that instead of depending on psychology which is a form of worldly wisdom, Christians should be depending solely on God and the scripture for wisdom and support in the trials and difficulties of life (Psalms 19:7-11; 32:6-11; 33:6-22; 119). Furthermore, Cole (1993) also proposed that as Christians learn to depend on God and the scriptures as their source of healing and strength, the glory of recovery goes to God as the only true God; whereas, if Christians rely on secular psychology for

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healing, it would contribute to psychology receiving said glory. This in turn goes against the Christian teaching of God being the all-sufficient One who understands our deepest needs and is able to meet them.

However, despite the controversies surrounding Psychology for the Christian community, Bob and Gretchen Passantino also acknowledged that amongst the Christian community, psychotherapy has indeed became enormously popular and sought after (Christian Research Institute, 2009). They explained that many Christians have often focused their attention on criticising psychotherapy and urge other Christians to go back to the Word of God as a form of solutions to their struggles and problems, but argued that although such approach has its merit, it is also an inaccurate generalisation (Christian Research Institute, 2009). Instead, they believe that the limitations of current practice and the lack of emphasis on biblical counselling was a far more critical concern to the endeavours and efforts of the church and is the main cause of Christians who are suffering from mental disorders or emotional struggles turning away from biblical scripture to psychotherapy as a form of healing (Christian Research Institute, 2009). This is illustrated in their article where stories were reported about certain churches who refused to embrace "the repentant alcoholic, the parent with the troubled teen, or those emotionally bruised by sinful behaviour", churches who fail to support, nurture, and fulfil a church's responsibilities and obligation towards the their community, whether Christian or not. The Passantinos also contended that when these hurting Christians do not feel nurtured, protected, admonished, and matured by the Church, they will look elsewhere for help and in this case, they found healing through more secular psychotherapy instead (Christian Research Institute, 2009).

Jones and Butman (2011) suggested that in order to provide optimal assistance to the recovery journey of hurting individuals, it is vital to have an explicit and comprehensive understanding of human behaviour through psychology. However, they also argued in their analysis of psychotherapy theories that different theories and/or models have their own compatibilities and incompatibilities with Christian and biblical faith alongside with its strength and weaknesses, insights and inconsistencies. So where exactly does psychotherapy and its associated theories stand in the Christian community and vice versa? This chapter posits that while biblical Scripture does govern the fundamental practices and beliefs of Christians, "Scripture does not provide all that we need in order to understand human beings fully", which is similar to Jones and Butman's (2011) perspectives. Therefore, it would be of great importance for Christian psychologists and counsellors to remain flexible and explore an integration of their Christian belief with the evidence based psychological findings, theories, and models to provide psychotherapy that could be most effective in assisting individuals struggling with mental health and/or life struggles. In fact, Jones and Butman (2011) also contended that neither is there one definitive model that exists nor would such a perfect model ever exist, thereby supporting the suggestion that integrated models would be the most efficient way of conceptualizing this apparent dichotomy.

IMPLICATIONS AND RECOMMENDATIONS

In discussing how Christians view psychotherapy, it cannot be denied that as more awareness is created, the need to work effectively with this population continues to increase. The effective multicultural therapist would begin to examine how a client's faith could be turned into support or even direct intervention in order to better assist a client instead of simply brushing this valuable resource aside. Thus, it would also be helpful to examine practical steps that therapists can take to begin to work more effectively with Christian (and other similarly religious) clients.

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Post and Wade (2009) in a review paper describe the methods of clinicians who were deemed to work effectively with spiritual and/or religious clients. They describe these clinicians as approaching clients with an openness and appreciation of different religious and/or spiritual traditions and were also cautious not to place their own religious values on clients (Post & Wade, 2009). To facilitate greater spiritual and religious self-awareness and become more aware of their values, therapists were recommended to generate a spiritual autobiography as a means of self-reflection (Wiggins, 2008, as cited in Post & Wade, 2009). This openness was supported by a proposition by Esau (1998) that therapists who were effective at working with Christians must be willing to explore the client's religious life and be aware of their own potential for countertransference. To facilitate such exploration with clients, Post and Wade (2009) recommend an explicit statement or discussion facilitation outlining therapists' openness and commitment to explore such issues with their clients. Post and Wade (2009) also recommend that while understanding the basic tenets of religion was helpful, what was more important was therapists' attitude and openness towards understanding and exploring the client's religion. Furthermore, as illustrated earlier in the essay, Jones and Butman (2011) also stepped forth and suggested for therapists and counselors who are working with the Christian community to familiarise oneself with the Christian teaching and constructively integrate these teaching with the fundamental psychological findings.

Other important points to note for therapists included being acquainted with non-mainstream religious traditions as they had a great likelihood of assigning psychopathology to non-mainstream traditions (O'Connor & Vandenberg, 2005) and assessing religious commitment as a correlate with client willingness to share about religious or spiritual issues (Walker, Worthington, Gartner, Gorsuch, & Hanshew, 2011). Therapists should also be aware that despite being open to discussing religious issues, clients may not want therapists to view their religion as part of their presenting problem (Walker, Worthington, Gartner, Gorsuch, & Hanshew, 2011). Highly religious clients may experience difficulty discussing their faith with secular therapists as they might be uncertain about the therapists' reactions (Cragun & Friedlander, 2012). As already espoused above, secular therapists who were open and allowed clients the autonomy to decide when and how much to share facilitated more positive psychotherapeutic experiences for their clients (Cragun & Friedlander, 2012). In contrast, religious clients with secular therapists who articulated opposing religious perspectives or even avoided discussing spiritual and/or religious issues experienced greater negative psychotherapeutic experiences (Cragun & Friedlander, 2012).

On top of that, highly religious clients may expect and request spiritual integration in their psychotherapy process (i.e. discussing Scripture or praying with them) (Walker, Worthington, Gartner, Gorsuch, & Hanshew, 2011). This was found to be the case among Orthodox Christians where there was an emphasis placed on using faith, prayer, meditation, teachings from the Bible, and Christian counselling in the therapeutic process (Gass, 1984). This was further supported among conservative Christian adults who stated a preference for both explicitly Christian and secular therapists to engage with them using a greater emphasis on religiously oriented interventions (Bellaire & Young, 2005). However, therapists should be careful not to assume and take caution in assessing a client's needs and desires for more religiously-oriented intervention techniques and should make it a practice to obtain informed consent before attempting any interventions (Post & Wade, 2009). In cases with client agreement, there is some research to show that religious or spiritual interventions were more effective for these clients than more secular interventions and that despite therapists' own religious commitment, effectiveness was mediated more by correlation with clients' own religious commitment (Post & Wade, 2009).

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CONCLUSION

At the end of the day, there is a place for both biblical counselling and more secular psychotherapies especially when working with a Christian client. A person may draw strength, hope and even healing from biblical scriptures or biblical counselling, while psychotherapy could come in handy to facilitate the Christian client to re-evaluate dysfunctional, irrational, and/or unhealthy beliefs that perpetuates the Christian client's mental struggles. Nonetheless, as with all therapy, it is also crucial for the therapist to be flexible when working with different individuals. As this chapter has illustrated some of the different controversies of psychology to Christians, and discussed some of the limitations of solely biblical counselling, an integration of psychology with a client's Christian beliefs could help achieve a balance and a mode of recovery that would be more optimal for Christians who are wary about secular psychotherapies. In conclusion, the effective multicultural therapist should consider both the person's faith as well as the modality of application, in this case, for the Christian community.

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Chapter 65
Ethics in Play Therapy Consultation and Supervision

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ABSTRACT

Ethics in play therapy consultation and supervision can be complex because of the "layered" nature of the relationships involved in each of these indirect services. In this chapter, we discuss the differential obligations the play therapy consultant or supervisor owes to the consulate/supervisee and the client. The ethical constructs of informed consent, competence, confidentiality, and dual relationships are discussed in relationship to the consultee/supervisee and the client. While the obligations are similar in these indirect services, there are also different obligations in each of these areas.

ETHICS IN PLAY THERAPY SUPERVISION AND CONSULTATION

Do the right thing. - Spike Lee

Ethics is ultimately doing the right thing. This can be straightforward in clinical practice and may be a relatively easy path to find. Our codes (e.g., American Counseling Association [ACA, 2014], American Psychological Association [APA, 2010]) and practice guidelines (e.g., Association of Play Therapy [APT, 2012]) give guidance that help us practice ethically, such as providing services within the boundaries of our competence and protecting client confidentiality. The codes (ACA, 2014) also recommend incorporating Kitchner's (1984) five ethical principles into all aspects of practice: autonomy (fostering a client's independence and right to control the direction of his/her life), nonmaleficence (not cause

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harm to others), beneficence (doing good unto others and promote human welfare), justice (fairness and equal treatment), and fidelity (commitment to demonstrate faithfulness and loyalty to the professional relationship at hand). The additional principle, veracity (dealing truthfully with clients) is also provided in the code of ethics (ACA, 2014).

Ethics in play therapy, however, is complicated by an obligation not limited to the child, but to additional stakeholders such as parents/guardians, teachers, and other professionals. Navigating these relationships often requires professionals to seek consultation or supervision. While a number of resources offer guidance in play therapy ethics (e.g., APT, 2012; Ashby & Clark, 2015), delineate conceptual differences among supervision and consultation (e.g., Knoff, 1988), discuss ethics as they relate to consultation (e.g., Doughtery, 1992; Newman, 1993) and supervision, (e.g., Herlihy, Gray, & McCollum, 2002; Ladany, Lehrman-Waterman, Molinaro, & Wolgast, 1999), limited information is available on how these topics function together. Many professionals question 'when should I seek consultation', 'does this require supervision', or 'what are my obligations as a supervisor or consultant?'. This chapter aims to address these questions and discuss the ethics of these indirect play therapy services with additional stakeholders in consultation and supervision.

In this chapter, we attempt to help the reader understand the layered ethical obligations inherent to indirect play therapy services. Keeping in mind the ultimate responsibility to the child client, the chapter will address the ethical obligations to attain informed consent, practice within the boundaries of one's competence, protect confidentiality, and manage potential dual relationships with the consultee/supervisee, the child client, and the client's parents/guardians. These familiar issues can take on greater complexity in the layered application of play therapy consultation/supervision. The goal of this chapter is to help clarify the differential obligations we hold so that we can ultimately do the right thing.

WHO'S WHO? THE ROLES INVOLVED IN INDIRECT PLAY THERAPY SERVICES

Understanding the ethical and legal obligations in play therapy consultation and supervision can be complicated, in large part because these indirect play therapy services are made up of a tripartite relationship among at least three parties: the indirect play therapy service provider (e.g., supervisor, consultant), the direct play therapy service provider (e.g., supervisee, consultee), and the client (e.g., child and their family, system). Because of the layered nature endemic to indirect services (e.g., supervisor, supervisee, supervisee's client) there are varied and various parties to whom the play therapist supervisor or consultant owes an ethical duty. In addition, with regard to ethical obligations, it may be helpful to treat supervision and consultation as discrete areas of specialization with differential ethical obligations (Thomas, 2010).

In play therapy supervision, the play therapist supervisor owes a direct ethical obligation to the supervisee and an indirect ethical obligation to the supervisee's clients (ACA, 2014). The play therapist supervisor is ethically obligated to meet a reasonable standard of care in providing supervision (Russell-Chapin & Chapin, 2011). The supervisor may take on a number of roles in supervision including teaching, mentoring, evaluating, and providing guidance and direction. The supervisor is ethically obligated to provide a reasonable standard of care. That standard of care is consistent with the ethical obligations in direct service to clients (e.g., informed consent, competence, confidentiality, dual relationships). In addition to the ethical obligation the play therapy supervisor has to the supervisee, the supervisor also has an ethical obligation to the supervisee's clients (Knapp & VandeCreek, 1997). Play therapists generally seek play therapy supervision when they cannot practice competently without supervision (e.g., are

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not yet licensed, are practicing in a new area). The supervisor takes responsibility for the supervisees' practice with clients in these relationships, meaning play therapy supervisors are responsible for their actions as supervisors, their supervisee's treatment of clients and ensuring the client receives a reasonable standard of care.

Consultation, like supervision, includes at least three parties: the consultant, the consultee, and the consultee's dependent, client, or client system (Remley & Herlihy, 2016). The role of a play therapy consultant differs from a supervisor in various ways, which accounts for their different ethical obligations to both the consultee and the party who is the focus of the consultation (e.g., client, client system, student, dependent child). While play therapy supervision generally takes place between two clinicians (supervisor and supervisee), a play therapist might provide consultation with several entities including, but not limited to, another play therapist or licensed clinician, parents, teachers, and or/other school personnel. While there are similarities between supervision and consultation, the ethical obligation the play therapist consultant owes to the consultee and the child or system that is the focus of the consultation differs from the obligations in supervision. In consultation, the play therapist consultant is ethically obligated to provide a reasonable standard of care to the consultee (e.g., competence, confidentiality).

The role of consultant is similar to the role of supervisor in that both roles may include teaching, mentoring, and providing guidance and direction. However, consultation is nonhierarchical and the roles of consultant and consultee share coordinate status (Sandoval, 2014). The role of consultant does not typically include evaluation, and the guidance and direction offered by the consultant may be considered and ultimately rejected by the consultee. In the case of a play therapist seeking play therapy consultation, the consultee is generally understood to be practicing within the bounds of competence and is seeking additional information, guidance, expertise, and/or perspective on a case or cases. While the consultant does owe an ethical obligation to the party for whom the consultee has sought consultation, the consultant is not typically viewed as responsible for the actions of the consultee in providing services or intervening with the child or system that is the focus of the consultation (Jacob, Decker, & Timmerman Lugg, 2016). As a result, the consultant typically does not have the role of evaluator and is not viewed as responsible for the consultee's actions with children or systems.

Understanding the similarities and distinctions between the roles of play therapist supervisor and play therapist consultant can aid in differentiating distinct ethical obligations owed in these rather complex, layered relationships. As we consider the application of the ethical constructs of informed consent, competence, confidentiality, and dual relationships, it will be important to acknowledge that they are fairly interdependent.

INFORMED CONSENT IN PLAY THERAPY SUPERVISION AND CONSULTATION

The ACA code of ethics (ACA, 2014, p. 20) defines informed consent as "a process of information sharing associated with possible actions clients may choose to take, aimed at assisting clients in acquiring a full appreciation and understanding of the facts and implications of a given action or actions." Ultimately, informed consent refers to clients acknowledging their comprehensive awareness of the services they receive. In play therapy, service providers (the supervisee/consultee) are responsible for providing their clients with access to adequate information so they are informed consumers (Beahrs & Gutheil, 2001). The goal of informed consent is to prevent situations where clients would not have consented to a provided service had they known information prior to beginning treatment. Traditional informed consent practice

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includes three important components to ensure this goal is met: (1) *capacity*, (2) *comprehension*, and (3) *voluntariness* (Dekraai, Sales, & Hall, 1998). C*apacity* refers to a client's ability to make rational decisions. *Comprehension* ensures clients have all of the information that they need in a comprehensible form. V*oluntariness* refers to the client giving consent willingly, without coercion and their ability to withdraw from service at any time. These three components apply to informed consent in indirect service and should always be considered in evaluating the consent of clients, supervisees, and consultees

Informed Consent for Indirect Service Providers and the Clients of Their Consultees/Supervisees

Informed consent in traditional settings is typically enacted between supervisees/consultees and their clients. Ashby & Clark (2015) offer an overview of the appropriate topics to cover in informed consent with a client and a play therapist. They also highlight that informed consent is typically sought from the parents or guardians of the child client, with developmentally appropriate assent gathered from the child. However, when direct service providers seek supervision and/or consultation, additional information may need to be shared for clients to be able to give truly informed consent. For clients to demonstrate full understanding and comprehension of services, they must be made aware that by consenting to treatment, they are doing so with the understanding that other professionals (e.g., indirect service providers) will be involved in their case through supervision or consultation.

Direct service providers who have sought supervision need to make sure that their clients understand the nature and implications of the supervisory relationship. For instance, informed consent with the client should include the information that the play therapist can only provide competent care under the supervision of another professional and, without that supervision, would not be competent to provide a direct clinical service (Bernard & Goodyear, 1998). In addition, informed consent should clarify that the play therapist will be systematically sharing the client's confidential information with the supervisor and that the supervisor, just like the treating clinician, has an ethical mandate to keep client information confidential except in special circumstances (e.g., legally mandated to disclose). Because supervisors are vicariously responsible for all of the actions of their supervisees (Goodyear & Rodolfa, 2012), supervisors have the responsibility to make sure that their supervisees have gathered appropriate informed consent from clients.

As previously noted, the practice of consultation differs somewhat from the indirect service of supervision. Consistent with this distinction, informed consent in the practice of consultation is somewhat different than the process in supervision. When a direct service provider seeks consultation, the direct service provider fully anticipates providing competent care to clients but is typically seeking to be as expert as possible (Kurpius & Fuqua, 1993). In addition, while the play therapist consultee may disclose confidential information about a client, the information is typically not adequate to make the client identifiable. As a result, it may be a best practice for play therapists to acknowledge (in informed consent with clients) that they regularly consult with other professionals about cases to provide the best possible care. Play therapists might also clarify that consultation will only occur with qualified professionals and confidentiality will be guarded.

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Informed Consent for Indirect Service Providers and Their Consultees/Supervisees

When play therapists are providing indirect services, informed consent between a play therapist and the supervisee or consultee can help frame the service provided and the expectation of each party (Jacob et al., 2016). In consultation, formal documentation of informed consent may not be necessary given the equal relationship and demonstrated competence of the consultee. The formal nature of supervision calls for a signed informed consent according to the Ethical Standards for Counseling Supervisors from the Association for Counselor Education, and Supervision (1993). This consent may include several of the issues typically addressed in informed consent for treatment including anticipated length of service, limits to privacy, any fees, risks and benefits, and storage of records (Thomas, 2007). Informed consent in supervision is designed to prevent supervisees from saying they would not have consented to receiving supervision had they been more aware prior to entering the supervisory relationship (Beahrs & Gutheil, 2001).

It is expected that supervisees and consultees should have the capacity for judgement and decision making for informed consent (Dekraai, Sales, & Hall, 1998). Though, in the case of both supervision and consultation, supervisors and consultants should assess for capacity. If supervisees or consultees are impaired to the degree that they lack capacity for decision making (e.g., whether or not to engage in indirect services with a play therapist supervisor/consultant) then informed consent cannot be obtained and supervision/consultation should not occur. This lack of capacity might well imply impairment on the part of the supervisee/consultee that could bring harm to clients and, consequently, the play therapist supervisor/consultant might need to take action (e.g., report to a clinic director or ethics board). Indirect service providers may want to consider whether the supervisee/consultee presents as using substances, with impairment of memory or thought process, or with an altered state of consciousness, all of which would undermine the capacity of the person to give consent and to provide competent care for clients.

The second component of informed consent, comprehension, is required in both supervision and consultation informed consent. While comprehension in consultation is often informally accounted for, comprehension should be explicitly addressed and documented in supervision, so the supervisee has a clear understanding of all aspects of supervision (McCarthy et al., 1995). McCarthy and colleagues (1995) and Thomas (2007) provided a list of issues to address in informed consent among supervisors and supervisees. Some examples of information Thomas (2007) suggests including are a supervisor's credentials, the time commitment and documentation of supervision, supervisor's responsibilities, confidentiality limits, financial interests, benefits and risks associated with supervision, and evaluation methods. This list gives a general overview of the kinds of information that can help potential supervisees make an informed decision about entering into a supervisory relationship. Comprehension in informed consent for consultation includes some of the same components as supervision, but may also be more limited (Jacob et al., 2016). Potential consultees should have comprehension of the consultant's areas of competence and expertise before consenting to consultation.

Voluntariness in informed consent assumes that consultees and supervisees have willingly consented to their received services (Corey, Haynes, Moulton, & Muratori, 2010). In consultation, the intentional act of choosing the consultant can imply the enactment of voluntariness, as the consultee usually actively initiated the consultation. In supervision, signing an informed consent form provides formal documentation that the supervisee voluntarily agrees to enter the supervision experience. However, supervision often happens in the context of a formal training experience and as a result, supervisees are often obligated

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to have supervision since it is required for progress in an academic training program or in the pursuit of certification or licensure. The implication in supervision is that one can always choose not to pursue a particular training program and adequate information about the requirements of supervision must be made clear before a trainee begins the program.

Withdrawing from supervision or consultation involves consultees and supervisees acknowledging the benefits of the service on which they will miss out (e.g., a second opinion in consultation or formally documented hours of supervision). While consultees can willingly terminate their consultation, continue practicing, and seek help from another professional, supervisees should stop seeing the clients for whom they sought supervision until they have access to a qualified supervisor.

COMPETENCE IN PLAY THERAPY CONSULTATION AND SUPERVISION

Fairburn and Cooper (2011) defined competence as "the extent to which a therapist has the knowledge and skill required to deliver a treatment to the standard needed for it to achieve its expected effects" (p. 375). The ethical mandate of competence suggests that practitioners should only use the skills they know how to use. The directive for competence is made clear in several ethical codes. For example, ACA states, "Counselors practice only within the boundaries of their competence, based on their education, training, supervised experience, state and national professional credentials, and appropriate professional experience" (2014, C.2.a, p. 8).

There are various aspects to consider when accounting for competency. Licensure or certification as a counselor or mental health professional presents as a broad acknowledgement of the skills one has as a competent service provider. However, determining individual areas of competence are typically left to the discretion of the practitioner. Pope and Vasquez (2010) propose that formal academic training, professional training, and supervised experience may be the best standard for the establishment and defense of the boundaries of competence. In delivering indirect play therapy services, practitioners have to consider whether they are competent in their skillset as a play therapist to work with the client of the supervisee or consultant as well as in their skills as a consultant or supervisor.

Competence in Treating the Clients of the Supervisees and Consultees

It is important to be competent in play therapy skills as indirect service provision assumes the supervisor and consultant are competent in areas and for clients for which they provide consultation and supervision. Competence for play therapists spans knowing *about* particular treatments, populations, and presenting problems and knowing *how* to deliver these services to clients from diverse backgrounds in specific settings (Ashby & Clark, 2015). Practitioners should have documented formal instruction, training, and supervised experiences in the areas in order to be considered competent. Questions practitioners may ask in evaluating whether they are competent to supervise or consult on a case include: (1) am I competent in working with children; (2) am I competent to conduct play therapy; (3) am I competent to address the presenting concern; (4) am I competent in working with diverse clients; and (5) do I have adequate training and supervision to provide care to this client.

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1 and 2: Am I Competent in Working with Children and Conducting Play Therapy?

Play therapy is generally considered a "limited-domain intervention" (Barber, Sharpless, Klostermann, & McCarthy, 2007), which requires specialization in order to practice. The practice of play therapy assumes a competence in child therapy. Exhibiting competence in working with children can be achieved via academic course training in child development and child psychopathology, as well as in supervised experience working with child clients. Competence in the specialty area of play therapy may be established most easily through formal training and supervised experience. One way to demonstrate competence as a play therapist is to become a Registered Play Therapist (RPT). The APT (2015) notes that becoming a RPT does not infer one's achieved knowledge or competency, but it conveys certain education and training requirements have been met within the area of play therapy. Beyond training, one should be able to competently conceptualize a case within a theoretical framework, build a relationship, evoke change with certain activities or practices, and terminate treatment when necessary in order to be a competent play therapist.

3: Am I Competent to Address the Presenting Concern?

Addressing the presenting concerns of a client must be within one's competence, as treating a condition with inappropriate methods could lead to a worsened condition. While specialized trainings are required to gain competence in addressing certain presenting concerns such as these, general training, supervision, and consultation may be sufficient for competency in other areas (e.g., children coping with divorce or loss of a parent). Play therapists may regularly consult on cases to assure competence and should seek supervision or refer when they are confronted with cases outside the boundaries of their competence (Sweeney, 2001).

4: Am I Competent in Working with Diverse Clients?

Play therapists work with diverse clients in every session. While we may assume competence applies to clients who are culturally different from ourselves (e.g., different race/ethnicity, nationality, religious background) we must challenge ourselves to have awareness for the client's comprehensive culture (O'Connor, 2005). It is inevitable that clients' cultures will differ from our own, especially as we work with children – a culture in and of itself! In addition, clients can present with different values, languages, religions, ethnicities, and experiences. We are ethically obligated (ACA, 2014) to practice in a culturally competent manner (i.e., the continued effort of practitioners to exhibit effective work within the cultural context of the client [Campinha-Bacote, 2002]). Cultural competence involves having an awareness of one's own culture and biases and understanding the cultural experience of the client. To exhibit competence, practitioners should seek to educate themselves with supervision, training, coursework, and ongoing self-reflection (Gil, 2005).

5: Do I Have Adequate Training and Supervision to Provide Care to This Client?

Because play therapist supervisors and consultants should only provide this indirect service in areas where they are competent, they should consistently ask themselves if they have enough training and supervision to provide direct service to the client with adequate care. A good way to account for this is

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to assess the amount of documented training and supervision hours that specifically relate to the area of competency being assessed.

Competence in the Practice of Consultation and Supervision

Play therapist must also be competent in providing supervision or supervision in order to ethically provide indirect service to clients and systems (Pope & Vasquez, 2010). Indirect service providers are typically viewed as experts when assuming the role of supervisor or consultant. In supervision, the indirect service provider takes on the role of expert as the person receiving supervision is working outside the boundaries of their competence. In this situation, play therapist supervisees work under a competent play therapist (the supervisor) to develop their competencies and the supervisor assumes responsibility for the client being seen by the supervisee. Consultants are viewed as competent play therapists who can trouble-shoot scenarios, consider different options, test hypotheses, and ask relevant questions. The consulting relationship is often more informal than supervision and is a service provided to competent individuals (e.g., a practitioner, parent, teacher) in collaboration to yield effective ideas to benefit the client. While the indirect service provider is being approached in consultation due to their exhibited competence, the person seeking consultation is also viewed as competent and the client ultimately remains the primary responsibility of the consultee (Jacob et al., 2016).

Although the degree of responsibility and the expectations for competency differ for consultants versus supervisors, the areas of competency are similar for both. Beyond the questions of competency related to the specific client, helpful questions of competency to ask yourself when entering into the role of an indirect play therapy service provider include: (1) do I have adequate preparation and training in consultation or supervision methods and techniques; and (2) am I aware of and able to address the multicultural and diversity issues present across relationships.

1: Do I Have Adequate Preparation and Training in Consultation or Supervision Methods and Techniques?

Similar to competency related specifically to the client, indirect play therapy service providers must have training and experience with the methods and techniques associated with consultation or supervision. This may include graduate level course work, simulated supervision or consultation, supervised experiences of supervision or consultation (i.e., meta-supervision), and continuing education activities (APT, 2015; Newman, 2013). These trainings should be focused both on general supervision and consultation as well as specific play therapy consultation and supervision (APT, 2015). While competency cannot be defined by certification, APT does offer credentialing as a Registered Play Therapist-Supervisor (RPT-S) to demonstrate that a certain level of training has been met. The RPT-S certification requires additional hours of general clinical and play therapy experiences compared to the hours attained as an RPT, as well as specific supervisor training (APT, 2015).

2: Am I Aware of and Able to Address the Multicultural and Diversity Issues Present across Relationships?

The ACA Code of Ethics (2014) highlights the importance of being aware of and able to address any multicultural and diversity issues that may be present across relationships. Due to the indirect nature of

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supervision and consultation, this includes the indirect play therapy service provider (i.e., supervisor or consultant), the direct service provider (i.e., supervisee or consultee), the client, and the general context (e.g., school, clinic, home). Robinson, Bradley, and Hendricks (2000) suggested a four-step process for developing multicultural supervision competence. The first step is to develop awareness of how cultural issues affect counseling processes. In the second step, supervisors identify how cultural dynamics have an impact on supervision relationships. The third step is characterized by an exploration of cultural limitations and contributions of counseling theories. Finally, in the fourth step, supervisors integrate multicultural issues into existing supervision models.

Ingraham (2000) provided a multicultural consultation framework specifically for schools that can be adapted and applied to consultation across settings as well as to the supervision relationship. The following five components are included in the Multicultural School Consultation (MSC) framework and have been adapted to apply to the provisions of indirect play therapy services:

1. **Indirect Service Provider Learning and Development:** Knowledge and skill in areas such as understanding one's own culture and the impact it has on others, understanding individual differences within cultures, understanding of rapport building across cultures
2. **Direct Service Provider Learning and Development:** Knowledge and skill in areas such as decreasing the use of a "color-blind" approach, improving confidence
3. **Cultural Variations in the Indirect Provider-Direct Provider-Client Constellation:** Considering the similarities and differences between the consultant, consultee, and client
4. **Contextual and Power Influences:** Knowledge and awareness of the cultural context of the system, disruptions to balance of power and the impact
5. **Hypothesized Methods for Supporting Direct Service Provider and Client Success:** Using multiple perspectives to frame the problem, modeling bridging between cultures, seeking feedback from others

By following the Robinson et al.'s (2000) model and the guidelines provided by Ingraham (2000), the indirect service provider can continue developing their competency when working within diverse settings with culturally diverse clients.

When assessing competence in indirect play therapy services, the play therapist may ask a number of questions. The potential indirect play therapy service provider might ask (1) "Am I competent in the practice of supervision or consultation?"; (2) "If I am generally competent in the practice of supervision/consultation, am I competent in the area in which I would be providing that service in this situation (e.g., problem focus area, client population, or system)?"; and (3) "If questioned, could I easily defend my competence in each of these areas through education, training, and supervised experience?"

CONFIDENTIALITY IN PLAY THERAPY CONSULTATION AND SUPERVISION

Sommers-Flanagan and Sommers-Flanagan (2015) noted that confidentiality is one of the most important ethical considerations in mental health practice and Slack and Wassenaar (1999) found that issues of confidentiality were among the most common ethical dilemmas reported by clinicians around the world. Confidentiality refers to the ethical and legal obligation of a mental health provider to protect private information shared by a client in a therapeutic setting (Sweeney, 2001). The importance of con-

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fidentiality is rooted in the need for a sense of trust between the client and the therapist as an essential grounding of any therapeutic relationship. As further emphasized by the ACA code of ethics (2014, pg. 4), "Trust is the cornerstone of the counseling relationship, and counselors have the responsibility to respect and safeguard the client's right to privacy and confidentiality." However, confidentiality is not as straightforward as simply promising to never repeat what has been discussed. There are instances when confidentiality may legally or ethically be breached, such as when the client gives permission or when it is mandated by law.

The issue of confidentiality is further complicated in the practice of play therapy (APT, 2012; Carmichael, 2006). Although the legal obligation of confidentiality is reserved for the individual that provides informed consent (typically the parent or legal guardian of the play therapy client), the importance of trust in the therapeutic relationship remains equally important between a therapist and a child client. Finding the balance between respecting the child's right to privacy with the legal right of the parent or guardian to remain informed can be challenging (Sweeney, 2001). Serving in the role of supervisor or consultant, the picture of confidentiality becomes even more complex as one considers the issues of confidentiality related to child clients as well as supervisees and consultees.

Honoring the Confidentiality of the Supervisees' and Consultants' Clients

The obligation of confidentiality for information disclosed by or about the child receiving play therapy is an important consideration of the indirect service provider. However, the specific boundaries of confidentiality differ somewhat depending on the role of either supervisor or consultant. According to ACA (2014), one of the primary roles of the supervisor is to "monitor the services provided by supervisees" (p. 12). This process of monitoring naturally involves access to the client information disclosed by the supervisee and there is little about the client that will remain confidential between a supervisor and supervisee. It is the responsibility of the supervisor to protect the privacy of the child beyond the supervisory relationship. This is done both by not sharing confidential information with others and ensuring that the supervisee is aware of the obligation of confidentiality (Borders & Brown, 2005).

The consultation relationship differs from the relationship of supervisor and supervisee, which affects the structure of confidentiality. According to ACA (2014), information shared in a consulting relationship is discussed for professional purposes only and should not reveal identifying information whenever possible. This may be more difficult in settings such as schools where descriptions of a student's behavior (e.g., a fight in the hallway that is public knowledge in the school) or a personal attribute important to the consultation (e.g., a physical attribute that is resulting in bullying) may reveal the identity of the child. As a consultant, one can limit the amount of identifying information requested by asking, "Why am I seeking this information?" If it is not to help the presenting professional concern, it should remain confidential.

In both supervision and consultation, the child and legal client (e.g., parent, guardian) must be informed that information may be shared with other professionals, including supervisors and consultants. Furthermore, they must be informed that there are limits to confidentiality beyond these relationships. The limits of confidentiality for client information are the same for the indirect service provider as they are for the direct service provider, including (a) the legal client (e.g., parent) gives permission for information to be disclosed to a third party; or (b) it is required or permitted by law (Fisher, 2013).

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Permission

The parent or guardian has the right to give permission for information to be shared with others (Remley & Herlihy, 2016). One common reason a parent may give permission is so that pertinent information can be shared with other professionals, such as teachers, who may need to know how best to work with the child. In cases such as these, it is important to protect the privacy and autonomy of the child as much as possible by allowing the child to have a voice in what information is to be shared. Other instances when permission may be given to breach confidentiality include needing to inform insurance policies about diagnoses or progress and transferring records between therapists or school systems. Again, all parties should be informed about what information is to be disclosed and to whom.

Required or Permitted by Law

Indirect play therapy service providers are regarded as mandated reporters. Therefore, when we take the role of a supervisor or consultant, we are legally and ethically required to breach confidentiality when there is a threat of harm to the child or other individuals. The supervisor is likely to play a direct role and even model for the supervisee this process, especially if it is a new domain for the supervisee. As a consultant, the indirect play therapy service provider can still support the process of mandated reporting without needing to be aware of the child's identity. Both in consultation and supervision, the indirect play therapy service provider should work with the direct play therapy service provider to make a plan of how to breach confidentiality. It is recommended that the child and the parent or guardian be included in or informed of the process when appropriate (Taylor & Adelman, 1989).

Honoring the Confidentiality of the Consultee and Supervisee

Just as trust is the cornerstone of a therapeutic relationship between the child and the play therapist, the foundation of trust is essential to the professional relationship between the indirect and direct service providers (Corey et al., 2010). Therefore, when we discuss confidentiality as an indirect play therapy provider, it is important to recognize the need to protect the privacy of the direct service provider in order to create a safe and supportive environment. It is not uncommon for supervisees and consultees to divulge personal information that arises for them as they work with clients. Care should be taken to ensure that both sides are clear about the guarantees and limits of confidentiality before the delivery of an indirect service. The limits of confidentiality in a supervisory or consultation relationship are similar to those in direct therapeutic relationships, including when permission has been given by the direct service provider and when it is ethically or legally required or permitted to breach confidentiality.

Permission

There may be instances where an indirect service provider is given permission to share information related to the direct service provider discussed during the supervision or consultation. For example, supervisees typically give consent for their supervisors to share evaluation information with other entities (e.g., state licensure boards, university practicum instructors). This consent is often required before supervision is undertaken and as Cobia and Boes (2000) note, should be explicitly outlined in the informed consent between supervisor and supervisee. In both supervision and consultation, the supervisee or consultee

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may also give permission for the indirect service provider to disclose information for the purposes of recommendations for jobs or further training opportunities. In each case, consent for the disclosures should be clearly documented.

Required or Permitted by Law

As a mental health professional, the indirect play therapy service provider remains a mandated reporter. If there is any reason to believe that the direct service provider is engaging in harmful behavior towards the client, such as physical abuse, it is legally mandated that the behavior be reported immediately to the appropriate authorities. In many cases though, the boundary of harmful behavior is not as clear as physical abuse. For example, imagine a consultation situation in which the direct service provider is working with a child who he/she is not professionally competent to serve. Through consultation, it becomes clear to you as a consultant that the professional is practicing outside the boundaries of his/her competence. In situations such as these, where you believe the professional has violated their ethical obligations but it has not as of yet caused or threatened to cause substantial harm, ACA (2014) recommends first attempting to resolve the issue informally by approaching the colleague about your concerns. In this case, it would not be your ethical or legal obligation to immediately breach confidentiality. While these two situations demonstrate instances where the indirect play therapy service provider should and should not immediately breach confidentiality, it can often be less clear cut what it means to cause "substantial harm" (ACA, 2014). In those situations, it is often helpful to consult with other professionals without needing to reveal identifying information.

When assessing confidentiality in indirect play therapy services, the play therapist may ask a number of questions. The play therapy consultant or supervisor might ask, "Am I keeping information about the consultee or supervisee private and confidential?" "If I am disclosing information about the consultee or supervisee, do I have permission (e.g., signed release for disclosure of evaluation information from a supervisee to a licensure board) or am I ethically required to do so (e.g., with a seriously impaired consultee with whom I have not been able to resolve the situation informally)?" Because the play therapist providing indirect services has an ethical obligation to the consultee or supervisee and the client, the play therapy consultant or supervisor might also ask, "Am I keeping information about the client private and confidential?" "If I am disclosing information about the client, do I have permission (e.g., signed release for disclosure to teachers or systems) or am I ethically required to do so (e.g., as a mandatory reporter)?"

DUAL RELATIONSHIPS IN PLAY THERAPY CONSULTATION AND SUPERVISION

A dual role is generally understood as when a mental health service provider has a professional role with a person along with another role or relationship with the same person or a with a person closely associated with the person (Moleski & Kiselica, 2005). "This may involve assuming more than one professional role (such as instructor and therapist) or blending professional and non-professional relationships (such as a counselor and friend or counselor and business partner)" (Corey, Corey, & Callanan, 1998, p. 225).

The ACA code of ethics (2014) frames the discussion of dual relationships as "Managing and Maintaining Boundaries and Professional Relationships". The question becomes how far can boundaries be ethically extended? The answer differs depending on the type of indirect serviceprovided (consultation vs. supervision). The answer also depends on the other party in the potential dual relationship (the con-

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sultee/supervisee or the client of the consultee/supervisee). Again, the layered nature of indirect service provision adds complexity to decision-making when navigating potential dual relationships and ethical extensions of boundaries.

Managing Boundaries with Consultees' and Supervisees' Clients

Play therapists providing these indirect services must also manage boundaries with the clients on whose behalf indirect services are sought. For the clients of supervisees, the management of boundaries is very similar to the process used in navigating the boundaries between a counselor and a client. Because the supervisor is vicariously responsible for the client, the relationship to the client of the supervisee is similar to that of the counselor. In evaluating whether to engage in a dual relationship with the client of a supervisee, the recommendations of Younggren and Gottlieb (2004) seem instructive. The authors suggest that, before engaging in a dual relationship with a client, the professional ask and answer several questions. These include: Is entering into a relationship in addition to the professional one necessary, or should I avoid it? Can this relationship potentially cause harm to the client? If harm seems unlikely, would the additional relationship prove beneficial? Is there a risk that the dual relationship could disrupt the therapeutic relationship? Can I evaluate this matter objectively? The answers to these questions, in consultation with another professional, can aid in managing boundaries in an ethical manner.

Managing boundaries with clients of consultees may also be an ethical challenge. However, the consultant may not know the identity of the client. The ACA (2014) code notes that in consulting with colleagues, clinicians "disclose information only to the extent necessary to achieve the purposes of consultation." The indirect service provider engaging in this type of consultation would not have a dual role with the client, because the client was not identified to the consultant. Other forms of consultation (e.g., parent consultation, teacher consultation) offer additional challenge such as the client being typically identifiable and, as a result, the boundaries with the client should be managed. Nevertheless, the ethical boundaries with a consultation client may be different from the ethical boundaries with a supervision client. When the type of consultation client may differ significantly (e.g., the child of a parent with whom you are consulting but who you are, or are not, treating in play therapy, the student of a teacher with whom you are consulting but who you are, or are not, treating in play therapy, an administrator with whom you are consulting about a system), there are few rules that can be universally applied. Play therapists consultants may consider the proximity of the client of the consultee to the play therapist consultant, and apply Younggren and Gottlieb's (2004) method of evaluation. The answers to their questions may differ depending on the proximity of the consultant to the client (e.g., consulting with a teacher about a student who is not being treated by the play therapist but who attends the same school as the children of the play therapist).

Managing Boundaries with Consultees and Supervisees

Because the roles of supervisor and consultant are distinct, the management of boundaries differs for the play therapist providing these different indirect services. The role of supervisor is a professional role that typically involves some form of evaluation (e.g., letter of recommendation, licensure evaluation form, academic grade). As a result, the role of supervisor is likely incompatible with traditionally social roles (e.g., friend, family member) because the social role has the capacity to undermine the objectivity and effectiveness of the supervision (e.g., it's hard to give my friend or family member a less than stellar

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evaluation) (ACA, 2014). However, unlike the traditional counselor-client relationship, the supervisor-supervisee relationship is typically time-limited and is unlikely to be resumed at a future date. Since a therapy client might return for therapy at another time, it may be unwise to begin a personal relationship with the client after initial termination of therapy since that personal relationship with the client would preclude the counselor from seeing the client in future (Pritchett & Fall, 2001). Unlike counseling relationships, supervision relationships are not typically resumed in future but are limited to a particular case or cases, pre-licensure period, or academic term. In contrast to work with counseling clients, supervisees often develop into colleagues with whom the past supervisor would welcome a personal or business relationship. Nevertheless, the ACA code of ethics (2014) emphasizes the evaluation and gatekeeping roles of supervisors and warns against supervising any individual "with whom they have an inability to be objective" (p. 13).

Managing boundaries as a consultant is somewhat less straightforward. The role of consultant does not typically involve evaluation (Jacob et al., 2016). As a result, an existing social relationship with a consultee (e.g., friend, family member) may be less likely to undermine the objectivity and effectiveness of the consultation. In addition, professionals often seek consultation from other professionals who they know personally (e.g., through similar professional involvement, business arrangements). Some aspect of a personal relationship may be the basis for consultation (e.g., knowing the person has an area of expertise and a style that appeals to the potential consultee).

Managing boundaries and potential dual relationships in indirect services can be particularly challenging and call for higher ordered thinking on the part of the indirect service provider. Understanding the role of the provider (consultant vs. supervisor) and, if consultation is being provided, the type of consultation, can inform the decision-making process.

CONCLUSION

In ethics, the primary goal is to "*do the right thing"* (Spike Lee). This chapter has provided a brief overview of four important ethical issues relevant to the indirect play therapy services of supervision and comprehension: informed consent, competence, confidentiality, and dual/multiple relationships. The application of these issues in play therapy supervision and consultation is complex and the above discussion is not a comprehensive list of the ethical issues relevant to these indirect services. The goal was to guide the reader in understanding how these issues apply when the ethical obligation of the play therapist is to both the supervisee or consultee and to the client of the supervisee or consultee.

As Sweeney (2001) has noted, ethical actions are "more than a professional mandate", they are "an extension of the play therapist's commitment to children" (p. 75). While it is not possible to address all ethical dilemmas that indirect service providers may experience, this chapter discusses topics that require heightened ethical awareness. Honoring the values of informed consent, competence, confidentiality, and dual relationships can help the play therapy consultants and supervisees fulfill their commitment to improving the lives of children.

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Chapter 66
Psychological Well-Being, Self-Concept, and Couple Relations in University Students

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ABSTRACT

The aim of this chapter is to analyze the psychological well-being of university students, their self-concept and certain behaviours and attitudes of violence in couple relationships by gender and cultural group (European vs. Amazigh) as well as to determine the relationship amongst the three constructs evaluated. For it, 100 university students of the University Campus of Melilla, Spain, participated in the research. The Psychological Well-Being Scale (PWBS), the Test of Self-Concept Form 5 (AF-5), and the Dating Violence Questionnaire (DVQ) were the instruments used for the data collection. Main results showed differences by gender on the Degree of distress experienced by the presence of violent behaviours and attitudes in couple relationships, the Academic/Professional Self-concept and Self-Esteem. Regarding cultural group, differences were showed on the Couple Relationships Scale of PWBS. In addition, different correlations were found. Finally, the need to address the elements analyzed at the university context is discussed.

INTRODUCTION

Concern about the quality of teaching in Higher Education necessarily involves analyzing the different variables that can facilitate or hinder the process of teaching and learning with university students. Their psychological well-being is an element that is necessary to address (Salavona, Martinez, Bresó,

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Llorens, & Grau, 2005). In this sense, the scientific literature highlights the need to analyze and promote the psychological well-being of university students (Audin, Davy, & Barkham, 2003; Cooke, Bewick, Barkham, Bradley, & Audin, 2006; Howell, 2009; Ruthig, Haynes, Perry, & Chipperfield, 2007).

Also, the association between psychological well-being, self-concept and performance in the university context is a reality that has to be addressed by institutions of Higher Education (Stupnisky, Perry, Renaud, & Hladkyj, 2013).

Moreover, within university classrooms, affective or partner relationships among university students also take place, allowing the existence of beliefs and tolerant attitudes towards violence against women in the dating relationship (Ferrer, Bosch, Ramis, Torres, & Navarro, 2006) as well as violence in young partners (González & Santana, 2001; Strauss, 2004).

The aim of this work is to analyze the relationship between university students' psychological well-being, self-concept and certain negative behaviors and attitudes in young couple relationships. To do this, the following specific objectives were established:

- To analyze the frequency and degree of discomfort with the appearance of certain negative behaviors and attitudes experienced by dating couples, as well as the psychological well-being and self-concept of university students according to gender and cultural group.
- To establish if there is a relationship amongst these negative behaviors and attitudes in dating relationships, the psychological well-being and self-concept of students.

BACKGROUND

The University Context

Higher Education is immersed in a process of change and adjustment, derived from the European convergence process (Jacobs & van der Ploeg, 2006; Justice et al., 2006). It is characterized by complexity, the multitude of situations, functions, contexts and agents involved, which makes it different from other educational stages (O'Neill, Moore, & McMullin, 2005; Tomusk, 2006). In addition, the requirements arising from the quality assurance in Higher Education must be added (Ardi, Hidayatno, & Zagloel, 2012; Lodge & Bonsanquet, 2014; Singh, 2010; Turner, 2012; Zineldin, Akdag, & Vasicheva, 2011), which is a highly competitive and stressful setting (Barkhuizen, Rothmann, & van de Vijver, 2014; Krieg, 2013).

However, the two main protagonists are university teachers and students. It is therefore necessary to address different psychological variables, related both to teachers (Klassen, Tze, Betts, & Gordon, 2011) and students (Richardson et al., 2012), which can affect the adjustment and quality of the teaching, and learning process.

Regarding teachers, their initial training is diverse and, usually, they do not receive specific training to address the different challenges in Higher Education institutions (Hawes & Donoso, 2003; Shulman, 2004). In this sense, university teachers have to develop many different areas of work: teaching, research, management, transfer of knowledge, etc., that make their professional identity a very complex issue (Clarke, Hyde, & Drennan, 2013). Therefore, it is common for university teachers to experience stress and burnout (Tytherleigh, Webb, Cooper, & Ricketts, 2005; Yusoff & Khan, 2013).

With regard to students, the performance and academic adaptation of these is related to their level of satisfaction (Denson, Loveday, & Dalton, 2010; Duke & Weeks, 2010) as well as different variables

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such as social support, self-esteem and stress (Friedlander, Reid, Shupak, & Cribbie, 2007). Thus, it is necessary to pay special attention to stress and emotional exhaustion at Higher Education (Gonzalez & Landero, 2007).

The burnout or "burnout syndrome" is composed of three dimensions: fatigue or emotional exhaustion, depersonalization and low personal accomplishment (Maslach, Schaufeli, & Leiter, 2001). In the academic context, students with academic burnout are characterized by a lack of interest in their study, low motivation and fatigue before the learning task (Lee et al., 2010). External and internal causes are included in the etiological factors of academic burnout (Zhang, Gan, & Cham, 2007). In the first one, excessive number of activities related to learning is identified while the latter are usually set by certain individual traits, such as self-efficacy, self-concept, locus of control, self-esteem and anxiety trait (Jacobs & Dod, 2003; Silvar, 2001). Given the importance of this issue, there are many studies examining burnout and emotional exhaustion among university students (Heikkilä, Niemivirta, Nieminen, & Lonka, 2011; Lian, Sun Ji, Li, & Peng, 2014; Shih, 2015).

Based on what has been mentioned above, in the following sections different researches focused on the psychological well-being, self-concept and relationships in college students are described.

Psychological Well-Being

Well-being has been studied from the Psychology field and specifically its development lies within Positive Psychology. Traditionally, Psychology has shown a clear clinical guidance focused on research of psychological disorders and their possible intervention. However, currently it shows a growing interest to understand the positive side of human beings and the development of their potential, providing knowledge and strategies to achieve personal growth and higher well-being balance (Wong, 2011). As advocated by the pioneers of Humanistic Psychology, and as postulated from the new trend called Positive Psychology, Psychology plays an important role in helping to develop human potential.

Positive Psychology is conceived as the scientific study of optimal human functioning and its general objective is to discover and promote those factors that allow growth to individuals and communities. Therefore, Seligman and Csikszentmihalyi (2000) argue that positive psychology is interested in searching for human excellence through enhancing the qualities and the sources of strength of human beings (Kobau et al., 2011; Molony & Henwood, 2010).

Wellbeing can be obtained through two routes: the hedonic route, that is, the experience of positive emotional states of mind and the satisfaction of desires; and eudaimonic route, the presence of meaning and development of the potentialities of everyone (Peterson & Seligman, 2004; Ryan, Huta, & Deci, 2008; Ryff, 2014).

- The hedonic route refers to the subjective well-being, that is, pleasure, positive affect compared to negative, emotional balance, positive emotions, net affection and life satisfaction. Life satisfaction (overall assessment of life) and happiness (assessment of more immediate aspects) are included on this route (Keyes, Shmotking, & Ryff, 2002). Subjective Well Being depends on external conditions and is linked to the environment.
- The eudaimonic route or psychological well-being is more focused on the virtues, self-actualization, psychological growth, goals and psychological needs and strengths. Therefore, it focuses on the positive performance of the individual, in the development of the true potentialities of everyone (Ryff & Singer, 2008).

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Thus, the level of wellbeing of students, both subjective and psychological (Keyes, Shmotking et al., 2002; Ryff & Singer, 2008), will determine their functioning and adjustment to the university setting.

Health and wellbeing of university students are related to academic performance (El Ansari & Stock, 2010). Psychological well-being is related in college students to optimism and positive values towards health (Burris, Brechting, Salsman, & Carlson, 2009). Proactive coping is a partial mediator of social support in the positive affection of university students and, in turn, positive affection is associated with better psychological functioning (Greenglass, & Fiksenbaum, 2009).

Thus, a relationship between well-being and achievement-related functioning has been identified (Howell, 2009). In this way, Salavona et al. (2005) find a positive relationship between psychological well-being of college students and academic achievement, academic self-efficacy beliefs, the engagement (energy and dedication) and satisfaction with the studies. However, the relationship is negative with burnout (exhaustion, cynicism and lack of effectiveness in the studies), showing a greater propensity in this case to dropout.

Moreover, during the first year at the university a high level of stress and anxiety is experienced (Ruthig et al., 2007). Thus, the psychological well-being gets affected especially at the beginning of university studies (Bewick, Koutsopoulou, Miles, Slaa, & Barkham, 2010) and can lead to the appearance of psychological stress in the first academic year (Verger et al., 2009). Among the risk factors for psychological well-being of the students are, for example, high anxiety before exams, low self-efficacy and certain personality traits, such as shyness, excessive perfectionism or the tendency to loneliness (Tosevski, Milovancevic, & Gajic, 2010).

Related to the above, the use of university counseling services is important (Cooke et al., 2006). Universities must offer students counseling services, which have to develop specific programs tailored to the needs and characteristics of their students. In this regard, Audin et al. (2003) developed a program focused on the psychological well-being of college students and their satisfaction. To do this, they involved departments, students and university staff. Students were advised on matters relating to academic Departments, university support services and university managers. This study shows the need for a change at the university to generate greater satisfaction and psychological well-being in college students.

Similarly, psychological well-being is related to self-concept and performance (Stupnisky et al., 2013). Therefore, in the following section the self-concept construct will be addressed.

Self-Concept

Self-concept is a psychological construct that refers to the perception or image that each one has of himself or herself (Viljaranta, Tolvanen, Aunola, & Nurmi, 2014). Self-concept is formed by self-schemes related to different contexts: academic/professional, social, emotional (called self-esteem), family and physical (Garcia & Musitu, 2001).

In this way, Richardson, Abraham, and Bond (2012), highlight through a meta-analysis study, five areas that relate to the academic success of university students: personality traits, motivational factors, strategies of self-regulated learning, approaches to student learning and, finally, psychosocial contextual influences. Among the motivational factors, numerous studies suggest a close relationship between academic self-concept and university academic results (Awad, 2007; Choi, 2005; Cokley, 2000; Gerardi, 2005; Thomas & Gadbois, 2007). Academic self-concept of students strongly influences their academic self-efficacy beliefs (Marsh & Martin, 2011), so that predicts (and mediates) the affective-motivational type of variables (Ferla, Valcke & Cai, 2009).

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Within self-concept, scientific literature indicates the importance of self-esteem at university level as it relates to performance and academic adjustment (Aspelmeir, Love, McGill, Elliot, & Pierce, 2012; Friedlander Reid, Shupak, & Cribbie, 2007; Rosli et al., 2012). From this perspective, Herrera, Mohamed and Cepero (2016) found a positive correlation between self-esteem and satisfaction with studies, though negative with emotional exhaustion in university students.

In addition, self-esteem at the university level is linked to professional future. Thus, Salmera-Aro and Nurmi (2007) found that self-esteem during university studies related to career a decade later. Students with high self-esteem had permanent jobs, better wages, a high level of engagement (commitment and involvement) at work, greater satisfaction with it and low levels of burnout, at a point ten years later.

Couple Relations

Universities also make it possible to meet other people, the establishment of social relationships as well as couple relationships. The academic and interpersonal stress which is experienced in institutions of Higher Education can lead to dating violence (e.g., psychological aggression, physical assault, and sexual coercion) (Mason & Smithey, 2012).

In recent decades both at national and international level, policies have been implemented which are geared towards combating gender violence. Their primary objective is focused on gender equality (Fontanil et al., 2005; Labrador, Fernandez-Velasco, & Rincon, 2010; World Health Organization, 2005). In Spain, the introduction of the Organic Law 1/2004 of December 28th on comprehensive protection measures against gender violence as well as the Organic Law 3/2007 of March 22nd for Effective Equality between Women and Men, have been accompanied by the development of administrative policies to raise awareness, prevent and detect problems of this nature.

Thus, there are various investigations that have focused on this topic in recent years (Expósito & Herrera, 2009; Harrison & Abrishami, 2004; Marcus, 2007; Ruiz, Exposito, & Bonache, 2010; Sugarman & Hotaling, 1989). However, studies and publications related to intimate partner violence in young people are still insufficient (Halpern, Oslak, Young, Martin, & Kupper, 2001; Jones & Gardner, 2002; Kaestle & Halpern, 2005; Rodriguez-Franco, López- Cepero, & Rodriguez-Diaz, 2009).

METHOD

Participants

This research has been conducted with university students from the Autonomous city of Melilla (Spain). It is a Spanish city that is geographically located in the northeast of Africa, opposite the coast of Almeria, Granada and Malaga. Its area is about 12 km^2. The official census data indicates that its population now exceeds 80000 inhabitants. In this city it can be seen the coexistence of four communities or cultural groups: European, Amazigh, Hebrew and Hindu. In particular, there have been some studies on gender violence centered on the Berber origin or Amazigh population (Mohamed, Seijo, & Novo, 2012).

The study involved 100 volunteer university students from the Faculty of Education and Humanities of the University of Granada (University Campus of Melilla, Spain). The type of sampling used was therefore not probabilistic.

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By gender, 19 were men and 81 women with an average age of 20.14 years ($SD = 2.67$). Academically, 63 students were enrolled in the degree in Early Childhood Education and 37 in the Degree in Primary Education. 59 students were studying first year, 23 second year and 18 third year.

In addition, 68.0% of students were from European cultural origin while 32.0% were from Amazigh cultural background (also called Berber and whose geographical location is located in the Riff region of Morocco).

Instruments

Next the three instruments used for data collection are described:

- **Dating Violence Questionnaire (DVQ):** Designed by Rodriguez-Franco, Antuña, Rodriguez-Diaz, Herrero, and Nieves (2007). It consists of 42 items in which different negative behaviors and attitudes are introduced that may interfere with the dating relationship. To do this, it asks participants to indicate the frequency of occurrence of these behaviors through a *Likert* scale of five points where 1 = Never and 5 = almost always. Secondly, it asks participants to indicate the degree of discomfort that has been experienced for such behaviors and attitudes that have taken place or would be experienced in the theoretical assumption that they occurred, through a standard *Likert* scale of five-point, where 1 = Not at all and 5 = Very much.

The DVQ has been validated in Spanish, Mexican and Argentinean students (Rodríguez-Franco et al., 2010), as well as in American (Fabelo, & López-Cepero, 2012) and Italian youths (Presaghi, Manca, Rodríguez-Franco, & Curcio, 2015).

The reliability of the questionnaire, found in the study by Rodríguez-Franco, Antuña, Lopez-Cepero, Rodriguez, & Bringas (2012), is .926. In the present study the reliability of the questionnaire has been estimated by *Cronbach's alpha* statistic, obtaining a value of .955. Specifically, for the *Frequency of occurrence of negative behaviors and attitudes in dating relationships* the internal consistency was of $\alpha = .960$ and the *Degree of discomfort experienced* was $\alpha = .986$.

- **Psychological Well-Being Scale (PWBS):** The PWBS (Sánchez-Cánovas, 2007) consists of four subscales: Subjective Psychological Well-Being, Material Well-Being, Labour Well-Being and Couple Relationships. The first and last subscales have been used for the purpose of this research.

The Scale of Subjective Psychological Well-Being consists of 30 items related to feelings that have been experienced throughout life (for example, I am optimistic, I feel young, etc.). Subjects have to answer according to a *Likert* scale of five points, where 1 = Never and 5 = Always. Meanwhile, the Couple Relationships Scale has 15 items that refer to personal attitudes regarding sexuality and relationships (for example, I am happy with my partner or I attend to the sexual desire of my partner). In this case, it was also answered on a five point scale where 1 = strongly disagree and 5 = strongly agree. The reliability of the *Subjective Psychological Well-Being Scale* is high ($\alpha = .928$) and the *Couple Relationships Scale* ($\alpha = .868$).

In the same way as for the previous questionnaire, reliability in this research for both scales was calculated, obtaining a value of $\alpha = .941$ for the Subjective Psychological Well-Being Scale and $\alpha = .833$ for the Couple Relationships Scale.

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- **Self-Concept Questionnaire, Form 5 (AF-5), of García and Musitu (2001):** This consists of 30 items that assess the subject's self-concept in the Social, Academic/professional, Emotional or Self-esteem, Family and Physical contexts. The subject has to answer according to an attributive scale of 1 to 99 depending on how the item will fit to the subject's assessment. Esnaola, Rodriguez, and Goñi (2011), when analyzing the psychometric properties of this test indicate that its total reliability is $\alpha = .74$. The index of internal consistency, *Cronbach's alpha* calculated for this study yielded a value of $\alpha = .760$.

Procedure

For Data Collection

During the first half of November, measuring tools were administered collectively by classrooms, in two sessions of 30 minutes each. In the first session they completed the PWBS and AF-5 and in the second the DVQ. At the beginning of each session students were informed that this was a research project in which their participation was voluntary, anonymous, without any link with the subject in which their course of study was passed and that their involvement would help us to know more of their experiences and feelings in relation to the object of study.

For Statistical Data Analysis

Firstly, the distribution of data was analyzed to determine whether it fulfilled the requirement of normality according with Gaussian distribution in order to decide the type of statistical tests (parametric and nonparametric) that were more appropriate to develop. To achieve this, the *Kolmogorov-Smirnov* test was used for total scores on different subscales of the three measuring instruments (see Table 1).

Since values for some cases were statistically significant ($p < .001$, $p < .01$), the null hypothesis for the normally distributed data was rejected.

The homogeneity of variance or homoscedasticity was also analyzed. For it, *Levene*'s test was used for the independent variables gender and cultural group (see Table 2). Results by means the *t-test* for independent variables showed that the homogeneity of variance was not achieved in all cases.

According to that described above, the use of nonparametric tests was indicated. In this regard, the nonparametric tests used were the *Mann-Whitney U* test for analysis based on gender and cultural group variables, and the correlation analysis of *Spearman*, to find the possible relationship between the different dependent variables.

RESULTS

This section describes the results obtained in response to the research objectives. In first place violence in couple relationships, psychological well-being and self-concept of university students attending the independent variable gender are analyzed. Next, an analysis is set according to the cultural group. Finally, a correlation analysis to determine the possible relationship between the different constructs evaluated is performed.

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Table 1. One-sample Kolmogorov-Smirnov test

		Negative Behaviors and Attitudes in Dating Relationships		Psychological Well-Being		Self-Concept				
		Frequency of Occurrence	**Degree of Discomfort**	**Subjective Psychological Well-Being**	**Couple Relationships**	**Academic/ Professional**	**Social**	**Self-Esteem**	**Family**	**Physical**
N		100	100	100	100	100	100	100	100	100
Normal parameters	Mean	1.3252	4.2583	110.5400	59.4100	7.2982	7.3347	4.8920	8.3373	6,0923
	Standard Deviation	.46312	.97423	19.60026	10.81441	1.59867	1.50899	2.14191	1.66692	1.90582
Most extreme differences	Absolute	.241	.233	.090	.095	.089	.073	.038	.183	.053
	Positive	.213	.223	.045	.075	.056	.043	.038	.169	.040
	Negative	-.241	-.233	-.090	-.095	-.089	-.073	-.037	-.183	-.053
Kolmogorov-Smirnov Z		2.413***	2.328***	.897	.946	.889	.732	.378	1.831**	.525
p		.000	.000	.397	.332	.408	.657	.999	.002	.945

*** $p < .001$, ** $p < .01$

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Table 2. Levene's test

Constructs	Dimensions	Gender		Cultural Group	
		t	*p*	*t*	*p*
Negative behaviors and attitudes in dating relationships	Frequency of occurrence	2.225*	.028	-.548	.585
	Degree of discomfort	-5.385***	.000	1.401	.164
Psychological Well-Being	Subjective Psychological Well-Being	1.262	.210	.057	.954
	Couple Relationships	-1.152	.252	2.657**	.009
Self-Concept	Academic/professional	-2.758**	.007	.833	.407
	Social	.955	.322	.991	.324
	Self-esteem	3.580**	.001	.914	.363
	Family	-.326	.745	.795	.428
	Physical	1.562	.121	-1.090	.279

*** $p < .001$, ** $p < .01$

Results by Gender

Table 3 shows the results of statistical analysis, through the nonparametric *Mann-Whitney U* test, in each of the constructs evaluated as well as the dimensions that comprise them depending on the gender variable.

The results revealed differences by gender in the *Degree of discomfort* experienced in the presence of negative behaviors and attitudes in couple relationships, $U = 362.000$, $W = 552.000$, $Z = 3{,}583$, $p = .000$, so women showed a greater degree of discomfort than men. Similarly, differences in the *Academic/ Professional Self-concept* were found, $U = 516\,500$, $W = 706\,500$, $Z = -2{,}223$, $p = .026$, in which women also scored higher, as well as the *Emotional Self-concept,* $U = 430{,}000$, $W = 3751.000$, $Z = -2983$, $p = 0.003$, although in this case women scored lower than men.

Results by Cultural Group

The same analysis was carried out but considering the students cultural group (see Table 4).

Only statistically significant differences were obtained in the *Couple Relationships Scale* according to the cultural group, $U = 730.000$, $W = 1258{,}000$, $Z = -2{,}648$, $p = .008$, with students of Amazigh cultural background showing a lower score compared to those of European origin.

Results of the Correlation Analysis

Finally, a Spearman correlation analysis was carried out in order to determine whether there was a relationship between negative behaviors and attitudes in couple relationships, psychological well-being and self-concept of students (see Table 5).

First, the Frequency of occurrence of negative behaviors and attitudes in the couple relationship was related significantly and negatively with the Degree of discomfort experienced, Rho = -.480, p = .000, Couple Relationships Scale, Rho = -.364, p = .000, and Family Self-concept, Rho = -.349, p = .000. On the other hand, the Degree of discomfort experienced correlated positively with the Couple Relationships Scale, Rho = .254, p = .011, and negatively with Physical Self-Concept, Rho = -.196, p =. 049.

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Table 3. Results of the Mann-Whitney U test for the constructs and dimensions evaluated by gender

Constructs	Dimensions	Gender	Average Range	*U*	*p*
Negative behaviors and attitudes in dating relationships	Frequency of occurrence	Male	60.76	574.500	.086
		Female	48.09		
	Degree of discomfort	Male	29.05	362.000***	.000
		Female	55.53		
Psychological Well-Being	Subjective Psychological Well-Being	Male	58.55	616.500	.179
		Female	48.61		
	Couple Relationships	Male	42.24	612.500	.167
		Female	52.44		
Self-Concept	Academic/professional	Male	37.18	516.500*	.026
		Female	53.62		
	Social	Male	59.63	596.000	.127
		Female	48.36		
	Self-esteem	Male	68.37	430.000**	.003
		Female	46.31		
	Family	Male	50.71	765.500	.972
		Female	50.45		
	Physical	Male	61.92	552.500	.057
		Female	47.82		

*** $p < .001$, ** $p < .01$, * $p < .05$

The Psychological Well-Being Scale was related to the Couple Relationships Scale, Rho = .308, p = .002. Similarly, it was related with all subscales of AF-5, that is, Academic/Professional Self-Concept, Rho = .344, p = .000; Social, Rho = .437, p = .000; Emotional, Rho = .255, p = .010; Family, Rho = .254, p = .011; and Physical, Rho = .438, p = .000.

In addition, the Couple Relationships Scale related to the Academic/Professional Self-Concept, Rho = .208, p = .038; Social, Rho = .225, p = .025; and Family, Rho = .215, p = .032.

Academic/Professional Self-Concept was related to the Social, Rho = .305, p = .002, Family, Rho = .205, p = .041; and Physical, Rho = .337, p = .001.

Finally, Social Self-concept related to the Emotional, Rho = .197, p = .048; Family, Rho = .367, p = .000; and Physical, Rho = .455, p = .000.

CONCLUSION

Firstly, according to the initial aims, gender differences in the constructs Negative behaviors and attitudes in dating relationships as well as Self-concept are obtained. Specifically, with reference to violence between dating couples, women are expressing a greater degree of discomfort than men related to violence, real or hypothetical, within their relationships. These data may be due to the constant advertising campaigns

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Table 4. Results of the Mann-Whitney U test for the constructs and dimensions evaluated by cultural group

Constructs	Dimensions	Cultural Group	Average Range	*U*	*p*
Negative behaviors and attitudes in dating relationships	Frequency of occurrence	European	50.31	1075.000	.923
		Amazigh	50.91		
	Degree of discomfort	European	52.60	945.000	.290
		Amazigh	46.03		
Psychological Well-Being	Subjective Psychological Well-Being	European	49.68	1032.000	.679
		Amazigh	52.25		
	Couple Relationships	European	55.76	730.000**	.008
		Amazigh	39.31		
Self-Concept	Academic/professional	European	52.49	952.500	.317
		Amazigh	46.27		
	Social	European	51.62	1012.000	.574
		Amazigh	48.13		
	Self-esteem	European	51.82	998.000	.506
		Amazigh	47.69		
	Family	European	51.16	1043.000	.739
		Amazigh	49.09		
	Physical	European	47.99	917.000	.206
		Amazigh	55.84		

** $p < .01$

that are being made in the media as a measure to prevent and eradicate gender violence, although the importance of incorporating this subject within university contents of studies cannot be ignored (Ferrer et al., 2006), especially when the participants of this study will be dedicated to the education of children of primary and early childhood education (Diaz-Aguado, 2005).

As for Self-concept, significant differences in relation to gender have been found, which coincides with different researches (Padilla, Garcia, & Suarez, 2010). In fact, women get higher scores in the Academic/Professional Self-concept (Pastor, Balaguer, & Benavides, 2002), whereas men score higher on Self-Esteem (Amezcua & Pichardo, 2000).

Secondly, differences depending on the cultural group in the construct Psychological Well-Being are found. Such differences are not in the dimension Subjective Psychological Well-Being, which is consistent with previous studies showing similar results in different cultures (Disabato, Goodman, Kahsdan, Short, & Jarden, 2016). In particular, it is in the dimension Couple Relationships where European students get higher scores than Amazigh. This result may be due to the type of education that has been acquired in the family, because in the Amazigh culture issues related to couples and feelings are considered a taboo, especially for women, so they are taught they should not discuss them with anyone (Mohamed et al., 2012).

Thirdly, the results of correlational analyzes show a negative relationship between the frequency of occurrence of gender violence behaviors by the partner which is generally low, and the degree of discomfort caused by them, which is usually higher, and the dimension of Couple relationship of *PWBS*,

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Table 5. Spearman correlation analysis for the different dimensions of the three constructs analyzed

Constructs	Dimensions		Degree of Discomfort	Subjective Psychological Well-Being	Couple Relationships	Academic/ Professional	Social	Self-Esteem	Family	Physical
Negative behaviors and attitudes in dating relationships	Frequency of occurrence	*Rho*	-.480***	-.170	-.364***	-.049	-.164	-.118	-.349***	.049
		p	.000	.090	.000	.626	.103	.243	.000	.630
	Degree of discomfort	*Rho*		.065	.254*	.035	-.005	.102	.104	-.196*
		p		.523	.011	.730	.957	.314	.301	.049
Psychological Well-Being	Subjective Psychological Well-Being	*Rho*			.308**	.344***	.437***	.255*	.254*	.438***
		p			.002	.000	.000	.010	.011	.000
	Couple Relationships	*Rho*				.208*	.225*	.150	.215*	.174
		p				.038	.025	.136	.032	.084
Self-Concept	Academic/professional	*Rho*					.305**	-.116	.205*	.337**
		p					.002	.249	.041	.001
	Social	*Rho*						.197*	.367***	.455***
		p						.048	.000	.000
	Self-esteem	*Rho*							.162	-.037
		p							.107	.714
	Family	*Rho*								.148
		p								.143

*** $p < .001$, ** $p < .01$, * $p < .05$

which may reflect that the lower the frequency of occurrence of these behaviors is, the greater the well-being experienced in the couple relationship (Proulx, Helms, & Buehler, 2007). The relationship is also negative with the Family Self-concept, that is, students with higher family self-concept show a lower frequency of gender violence behaviors. In this case, the influence of the family and, specifically, family education may serve as a protector against the possible occurrence of gender violence.

Moreover, the degree of discomfort experienced against the real or hypothetical presence of couple violence is related positively with the dimension Couple Relationship of *PWBS* and negatively with the Physical Self-concept. Probably, this fact is due because those students whose physical self-image is greater do not see themselves experiencing an episode of gender violence.

It stresses that the dimension Subjective Psychological Well-Being correlates positively with both the other dimension of *PWBS*, Couple Relationship, as with the five dimensions of Self-concept. Similarly, the second dimension of *PWBS* correlates with different dimensions of Self-concept. These results corroborate those from other studies, which highlights the association between Psychological Well-Being and Self-concept (King, Extremera, & Pena, 2011; Rodríguez-Fernández Droguett, & Revuelta, 2012; Stupnisky et al., 2013).

Finally, the Academic/professional Self-concept correlates with the Social, Familial and Physical dimensions of self-concept. In the same way, Social Self-concept is related to Self-esteem, Family and Physical Self-concept. As already described above, the Academic Self-concept is strongly linked to self-efficacy beliefs and academic success (Awad, 2007; Marsh & Martin, 2011; Thomas & Gadbois, 2007). In addition, in this situation mediate affective-motivational variables (Aspelmeir et al., 2012; Ferla et al., 2009). Therefore, it highlights the need to address issues related to social identity, internalization of social context and groups that comprise it given that for university students are relevant both a sense of belonging to different groups in those who move as social support perceived by them (Haslam, Jetten, Postmes, & Haslam, 2009).

FUTURE RESEARCH DIRECTIONS

One of the goals in Higher Education is to encourage a quality process of teaching and learning. In order to achieve this goal it is necessary to consider the factors that may facilitate or hinder this process (Audin et al., 2003; Cooke et al., 2006). The results obtained on this research show the need to implement programs that address the attitudes and behaviors related to health as it relates to academic achievement in institutions of Higher Education (El Ansari & Stock, 2010). These programs have to meet the personality characteristics and values associated with the psychological health of university students (Burris et al., 2009). Access to the university and beginning a new program of studies in itself can be a time of anxiety for students, so it is important to ensure that they receive the necessary support throughout their studies so they can successfully complete their course, which will allow a more pleasant transition throughout university and, ultimately, into the labor market (Bewick et al., 2010).

The development of successful coping behaviors will likely reduce stress and allow students to develop problem-solving strategies, while psychological balance and well-being will remain. In short, university counseling services have to address issues of psychological health of students and carry out campaigns of active dissemination (Tosevski et al., 2010) so that the functions of advice and guidance are met for the personal, academic and professional development of students. This implies a teamwork which involves not only counseling services but also the entire university community (departments,

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Dean's offices, administrators, etc.). University quality cannot be limited only to making reports but especially to the satisfaction and well-being of its members. Therefore, it must continue advancing both in terms of research and change of the organizational structure of the university.

Moreover, although this study was conducted in a relatively small sample of university students, it is worthwhile to continue doing research in this direction, mainly to analyze in greater depth the differences according to gender and cultural group.

Finally, the present study has been developed with training students whose career goal is to work as teachers. In these future teachers it is necessary to deepen into different variables that can affect their professional work as, for example, their cognitive and emotional empathy (Herrera, Buitrago, & Avila, 2016).

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KEY TERMS AND DEFINITIONS

Construct: Theoretical construction, concept formulated to be used in Science (e.g., intelligence and personality).

Couple Relation: Bound between two people characterized by mutual love and deep reciprocal feelings.

Cultural Group: A group of people sharing the same knowledge, beliefs, arts, values, laws, customs, habits and skills.

Dating Violence: Behaviors and/or attitudes within couple relationships, which cause or intend to cause damage of various kinds (physical, psychological, sexual ...) to the other member.

Gender: Set of behaviors and attitudes learned that each culture associates with being male or female, developing in each culture a certain ideal of masculinity and femininity.

Psychological Well-Being: Construct or broad concept that integrates social, psychological and subjective dimensions and healthy behaviors that allows the individual to function positively.

Self-Concept: Beliefs about one-self. Set of characteristics (physical, intellectual, emotional, social, etc.) that make up the image that an individual has of himself or herself.

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Chapter 67
Cognitive Remediation Therapy in Chronic Schizophrenia

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ABSTRACT

Cognitive impairments are now recognized as one of the most ubiquitous features of schizophrenia. Cognitive deficits appear to play a large role in how patients with schizophrenia function in their everyday lives. The role of cognitive deficits in schizophrenia may be gauged by the fact that even when patients with schizophrenia are relatively free of psychotic symptoms, many still have extraordinary difficulty with communication, motivation, self-care, and establishing and maintaining relationships with others. Patients with schizophrenia are often additionally treated with supportive psychotherapy, behavioral management, or social skills training as required. However, the efficacy of these adjunct therapies could be limited in presence of marked cognitive deficits. Thus it becomes crucial to have specific intervention for the underlying cognitive deficits that appear detrimental to improvement of functioning of patients with schizophrenia. The present chapter focuses on cognitive training based intervention program for schizophrenia patients and its efficacy.

INTRODUCTION

Schizophrenia is a major psychiatric disorder characterized by a disruption in affective, cognitive and social domains, which results in compromised ability to adapt to a changing environment and to function adequately in the community. It is a hypothetical construct that clinicians and scientists have developed in an attempt to capture a complex reality (Morey, 1991). As a diagnostic construct, it is inferred from behaviour of a client or the symptoms reported by him. The complexity of the illness is such that even psychiatric experts concede on hypothetical construct nature of the diagnostic categories in schizophrenia (Wong, 2014).

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The deterioration in cognitive and behavioural functions has been implicit in initial conceptualization of the illness to an extent that Kraeplin (1919) described the illness as an irreversible and deteriorating condition like dementia (Goldman, Axlerod, & Taylor, 1996). Cognitive impairments are now recognized as one of the most ubiquitous features of schizophrenia. It is suggested that these impairments are very apparent and detectable before the onset of symptoms that meet diagnostic criteria for schizophrenia. The severity of these impairments may vary from moderate to severe even at the time of the first break of the symptoms and they tend to persist throughout the course of the illness (Bowie & Harvey, 2005). Meta-analytical studies provide substantial evidences that these cognitive impairments are present significantly at early stage of the illness even in drug naive patients; thus they are not resulting from other symptoms or antipsychotic treatment (Bergman, Cervenka, Flyckt, Edman, & Farde, 2014). The recognition that cognitive dysfunction is a central feature of schizophrenia has elevated its importance for both research and treatment. One of the main incentives for understanding the signature of cognitive impairment in schizophrenia is the strong relationship between cognitive performance and functional skills and functional outcome.

Despite the widespread prevalence of cognitive impairment in schizophrenia, there is considerable controversy as to whether the deficits reflect a generalized and a global neuropsychological impairment. The presence of diffuse cognitive impairment has been documented in patients with schizophrenia across a range of cognitive measures (Hoff et al. 1999; Mohamed, Paulsen, O'Leary, Arndt, & Andreasen,1999; Saykin et al., 1994). Although there appears to be a group of patients who are impaired only minimally, most patients are characterized as having at least some impairment across a number of domains.

SPECIFIC NEUROPSYCHOLOGICAL DEFICITS IN SCHIZOPHRENIA

Several studies identify selective impairments of a greater magnitude against a background of global impairment. Specifically, the cognitive deficits appear to be larger in areas of attention, memory and executive function.

- **Attention:** Schizophrenia is characterized by deficits in attention (Bleuler, 1911; Kraepelin, 1919; Shakow, 1962) and it has been claimed that these attention deficits are related to dysfunctional brain systems that underlie the pathophysiology of the disease (Robbins, 1990; Norman et al., 1997). Attention skills are disrupted by a wide variety of causes and attention is a critical underlying component of many cognitive functions. Without intact attention skills; many other skills, including learning, communication, and problem-solving become difficult or impossible. Furthermore, attention deficits can be mistaken for memory deficits when memory functions are in fact intact.
- **Memory:** Memory impairment is one of the most common cognitive problems in schizophrenia patients (Gourovitch & Goldberg, 1996). This type of impairment is usually long- term, debilitating and difficult to treat (Chen& McKenna, 1996). In last many years, an increasing amount of research has investigated memory deficits in schizophrenia. Schizophrenia patients have been found to be impaired on their ability to recall, recognize, and learn both visual and verbal materials (Gold, Carpenter, Randolph, Goldberg, & Weinberger, 1997; Tamlyn et al., 1992; Paulsen et al., 1995). These findings have been postulated to result from neuropathological abnormalities in the temporal- hippocampal area (Goldman et al., 1996). Consistent with learning theory, three

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phases of learning are implemented in memory training: acquisition, application, and adaptation. Each phase imposes different demands on the learner and requires adjustment in instructional strategies.

- **Executive Function:** Executive functions include the capacity to formulate goals, plan and organize goal- directed behavior, carry out goal directed behavior fully and effectively, and monitor and self- correct one's behavior needed. Disturbances in executive functions have been structurally related to the prefrontal lobes, neuropsychological to defective performance in tests of problem- solving abilities, and functionally to disability in maintaining a complex behavior sequence without help. Schizophrenics have varying grades of impairment of executive processes, which result in difficulties during extended and multifaceted interpersonal interactions. Carter and Barch (2000) relate the neural basis of executive functions to the dorsolateral prefrontal cortex and anterior cingulated cortex, and show that functional imaging studies identified disturbances in other areas as well, particularly the temporolimbic region. Disturbances in higher cognitive functions may have an engaging relationship to the functional hypofrontality observed among these patients during positron emission tomography (PET) and functional MRI studies. Luria (1973) have referred to the loss of meaningful, directed behaviour resulting from frontal lobe lesions, in the absence of marked disturbances in motor activity or sensitivity, agnosis or praxis as a construct in rehabilitation.

EFFECT ON REAL-WORLD FUNCTIONING

Cognitive deficits appear to play a large role in how patients with schizophrenia function in their everyday lives. Impaired cognition can harm patient compliance to treatment regimens and reduce motivation to engage in a therapeutic alliance (Olfson et al., 2000). Cognitive deficits may be the most vital factor in predicting real-world functioning in patients with schizophrenia, such as availing public transport and doing financial transactions in shops or bank. In a study, geriatric patients who were able to live in the community in comparison to institutionalized patients were found not differing from them on most measures, including the severity of their positive symptoms; however, their cognitive functioning was dramatically better than the institutionalized patients, suggesting that a patient's level of cognitive functioning might be the most important determinant of real-world outcomes (Harvey & Keefe, 1997). Similarly, Green (1996) tried to determine which, if any, neurocognitive deficits restrict the functioning of schizophrenic patients in the outside world. He reviewed studies that have evaluated neurocognitive measures as predictors and correlates of functional outcome for schizophrenic patients. The review included seventeen studies that evaluated specific neurocognitive correlates of community functioning, social problem solving, and psychosocial skill acquisition. Results suggested that despite wide variation among studies in the selection of neurocognitive measures, some consistencies emerged. The most consistent finding was that verbal memory was associated with all types of functional outcome. Vigilance was related to social problem solving and skill acquisition. Negative symptoms were associated with social problem solving but not skill acquisition. Notably, psychotic symptoms were not significantly associated with outcome measures in any of the studies reviewed. Verbal memory and vigilance appear to be necessary for adequate functional outcome. Deficiencies in these areas may prevent patients from attaining optimal adaptation and hence act as neurocognitive rate-limiting factors.

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Addington and Addington (2000) examined the relationships between neurocognitive and social functioning in 80 schizophrenia outpatients. They found social functioning as assessed by the Social Functioning Scale was unrelated to neurocognitive functioning. However, poor cognitive flexibility was associated with low scores on the Quality of Life Scale and the Assessment of Interpersonal Problem-Solving Skills (AIPSS). Verbal ability and verbal memory were also significantly associated with the AIPSS. Visual-spatial ability and vigilance were associated with the sending skills subscale of the AIPSS. In this study, which used a wide range of neurocognitive tests and measures of community functioning and social problem solving, results support earlier research that suggests an association between certain aspects of neurocognitive functioning and social functioning. Perhaps one of the most challenging aspects of treating patients with schizophrenia is coping with the severe cognitive deficits that accompany the disease. These deficits are evident in nearly all individuals diagnosed with schizophrenia (Keefe & Harvey, 2012) and their impact on the employment, social relationships and living status of patients is devastating. Cognitive deficits impair motivation and insight about one's illness and treatment as well as negatively affecting the therapeutic alliance.

Diminished attention disrupts the ability of a patient to follow a conversation, comply with medication instructions, complete a course of therapy and hold a job. Poor memory has many consequences harming social functioning, employment and quality of life. Patients with schizophrenia also tend to have greater trouble with tasks that require executive functions in that they have impaired ability to shift from one set of rules to another. This difficulty, also known as a perseveration, makes the process of adapting to change very difficult. It is evident that each of these cognitive deficits may pose a problem during non-pharmacological form of therapy. For example, patients with poor verbal memory will find it difficult to benefit from cognitive-behavioral therapy techniques if they cannot easily remember them. A physician's awareness of these deficiencies will help patients receive the best possible treatment.

COGNITIVE REMEDIATION THERAPY

While Cognitive Remediation Therapy and Cognitive Rehabilitation Therapy sound very similar, there are certain differences. Cognitive rehabilitation is a form of intervention in which a series of procedures are applied by a trained practitioner to retain or alleviate problems due to deficits in underlying cognitive functions (Sohlberg & Mateer, 1989). While, cognitive remediation is a teaching process that targets areas of neuropsychological functioning involved in learning and basic day-to-day functioning. It itself is a behavioural training based rehabilitative exercise aiming to improve attention, memory, language, executive functions and social cognition. It is an art and science of restoring these mental processes and teaching compensatory strategies. Overall, any cognitive rehabilitation procedure must be based on solid, scientific knowledge of brain- behaviour relationships and designed to meet specifically defined treatment goals.

TYPES OF COGNITIVE REHABILITATION THERAPY (CRT)

- **Stimulation Therapy:** It is based on the assumption that cognitive functions will improve by stimulating the cognitive system. The therapy usually includes paper-and-pencil exercises or computer training that stimulates one or more mental skills. Presumably, by using these skills, a

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person's cognition will improve and the improvement will transfer to his or her activities of daily living.

- **Process Training:** Process training is similar to stimulation training, but process training focuses on specific areas of cognition. For example, Bracy's (1986) process approach to CRT emphasizes assessment and treatment of specific cognitive defects, such as poor visual scanning or visual neglect.
- **Attention-Concentration Training:** It is designed to improve a person's ability to focus attention, to maintain vigilance, to resist distraction, and to perform mental manipulations quickly and efficiently. It is one of the most widely researched areas of CRT and the researcher has produced commercially available training programs with proven efficacy (Sohlberg & Mateer, 1987).
- **Strategy Training:** As the name suggests, strategy training imparts specific strategies to a deal with situations which a person finds difficult to handle, e.g. remembering information, or skill to continue on a particular task like conversation. These kinds of trainings have been used on patients with traumatic brain injury (Richardson, 1992).
- **Nutrient and Drug Treatment:** It operates on the premise that various substances can affect cognition by correcting chemical imbalance. For example, memory deficits secondary to long term alcohol abuse can often be arrested with thiamine treatments (Elovic, 2000). This type of CRT is relatively new although the results are promising.
- **Prosthetic-Orthotic Devices:** External aids are sometimes referred to as prosthetic-orthotic devices. Their purpose is to obviate a cognitive problem rather than to retrain a defective process. Using an external aid is often the most efficient and expedient way to treat certain cognitive deficits. For example, training a person with a poor memory to use a tape recorder can improve his or her functional memory immediately but it may not have any effect on the underlying physiological cause of the deficit. Although the prosthetic devices do not rectify a person's memory deficit, the devices are especially effective and efficacious methods of treatment.
- **Domain-Specific Training:** These techniques emphasize training a person with simulated life experiences or within a specific functional domain. For example, Schacter and Glisky (1986) described the use of computer simulation to train a person to perform data entry.
- **Indirect Training:** This is based on the idea that although CRT methods like those previously discussed may be the most direct ways to improve cognitive problems, other indirect methods may also be effective (Herrmann & Parente, 1994; Yesavage, Rose, & Spiegel, 1982). For example, teaching a person to adhere to better sleeping and eating habits can improve cognitive function. Training a person to use a variety of external aids can result in a productive and satisfying daily routine (Herrmann & Petro, 1991; Naugle, Prevy, Naugle, & Delaney, 1988). Even the teaching of certain social skills can give some people more control over their everyday living situations so that they can make better use of their reduced cognitive functioning (Best, 1992; McEvoy, 1992).

In recent times, researchers introduce a model of cognition that provides a theoretical backdrop for an eclectic approach to cognitive rehabilitation. This approach is rooted in the theoretical assumption that cognition and the rehabilitation of cognitive functions are influenced by many different factors including a person's physiological state, perceptual skills, emotional status, motivation, and social skills. Changing these factors can improve the person's cognitive functioning as much as any learned compensatory strategies. A combination of environmental changes and cognitive rehabilitation produces the greatest improvement in a person's cognitive functioning (Ben- Yishay & Diller, 1981; Gianutos, 1980). More-

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over, this multimodal model provides a blueprint for a holistic approach to cognitive rehabilitation that is grounded in basic and clinical research (Herrmann, Plude, Yoder, & Mullin, 1999; McEvoy & Moon, 1988).

- **Cognitive Remediation:** A behavioural intervention designed to improve cognition in people who have suffered a decline in neuropsychological functioning. The application of cognitive remediation for people with schizophrenia has become increasingly popular. Over the past several years, two models of cognitive rehabilitation are in practice, viz. Cognitive remediation and Cognitive adaptation:
  - **Cognitive Remediation:** In this model cognitive deficits are treated directly through repeated practice and acquisition of compensatory strategies on cognitive exercises designed to engage under functioning brain systems.
  - **Cognitive Adaptation:** In this adaptive model, neurocognitive deficits are addressed through modification of patient's environment to allow patients to bypass their deficits (Kurtz, 2003).

Cognitive remediation packages are usually customized as per the cognitive deficits of the patient. Cognitive training studies in schizophrenia have followed two approaches:

1. In laboratory setting improving individual test; and
2. In clinical setting: paper pencil task along with variety tasks.

NEUROPSYCHOLOGICAL MEASURES IN COGNITIVE REMEDIATION

It could be a big question that which cognitive domains to be included in remediation training programme. Cognitive remediation programmes are more specific and conventionally have targeted on attention, memory, language and executive functions. This is in line with the evident literature on cognitive impairment in schizophrenia, making it a characteristics feature of the illness. Impairments of attention, learning, memory, and executive function have been reliably identified in the context of preserved verbal knowledge (Gold et al., 1997; Heinrichs & Zakzanis, 1998; Saykin, Gur, Gur, & Mozley, 1991). Decline in attention, memory are the common manifestation of cognitive impairment in schizophrenia, which is increasingly recognized as a core symptom of the disorder. It is evident in almost all people who carry the diagnosis. Deficits in the following areas have been consistently highlighted against a background of diffuse impairment: *Attention processes*: slowed cognitive speed. *Memory:* immediate and delayed recall, learning and verbal memory. *Executive functioning*: sequencing, organisation, planning, and flexibility. On the contrary, language, motor and visuo-spatial functions are less consistently impaired. As neuropsychological assessments are integral part of cognitive remediation programmes; the following guidelines for maximally valid neuropsychological assessment has been hypothesized while dealing with clients with severe disabilities like in schizophrenia.

1. Neuropsychological assessment should occur in real world settings.
2. Assessments should be made repeatedly over time.
3. Neuropsychological assessment measures should include the following:
   a. Supervisor ratings of patient's performance and attitudes.

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b. Objective ratings of the work environment.

THE COGNITIVE REMEDIATION PACKAGE

We discuss a remediation package (Halder, 2011) in detail that was done in clinical setting customized for and used on five chronic schizophrenia patients showing evidence of impaired attention, memory and executive functions. It was conducted in a tertiary care psychiatric hospital setting, rather than in laboratory set up, so several external distractions were there, but on the other hand it acted as real life simulation. The programme was structured combining psychoeducation without disturbing other daily schedule of the subjects.

Before selecting any test for administration, it was ensured that:*(a) the test could be easily administered on chronic schizophrenia patients,(b) even patient with impaired cognitive functioning could show some measurable performance on the tests and (c) practice on these tests in diverse set-up should be possible.*

Considering evidence based literature as discussed before, the researcher focussed on intervening on attention, memory and executive functions only.

- **Target for Intervention:** The package was designed so as to:
  - Improve attention, memory and executive function of the patients.
  - Modify the clinical symptoms of the patients.
  - Improve overall daily functioning of the patients.

The package was developed keeping in view, easy availability of the materials used, ease of method, so that it could be easily conducted by trained person in diverse setups and with patients of different background even with minimal educational background. The remediation therapy package basically investigated the efficacy of cognitive remediation program of neuropsychological deficits, in terms of attention, memory, and executive functioning of hospitalized, chronic schizophrenic patients. The overall effects from baseline to the 3-month follow-up were investigated.

- **Therapeutic Package:** The package broadly consisted of:
  - Psychoeducation.
  - **Cognitive Training:** Attention module, Memory module, Executive functions.

Psychoeducation

Psychoeducation refers to the dissemination of information about psychosis and skills of self-management. It has generally been targeted either at neuroleptic medication compliance and/or improving understanding and insights into psychotic illness itself (Goldman & Quinn, 1988). Early studies on psychoeducation on schizophrenia demonstrate that patients can acquire information and skills, but they still beg the question as to whether such information and skills internalize such that these are seen as relevant to the individual and his or her own situations. Keeping this view in mind, the intervention program started with a brief session of psychoeducation to both the groups. It specially helps to prepare the patient for actual therapy. It basically aimed to:

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1. Provide information to patients regarding signs and symptoms of schizophrenia;
2. Knowledge and importance of medication and its side effects; and
3. Inform the patients about the cognitive difficulties in simple language that were going to be dealt with the aim to improve that functioning.

The patients were explained briefly about the cognitive problems in schizophrenia. The idea was to improve compliance and effort on part of the patients. Patients were explained how deficits in cognitive functions led to gross deficit in their daily activities, like attending things, remembering (dates, events, work), or organizing. Along with Psychoeducation, the group was continued with group meeting which included

- **Social Interaction:** Interacting with other patients and staff nurses.
- **Recreation:** Participation in activities like singing, games.
- **Involvement in Pre-Vocational Work Assignment:** Engagement in light work like helping the ward staff, carrying water and food from the mess, cleaning etc.

Cognitive Training Programme

The cognitive training program consisted of 30 hours (average) individual training divided into 20 minute sessions. The sessions were done six days a week and lasted for three months. The program consisted of three modules: Attention, Memory, and Executive function apart from psychoeducation.

Training Programme Flow Chart

Brief Education about the cognitive training
↓
Introduce a new task and establish a rationale for the task
↓
Discuss Steps of the task
↓
Demonstration of the task
↓
Practicing the task
↓
Giving feedback and correct mistakes if any
↓
Assignment of Homework
↓
Review of work from previous session.
↓
Assessment

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Introducing a new task:

- The cognitive training program consisted of a series of exercises that were hierarchically ordered according to increasing cognitive complexity.
- The program progressed from training the sample on basic and simple stimuli to training on more complex stimuli.
- The training programme encompassed training on reasoning skills, training on attention, memory and executive functioning, which were deemed as basic skills for intervention.
- The training exercises were always presented in the same predetermined order, though tailored according to the need of the patient.
- Considering the educational and Sociodemographic background of the subjects, remediation training tasks were formulated as such that they were simple yet effective and feasible to follow at home under supervision. The tasks as per intervention areas are detailed in Table 1.

Table 1. The attention, memory and executive functions training module

Intervention Area	Specific Target Area	Task
Attention	• Sustained Attention • Selective Attention • Scanning Ability	• Joining Beads • Grouping of cards • Letter Cancellation • Joining dots • Reading newspaper
Memory	• Verbal Learning • Immediate Memory • Delayed Memory • Recall • Recognition	• Remembering Objects • Picture Recognition • Learning Word list • Story Telling
Executive Function		• Category Matching • Correcting the order • Daily Schedule and 'to do list' • Planning Daily Routine • Problem solving • Extensive training on WCST

- **Sessions:** Given that treatment intensity appears to be a salient factor in any cognitive remediation programme, every effort should be made both to provide treatment regularly and to ensure that clients go to sessions. And that was the reason why patient were intervened for three months.
- **No. of Sessions:** The subjects attended at least 10 but typically more than 25 sessions, which involved doing the packaged exercises designed to improve cognitive skills.
- A reminder was given to subjects in each session:
    - To attend each and every session – the more you attend and participate, the more skills you learn.
    - Bring your notebook and do the task what you are asked to do in free time after the session.
    - In event of any problem or difficulty, consult.

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Procedure

- Detail and structured interview of the patient, and information from the ward staff were collected in the process of selecting and screening the patients.
- Semi-structured Performa was prepared for collecting data related to socio-demographic detail, clinical variables, and their social functioning.
- Standardized tools were also used for rating patient's psychopathology, handedness, and overall functioning.
- Direct behavioural observation method was also emphasized for the patient in actual or simulated interpersonal situation. Direct observation was done while patient interacted with the therapist, other patients, ward staffs, and other people.
- In addition, two raters (Clinical Psychologists) were engaged, who were unaware about the nature of the study. So the raters could do their rating impartially and in this way, tried to maintain objectivity and prevent rater biasness.

As patients differ widely in pre-morbid cognitive abilities, duration of illness, symptoms and pattern of neuropsychological deficits, the effects of individual differences on sensitivity to remediation procedure could be immense. For this, patient ideally should be screened for significant neurocognitive impairment prior to treatment with these remediation procedures. Thus, the clinical status, psychopathology level, disability and neuropsychological measures of the subjects were assessed thrice; once at the baseline, next post intervention, and lastly at follow up. Before introducing any new task, subjects were explained in simple words the rationale behind it and the impairment of the skills (in daily life) to motivate the patient to involve in that task.

- **Drop Out of Patients:** Out of the total sample two subjects dropped out of the intervention program, as one patient was discharged from the hospital before completion of the study, while one was dropped for increased severity of symptoms.

Treatment Factors Involved

There was no attempt to control the type of medications subjects were getting in the previous study. This was kept in unison to most of the similar treatment efficacy studies done earlier, which did not control this variable, although post hoc analysis of tracked data about medication use suggests that patients taking atypical anti psychotics were more likely to improve in cognitive remediation than those on conventional anti psychotics. In fact, only few remediation studies e.g. Wykes et al. (2007) have reported the type of medication during these training procedures. However, all psychotic medications administered to patients during the study were noted down. Type and doses of antipsychotic medications were determined at the initial assessment. Usually cognitive exercises targeted at specific neurocognitive deficits provide incremental benefit for specific aspects of neurocognition. The intervention program along with psychoeducation improve overall clinical and psychosocial functioning. In the study (Halder, 2011) patients assigned to cognitive remediation demonstrated significantly greater improvements in overall cognitive performance. There are also non-specific effects of participation in the cognitive remediation program, such as improved motivation or sense of self-confidence, which are another potential contributor to improved work outcomes. A greater understanding of the relationship between

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improved cognitive functioning and better psychosocial functioning in areas such as work is needed to identify appropriate cognitive targets for treatment. This in turn may reinforce motivation and improve a sense of self-mastery, which in itself could contribute to better cognitive performance. Apart from control interventions that systematically teach skills; simply engaging the patient in some active manner may also improve cognitive functioning in patients with schizophrenia. However, more work is needed to evaluate the effects of different types of control groups on cognitive performance in schizophrenia and to identify the common and unique features of active control programs and cognitive remediation programs, based on theories of how each program works.

IMPLICATIONS

One potential implication of these findings is that while neurocognitive deficits and negative symptoms of schizophrenia place large restrictions on patients social and daily work life; any type of sustained, goal-directed cognitive activity in the presence of supportive clinicians, regardless of its content, has the potential to improve neuropsychological function significantly in this patient population. Consistent with this viewpoint, a small but growing number of studies suggest that structured behavioural rehabilitation improves neurocognitive skills in patients with schizophrenia in the absence of any specific cognitive training (Spaulding et al., 1999; Spaulding, Reed, Sullivan, Richardson, & Weiler, 1999; Silverstein & Wilkness, 2004). This possibility also emphasizes the significance of reports showing an advantage of cognitive remediation for a variety of outcome measures, even when cognitive remediation interventions are compared with control interventions that involve considerable non-specific stimulation such as work therapy or supported employment programs (Bell, Bryson, Greig, Corcoran, & Wexler, 2001; McGurk, Mueser, & Pascaris, 2005).

GENERALIZATION

An important issue is the generalizability of the improvement. Literature suggests that performance on the training task can often be improved (Green, Satz, Ganzell, & Vaclav, 1992) but it is doubtful whether these effects generalize meaningfully (Bellack, Blanchard, Murphy, & Podell, 1996). Findings of the previous study discussed (Halder, 2011) suggests that improvement in cognitive function also has effects on social, and daily functions, but overall improvement is not maintained. It also indicates that longer duration of intervention program may lead to more sustained and generalized effect.

Among few methodologically adequate studies, like Wykes, Reeder, Corner, Williams and Everitt (1999); Medalia, Revheim, and Casey (2000; 2001) have investigated the effects of an intensive cognitive rehabilitation programme. The intervention was targeted at deficits of executive functions, based on procedural learning and the principles of errorless learning, targeted reinforcement and massed practice. It consisted of individual daily sessions of 1 hour for up to 3 months. The control therapy was occupational therapy, matched for length of treatment and therapist contact. Seventeen patients received the cognitive treatment and 16 received occupational therapy. Some improvement in cognition followed both therapies, but the cognitive intervention was superior to the occupational therapy with regard to tests of cognitive flexibility and memory. There were no systematic changes in symptoms or social functioning in either group, with one exception: patients in the cognitive treatment showed a significant increase in

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self-esteem. The study by Medalia et al. (2000, 2001) applied computer-aided training programmes to remediate memory and problem-solving deficits. The subjects failed to apply the mnemonic strategies that they learned successfully within training tasks to other general measures of memory and learning. In contrast, the problem-solving group showed a significant improvement on the outcome measure that assessed problem-solving skills required for independent living, an effect that was not present in the other two groups. The authors concluded that patients with schizophrenia are responsive to problem-solving training techniques.

Reviewing the available set of studies, it is clear that some measures of executive function, attention, and memory can be remediated with extra instructions, repeated practice, or reinforcement or both, but not conclusive about social, daily functions and other areas of disability. Recent researches are targeting those areas of neuropsychological deficit that are particularly responsible for the profound social dysfunction evident in schizophrenia. Different neuropsychological deficits may not contribute to social dysfunction equally. There has been increasing attention to the relationship between specific neuropsychological dysfunction and community outcomes, social problem solving and social skills acquisition over the past several years (Green, 1996).

CONCLUSION

Patients with chronic schizophrenia are impaired in a range of neurocognitive domain, and this is evident in terms of both statistical and clinical significance. The neurocognitive deficits can be improved by continuous cognitive training, along with psychoeducation. There is also strong relation between cognitive functioning and clinical symptoms and social outcome, and that too improve with cognitive intervention program. There is a need of proper standard cognitive remediation package, which should be rich in methods but may not be computerized. Focus on functional deficits is a much neglected area in which further research is urgently needed and cognitive remediation in schizophrenia should be aimed at improving not just specific cognitive deficits, but also the functional deficits that arise from them.

The overall impression of this chapter confirm the notion and suggests that individuals with schizophrenia have cognitive deficit and can learn and perform the skills with proper intervention. The skills taught in remediation programme can be retained without substantial degradation over a considerable period of time, showing the effectiveness of the comprehensive cognitive remediation program along with psychoeducation. The intervention programme also indicated in improvement of clinical symptoms and social functioning of chronic schizophrenia patients. The cognitive remediation programme discussed in the chapter included only three major areas: *attention, memory and executive functions*. Future remediation programmes may be drafted targeting the overall neuropsychological functioning in a comprehensive way. Along with neuropsychological functions, more stress may be put on social and vocational functioning and a combined rehabilitation package should be made in future. A proper, detail manual of cognitive remediation program can be made. The package for cognitive remediation can be standardized in different population and the duration of the remediation programme can be increased.

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KEY TERMS AND DEFINITIONS

Cognitive Remediation: A behavioural training based rehabilitation treatment, focussing to improve attention, memory, language and executive functions in persons having these impairments.

Neurocognitive Impairment: The impairment of cognitive functions of a person following a neurological illness, mental illness, drug use or brain injury. Most common cognitive domains are attention, memory and executive functions.

Schizophrenia: Schizophrenia is a psychiatric illness characterized by abnormalities in thought, perception, language and speech. The symptoms are manifested variably in combination of hallucinations, delusions, impaired reality contact and abnormal behaviour.

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Chapter 68
The Power and Compassion of Rational Emotive Behavior Therapy (REBT)

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ABSTRACT

This chapter demonstrates the effectiveness of Rational Emotive Behavior Therapy (REBT) for enabling people to enhance their lives and create greater happiness. It is the pioneering approach developed by Albert Ellis PhD, the late husband of the author, that heralded in the cognitive revolution in psychotherapy, and which influenced approaches that followed it such as Cognitive Behavior Therapy, Positive Psychology and more. It is a holistic approach that reminds us of the inseparable interplay of thoughts, emotions and behaviors, and in addition to being an evidence based therapy, it can also be a way of life for those who choose to apply it as such. By practicing its principles which encourage us to create healthy emotions in response to adverse situations, we are also guided to experience and express unconditional acceptance of ourselves, others, and life, and to practice daily gratitude. In so doing we can feel compassion and empathy for those who suffer, including ourselves, experience greater joy and minimize emotional suffering in our lives.

INTRODUCTION

Countless people are hungry, starving at times, to feel greater joy and happiness in their lives. There has been turbulence and challenge in societies of almost every culture and era as far as can be told, and many would suggest that contemporary society contends with confusion, crisis, violence, brutality and other such joy-zapping conditions.

Sadly, too few individuals seem to be aware that each one of us has the power to create our own emotional destinies – despite and including any challenges in home life, societal unrest and global disharmony. Many might want to suffer less emotional angst and pain, and intellectually know that happi-

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ness and other positive emotions are good for the mind, body and soul – but they lack a knowledge of the "how-to's" for getting there: Such tools are required for creating and maintaining healthy emotional states. Additionally, it is not sufficient to simply know the tools, but to apply them in order to create and maintain beneficial change. Furthermore, many people may not realize that what can significantly contribute to a feeling of greater happiness more of the time, is not only the satisfaction of fulfilling their individual wants and needs, but also the expression and experience of feeling empathy and kindness towards others, and performing related actions which demonstrate such care.

The tenets and practices of Rational Emotive Behavior Therapy (REBT) are dedicated to helping people learn ways to create greater happiness. REBT encourages people to adopt attitudes and actions of self-care and self-acceptance and vigorously urges people to adopt attitudes of kindness and empathy for the sake of helping others. Doing so can become an additional means to an ends of achieving the goal of greater happiness. In other words, though helping and caring for others is ideally done for the sake and well-being of those in need-- a lovely by-product can be greater happiness within the individuals carrying out those deeds.

I feel with deep conviction, based on my personal experience, my experience as a professor and as a therapist working with a variety of clients over the years of my professional life so far, and based on solid scientific evidence and research (Ellis & Whiteley, 1979) – that the approach of Rational Emotive Behavior Therapy (REBT) may be one of the most effective, evidence based approaches to enable the maximization of joy and happiness in life, and to minimize emotional misery. It provides a healthy and stabilizing philosophy of life along with tools for achieving a life of more happiness and minimal misery.

REBT is arguably the most holistic of psychotherapeutic approaches, reminding us of the inseparable interplay between our thinking, our emotions and our behavior. At the heart of its philosophical core is an emphasis on the importance of unconditional acceptance, gratitude, kindness, empathy, and the encouragement to perform and express caring actions and attitudes towards ourselves, towards others and towards the world in general.

Some main premises of REBT include, (i) that essentially most humans, in the absence of emotional disturbance and mental illness, act in life-enhancing ways; (ii) that the goal of most humans is to feel greater happiness throughout their lives; (iii) that acting with kindness and experiencing empathy contributes to greater happiness; (iv) that experiencing daily gratitude distracts one from focusing too much on negative thoughts, creates tranquility, and may be followed by uplifting experiences of awe and wonder. A significant and growing body of scientific research supports the positive and healthy impact of experiencing gratitude, wonder and awe (Wood & Chopra, 2015; Mills, Redwine, & Chopra, 2015; Doraiswamy & Oz, 2015).

This chapter presents a brief account of certain experiences of REBT's founder, Albert Ellis that contributed to the development of his REBT theory. It expounds upon the basic elements of the scientific evidence-based, rational, no-nonsense - yet also humanistic, compassionate, humorous (at appropriate times!) and philosophical -approach of REBT, the basics of REBT Psychotherapy, and describes the contribution and benefit of the REBT aspect of Unconditional Acceptance and gratitude for increasing human happiness, kindness and empathy.

Albert Ellis PhD, my late and brilliant husband, was the genius who created REBT, and, in-so-doing, heralded in the cognitive revolution in psychotherapy. In the years following his ground-breaking work other cognitive approaches were developed that were influenced by REBT (Ellis, 2001b). They include Cognitive Therapy (CT), Cognitive Behavior Therapy (CBT), Dialectical Behavior Therapy (DBT), Acceptance and Commitment Theory (ACT) and Positive Psychology. Dr. Aaron Beck (CT founder) and

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Dr. Martin Seligman (Positive Psychology founder) often give credit to Ellis for his influence on their work and theories. Ellis embraced empirical knowledge, a sound and consistent philosophy, action, and psycho-education, and was a pioneer of the self-help movement. Hundreds of studies, and their time-tested value observed through years of practice, validate the major theoretical hypotheses of REBT (Ellis & Whiteley, 1979), and since many REBT techniques are found within CBT, they are also validated through CBT's large body of research. Ellis greatly hoped that more research on the specific aspects of REBT, particularly on its substantive effectiveness, efficacy and elegance, would and will be done.

In his final decade of life, Ellis and I worked together in every aspect of the work, which included, training professionals in the helping professions, providing weekly Friday Night Workshops for members of the general public, giving individual and group therapy sessions, writing, researching, and presenting through various modes of media on a variety of topics, which included providing methods for applying REBT to creating healthy emotional lives. I continue to teach and practice REBT at Columbia University and have been invited to present at other universities and to professional groups. I write about REBT in relation to various aspects of daily life and to topical contemporary and topical issues, I give presentations to the general public about it and I have a private therapy practice.

Just as my late husband experienced in his decades of work, time and time again I observe the powerful impact on the lives of people I teach or counsel of applying and incorporating REBT principles into their lives. Very importantly – I do my best to practice what I preach, for REBT is not only an evidence-based scientific therapeutic approach, it is also a way of life for those of us who choose to adopt it as such. The result for many of us who do so, is greater happiness, tranquility, emotional stability through the most challenging of times, and, consequently, the enjoyment of better sleep, health and well-being.

HISTORY AND DEVELOPMENT OF REBT

Much about REBT is unique, including its development. It incorporates the wisdom, tools and techniques which were created through the innovative brilliance of Albert Ellis. Albert Ellis was not shy about offering praise, respect and credit where they were due, and he acknowledged the influence that some others, of the past and among his contemporaries, had had on his work. The people, philosophies and practices that he acknowledged as being influential in his work included Gautama Buddha, Zen Buddhists, certain Hindu Yoga practices, Greek and Roman philosophers, and the Stoic philosophy including the works of Epicurus, Epictetus, and Marcus Aurelius. Aspects of the ancient Hebrew and Christian philosophies – despite Ellis's position taken for most of his life as a "probabilistic atheist" – were also influential. He also was inspired by writings of the general semanticist Alfred Korzybski, and those of philosophers including Bertrand Russell, Paul Dubois and Emile Coue (the latter two used persuasive forms of psychotherapy). He enjoyed the works of Alexander Herzberg and the works of existential philosophers of his times, such as Kierkegaard', Heidegger, Sartre and Tillich. During the time Ellis was trained in and practicing liberal psychoanalysis, he considered himself more of an existential analyst. Influences at that time included Erich Fromm, Karen Horney, Harry Stack Sullivan, and Alfred Adler. However it was largely the visionary nature and genius of Albert Ellis that was at the core of his creation of his revolutionary REBT approach.

When studying psychology in the 1940's, psychoanalysis was the approach that was taught at Columbia University Teachers College, the university from which Ellis attained his Masters and PhD. Ellis increasingly found the psychoanalysis he was using with his clients to be too passive, inefficient, and

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lacking in educational and behavioral elements. He became more active-directive with his clients and abandoned psychoanalysis in 1953, developing the approach now known as REBT. (It was first called Rational Therapy (RT), then Rational Emotive Therapy (RET) in the early 1960's (Ellis, 1962), and in 1993 became known as Rational Emotive Behavior Therapy). It was recognized as being a most humanistic approach (Ellis, 1973) and brought profound changes to the practice of psychotherapy. It was fitting that in 1971 Ellis was named 'Humanist of the Year' by the prestigious American Humanist Association.

One aspect that makes the development of REBT unique is that many of the tenets and techniques were born from the insights and practices that Ellis came up with in order to cope with various adversities that he faced in his own life from infancy onwards. He was his own experimental subject so to speak, and having experienced profound success in minimizing his emotional pain as a result of applying such practices to himself, he did research to supplement his experience and knowledge. He continued to practice the techniques and healthy ways of thinking, wrote and lectured about these principles and practices in a manner that both the lay person and academic could embrace and understand – and in so doing, contributed to millions of people changing their lives for the better. His direct experience and understanding of the debilitating impact of emotional pain, and his deep caring about the well-being of others, inspired his dedication to helping as many people as possible, throughout his lifetime and beyond, to learn how to reduce and even prevent emotional disturbance.

What follows in this section is a brief account of just a few of the early experiences and major adversities that Ellis faced from his childhood onward, from which a good number of the tenets of REBT were born. Readers can learn more about them and others by reading his autobiography (Ellis, 2010).

From infancy and throughout his childhood, Ellis experienced various illnesses including nephritis and stomach problems, often having to spend a stretch of months in the hospital. His family rarely visited him, and he felt deeply sad. He could not bear such sadness, so he read books from the children's hospital library, spoke to fellow patients and their visitors, fell in love with his pretty nurses and used his imagination to think about what he would do when he grew up. He also invented games that he and the other children in his ward could play after lights were out. These actions helped him focus on things other than his sadness and the neglect of his parents. These were fine examples of the effectiveness of *cognitive distraction* – which became, and is, an oft used technique of REBT.

Cognitive distraction can be a helpful short term strategy, when one is choosing to remove emotions and attitudes of extreme anger, hatred and bitterness. While it does not remove the root cause of those emotions, it does provide respite from the heat of them, can bring temporary calm, and can allow individuals to behave in more productive ways as a result. From a position of emotional stability, they can then choose to examine their irrational ideas, and work towards developing greater understanding, empathy and forgiveness for the wrong-doers in their lives.

When Ellis was a teenage youth leader of a radical political group, he had a severe phobia of public speaking and never dared to give a speech until he read the early work of John B. Watson. He noted Watson's success in using in-vivo desensitization with young children to help them overcome their intense fears of animals. He forced himself, very uncomfortably, to speak often in public – and within weeks got over his phobia and discomfort to such a degree that he came to enjoy public speaking greatly and proved to be a most effective public speaker. He would often say in workshops and lectures when recalling that time: "I completely got over my phobia, and now you can't keep me away from the public speaking platform!"

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In a similar manner, Ellis tackled his social anxiety and fear of talking to women, his other major paralyzing phobia: using in-vivo desensitization. He challenged himself to generate conversation with at least 100 women on park benches in the Bronx Botanical Gardens for the full month of August. Although he only made one date, and she didn't show up, he completely overcame his fear of approaching women!

In-vivo desensitization became and remains one of the frequently-used techniques of REBT. An example of this approach is to address uncomfortable situations by forcing ourselves to approach and communicate with certain people with whom there is disharmony or for whom we harbor negative thoughts and unhealthy feelings. We would do so while keeping in mind our intention of attaining the goal of increasing tolerance and understanding. (This is not to be attempted with people who act in violent and physically abusive ways).

When Ellis was a young man of around 24, Karyl, the young woman he was dating and with whom he was madly in love with, expressed on-and off-again devotion to him and did not reciprocate his feelings of undying love and commitment towards her! One night she wanted to end their relationship, and he felt devastated. Walking around the nearby Bronx Botanical Garden's lake after leaving her home, he realized that in fact it was not her rejection that was creating his despondency, but his thoughts about the rejection. He realized that he was telling himself that she 'should' love him as much as he loved her, that it was awful that she was so fickle in her behavior towards him, that his life without her would have no meaning, and other such irrational ideas. He started to question and dispute these beliefs and, at that moment, identified one of the core aspects of REBT – it is not an event but our thoughts about it that create our emotions. He realized that there was no evidence that life was fair or that Karyl should act toward him as he did toward her. He realized that though it was undesirable and unpleasant that she did not reciprocate his expressions of love – it was in fact not awful or the end of his world, it was simply disappointing and very sad. And he realized that even if his life would be deprived of certain things, if Karyl was not part of it, there was no way his life would be meaningless unless he kept telling himself that. He reminded himself of other things that brought him meaning and fulfillment that did not involve Karyl – such as his reading, writing, music, and helping other people. Such reflections not only reduced his despondency, but they also allowed him to feel greater acceptance of Karyl and her whimsical ways – which further brought him calm and greater equilibrium.

His actions of recognizing his irrational demands, unhelpful perspectives and expectations, and of disputing them in order to create healthy and realistic attitudes and perspectives became a core part of REBT theory and practice.

Throughout his later adult years and until the time of his death, Ellis practiced what he preached during times of adversity and during some brutal situations. These included health challenges and, in his final years, a shocking situation in his very own Institute, after which he worked outside of the institution (Ellis, 2010; Ellis & Ellis, 2011). The situation was widely reported in newspapers and magazines, and many readers reported back to him and this author their shock and disbelief about the injustice of the situation. Ellis was, and remained until the end of his life, a model of his REBT approach, and an inspiration – demonstrating that it is possible to unconditionally accept those who act in ways you despise. He was quoted in the *New York Magazine* and elsewhere when asked about the situation at the Institute: "I hate what they are doing, but I don't hate them" (Ellis, 2010).

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THE BASICS OF THE REBT APPROACH

Rational Emotive Behavior Therapy strives to help people achieve lasting change, and in so doing, educates them about the process. REBT discourages clients from developing any unhealthy reliance on the therapist. It encourages self-effort and the resulting experience of greater empowerment so that clients can rightly claim to take responsibility for, and create their emotions. As indicated earlier, REBT can be more than simply an effective evidence-based therapeutic approach. It is also a healthy philosophy and a positive way of life and living (Ellis & Harper, 1997; Ellis & Ellis, 2011).

A basic goal of REBT is to help as many people as possible suffer less emotional misery and more joy in their lives. The ten essential elements of the REBT approach are briefly described:

1. REBT points out that it is not events or circumstances that create people's resultant emotional experiences and reactions, but what they tell themselves about the events and circumstances. It asserts that when individuals think in healthy and rational ways in response to adverse or unfortunate circumstances, they create healthy and often life-enhancing emotions. When they think in irrational ways in response to adversity, they create debilitating and unhealthy emotions (Ellis & Ellis, 2011).
2. REBT takes a holistic view of people's lives and tendencies. It reminds people that their thoughts, feelings, and behaviors are interconnected. The healthier their thinking, the more likely it is that their consequent emotions and resultant actions will enhance their experience of life (Ellis & Ellis, 2011).
3. REBT asserts that with awareness, people have choice. In other words, they can choose to experience greater happiness and contentment, or to remain unhappy and miserable. People can choose to monitor their thinking, to recognize when they are thinking in irrational ways, and then to dispute and replace such beliefs (Ellis & Ellis, 2011).
4. REBT clearly distinguishes the differences between rational and irrational thinking. Rational Thinking is based on empirical reality; it creates appropriate and healthy emotions and behaviors; it includes preferences rather than demands; it encourages flexibility; it encourages healthy perspectives; it prescribes high frustration tolerance, unconditional acceptance, and the non-damning of self, others, and life. It encourages people to rate behaviors - not their essential selves; it removes the Tyranny of the "Shoulds" and "Musts." On the other hand, *Irrational Thinking* creates debilitating and unhealthy negative emotions and behaviors; it includes rigid and dogmatic demands; it leads to low frustration tolerance; it includes absolutistic attitudes and overgeneralizing; it exaggerates facts, and includes "awfulizing" and "catastrophizing" (Ellis & Ellis, 2011). It leads to damnation of self/others and life when things don't go the ways demanded that they *should* go; it rates the *worth* of self/others/life. Three core Irrational Beliefs that REBT identifies, from which countless others stem, are: (1) I must always do well and be loved and approved of by others; (2) You must treat me well and act the way I think you should; and (3) Life should be fair and just (Ellis & Ellis, 2011).
5. REBT clearly distinguishes between Healthy and Unhealthy Negative Emotions. Negative in this context does not mean bad, but means unpleasant, painful or unenjoyable. REBT asserts that when people think in irrational ways in response to not getting what they want, or to getting what they don't want, they are likely to create one or more of the self-defeating and Unhealthy Negative Emotions which include anxiety, depression, rage, guilt, shame, and jealousy. When they think in

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rational ways, in response to the same circumstances, they are likely to create Healthy Negative Emotions (non-debilitating, and often motivating or enriching), such as concern, sadness and grief, healthy anger, and regret (Ellis & Ellis, 2011). REBT reminds us that healthy negative emotions are enriching and beneficial during adverse times, and it encourages us to strive to create those instead of fancifully and irrationally thinking that we should not be feeling them, and should be happy all the time.

6. Whilst attending to cognition and behavior, REBT focuses on the emotional element of therapy and wellbeing (its "E"!).
7. REBT reminds people that maintaining therapeutic and other gains requires ongoing work and practice. Homework is an essential part of REBT and can be selected from a variety of REBT Cognitive, Emotive and Behavioral techniques (Ellis & Ellis, 2011).
8. REBT strongly emphasizes the importance of the practices of three forms of Unconditional Acceptance – namely: Unconditional Self-Acceptance (USA); Unconditional Other Acceptance (UOA); and Unconditional Life Acceptance (ULA). USA means determinedly accepting and respecting one's self worth and totality, whether or not one performs well and gains the approval of others. UOA reminds people to make an effort to accept others by remembering that each person is fallible and flawed, and to adopt attitudes of humility and compassion. Finally ULA encourages people to accept life with both its good and its unjust and harsh aspects – changing what can be changed and gracefully accepting that which cannot be changed at the present time. More than other cognitive approaches, REBT emphasizes the benefit of unconditional acceptance and vigorously encourages us to adopt it more of the time. It is a significant contributor to experiencing greater and lasting happiness, kindness and compassion (Ellis, 2005a; Ellis & Ellis, 2011). More is written about this later in this chapter.
9. REBT strives to address a person's philosophy of life and living. This is referred to in REBT as the elegant approach, which focuses on precisely identifying and changing a person's underlying debilitating or destructive beliefs and demands rather than focusing solely on symptom change. In considering similarities and differences between REBT and CT (cognitive therapy), Beck and Padesky agreed with Ellis that REBT is the more philosophically based psychotherapy of the two (Ellis, 2003; Padesky & Beck, 2003; Ellis, 2005b).
10. REBT urges therapists to practice what they preach. When they do so they may display an added component of greater authenticity, which can allow stronger empathy and rapport in the client-therapist relationship and they act as credible models of the approach. Through their ongoing effort at applying REBT to themselves to keep themselves stable, steady and calm during challenging times in their own lives, they are able to remain focused and effective during sessions (Ellis, D.J. 2015).

THE REBT PSYCHOTHERAPY PROCESS

In order to facilitate lasting change, along with the understanding and application of the essential REBT elements, the consideration and application of certain change mechanisms is required.

An initial part of the REBT psychotherapy process is the clarification of therapeutic goals. This includes the identification of the specific self-defeating emotions and behaviors that will be worked on in therapy. REBT is a multi-modal approach and aims to create change in the thinking, emotions,

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and actions of the client. REBT is also concerned with relapse prevention. Relapse prevention methods include regular self-monitoring, the application of disputing methods, and the practice of unconditional self-acceptance including any relapses. Finally, as aforementioned, homework is an ongoing part of the therapeutic process.

The REBT therapist encourages and motivates clients to persist at making an effort to achieve their goals. The effective REBT therapist models UOA when there are relapses, continues to warmly acknowledge progress the client makes on his or her therapeutic journey, and encourages ongoing forward movement.

In REBT psychotherapy, the therapist also makes an effort to develop rapport with the client. A common misconception about REBT is that it asserts that rapport and the demonstration of empathy are not essential in the therapeutic process. REBT encourages therapists to prevent the client from predominantly depending on the therapist to "make them feel better." Instead, REBT assists clients to work on removing any excessive and inappropriate need to feel accepted by the therapist. REBT encourages clients to take responsibility for their emotions and teaches the methods for doing so. However, that does not preclude therapists from establishing a strong rapport and offering empathy when they offer their clients the tools and help them construct positive change.

A possible reason for the misconception referred to above was the judgment about the vigorous style and manner of Albert Ellis when he conducted his demonstrations and sessions. His direct approach, his no-nonsense style, and his frequent use of colorful language, led some people to wrongly infer that his style was the only recommended REBT style. It also led to the inaccurate assumption that his manner prevented rapport and demonstrated an absence of empathy. There is no doubt that his manner was not everyone's "cup of tea" (as is said down under!), however for countless numbers of clients, his authenticity and "tough love" at times enhanced the rapport and contributed to their successful therapeutic outcomes. Ellis did not suggest that others copy his style and manner. The effective REBT practitioners apply the tenets, theory, methods, and philosophy of REBT – but in their own unique way, style and manner.

The REBT therapist listens well, and is sensitive to and accepting of the multi-cultural components of their client (i.e. race, ethnicity, gender, age, religion, sexual orientation). In so doing they can be better equipped to establish rapport by understanding their client's unique cultural elements and by choosing respectful ways of communicating that are less likely to be dismissed or misinterpreted.

REBT psychotherapy is largely psycho-educational and in addition to print and video material on REBT, the REBT therapist will also suggest materials associated with other theoretical approaches if they seem helpful. The effective therapist also stays abreast of current news and inspiring stories, as well as the popular books and movies that support themes being worked on in therapy that can be recommended to clients.

A strong part of the change process is the willingness the client has to be mindful, to reflect on his/her thinking, and to take appropriate actions. Awareness is a key element in the change process. Clients are often encouraged to learn and practice forms of meditation and relaxation. This level of awareness helps clients to maintain realistic goals and expectations regarding the change process.

REBT in the form of brief therapy is sufficient for some people, but for those with deeper issues and disturbances, longer term REBT therapy is needed. Those clients who require brief therapy can experience significant changes within five to 12 sessions (Ellis & Ellis, 2011). Achieving productive results through brief therapy depends on the ability and willingness of the clients to take responsibility for constructing their emotional well-being, learning the tenets of REBT and applying them on a frequent and regular basis.

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Clients with severe emotional disturbances, greater endogenous disturbances, co-occurring conditions, or poor learning skills can also benefit from longer term REBT therapy (Ellis, 2001a). Whilst a course of individual therapy is recommended, over time some clients may benefit from both individual and group therapy. As progress continues, they may solely attend group therapy as a means of beneficial reinforcement and the enhancement and maintenance of their therapeutic gains. Such clients are welcomed to return for individual sessions if or when they may benefit from direct one-on-one refresher sessions, particularly if they have experienced any relapses.

REBT has been applied to a variety of specific conditions such as perfectionism, obsessive compulsive disorder, borderline personality disorder, addiction, the treatment of people with co-occurring problems, severe emotional disturbances, self-defeating behaviors, and other issues (Ellis & Ellis, 2011; Ellis, 2001a).

REBT reminds us that to maximize and fuel effective action for change, simply thinking rational thoughts in a mild manner may not be enough. Ellis urged the inclusion of an emotive element to enhance the effectiveness and efficiency of healthy thinking for promoting effective action: namely, the inclusion of "a forceful, energetic and determined element" and asserted that more vigorous and dramatic thinking "goes one step further to include the determination to act and the actual action that backs up this kind of change-oriented cognition" (Ellis, 1979, p.95). This could explain why Ellis was often so bold, vigorous, intense and dramatic in his delivery of lectures and training. He wanted to help people dispute change and replace irrational debilitating beliefs.

REBT is holistic, recognizing the interconnected nature of various processes within and without, and asserts that people have a choice about the beliefs, actions and emotions they create.

UNCONDITIONAL ACCEPTANCE AND GRATITUDE

Unconditional Acceptance of self, others and life may be essential towards the experience of authentic happiness, the willingness to adopt an attitude of kindness, gratitude and the ability to experience genuine compassion for oneself and empathy for others. This is why REBT vigorously and "heartfully" encourages people to make the effort to experience and express more of these ways of being more often.

REBT asserts that the worth of an individual cannot be scientifically or empirically measured, and that it is simply a given. It recognizes the benefit of rating people's traits and behaviors as positive or negative, helpful or unhelpful, healthy or destructive, successful or failing, the importance of NOT rating them***selves,*** and of not considering that they are worthless because of any failures or mistakes they have made. Ellis would often say, in conversations and presentations, that people have worth simply because they are "alive and kicking," and that failing at things did not mean they were failures, but simply that they were people who failed-at something or things. He recognized that when many people evaluate themselves they are rating their traits and actions as inadequate, and then overgeneralize so that their entire being or personhood is seen as inferior or worthless. Ellis used to say that people rate their whole self instead of merely rating what they do, thereby creating what Alfred Adler called inferiority feelings (Adler, 1929). Ellis taught that people with such feelings can easily and automatically put themselves down, and then can also overgeneralize and globally condemn others (rather than just their behavior) who they are judging as bad or wrong - thereby creating rage and hatred.

REBT encourages people to guard against conditional self-acceptance, feelings of inferiority, and related needs to compensate (Ellis, 2005a). This is accomplished by making on-going efforts to acquire greater unconditional self-acceptance despite any failings or deficiencies of one's particular traits, skills

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or talents, as well as to make ongoing and diligent efforts to experience greater unconditional other acceptance. This would minimize feelings of hostility and resentment towards others despite their different views and/or wrong-doings and maximize the ability to adopt an attitude of unconditional life acceptance when brutal situations occur in the world. Doing so takes ongoing effort and application, repetition, and more repetition. A one-off realization, reminder or infrequent epiphany, are usually insufficient for allowing these attitudes to take root and to become habitual ways of thinking and feeling over time.

The three elements of unconditional acceptance that are core parts of REBT - Unconditional Self-Acceptance (USA), Unconditional Other Acceptance (UOA) and Unconditional Life Acceptance (ULA) have frequently been controversial. In many debates and symposia over the years, Albert Ellis and the author of this chapter, Debbie Joffe Ellis, have been challenged on those aspects of REBT, and criticized. In particular, UOA has been the most controversial of the three. Many have said that to suggest that people adopt such attitudes towards perpetrators of brutal acts and behaviors is unrealistic. Some say it is impossible. The number of individuals who have successfully achieved UOA contradicts such opinions of the nay-sayers, as do the people one regularly can read about in news stories and elsewhere who have chosen to forgive those who have acted in evil ways against them or their loved ones. Such evidence contradicts the views of skeptics who believe that forgiveness and UOA are unrealistic pursuits in the face of brutal events. REBT reminds us that it IS possible to feel UOA more substantially, more of the time, particularly when bad things happen, and strongly encourages people to do the following:

1. Think about the circumstances which led to the person behaving in appalling ways, and be willing to consider that if any one of us had experienced those or similar circumstances, there is a high probability that we might have acted in very similar ways. If any one of us had some combination of similar brain chemistry, similar upbringing where bad behavior was modeled for us by people around us - leading to similar beliefs that fueled the cruel actions that had consequently been carried out – might not any one of us have been candidates for committing similar horrific acts?

   Such contemplation does not for one moment imply that one had better drop any care about the matter nor be less keen to seek justice where necessary. It does, however, make it possible to create a sense of compassion and forgiveness while doing so. For many of us this can take great effort. It is effort well worth it. For the result is an absence of hatred, resentment, rage and other such life-zapping emotions.

   REBT helps guide individuals as they seek to adopt greater happiness and healthier emotions. In developing understanding, compassion and forgiveness, a soul-nourishing attitude can often arise – that of gratitude, such as feeling grateful that we do not suffer from the afflictions that led to the horrific behavior carried out by an evil-doing perpetrator. We can feel immense gratitude that we survived any unpleasant or brutal circumstances and that we are alive and have opportunities each day, each moment, to strive to be more aware, more kind to others and to ourselves. Therein, we can focus on, relish and cherish the many wondrous things in life – despite and including the difficult events around us.
2. Remember each day to think about and appreciate our lives and everything for which we are grateful. As mentioned earlier, research is proving the positive impact on the health of adopting the attitude of gratitude (Ellis, D.J., 2015). Cardiologists and other medical practitioners are recognizing the fact that a number of articles from highly scientific research journals, including the *Journal of the American Medical Association* (JAMA) demonstrate the benefits of gratitude, meditation, and other life-enhancing attitudes and actions.

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3. Consider that we are organic creatures, part of nature, and like any part of the natural world and universe, we are subject to predictable and unpredictable flaws and fallibilities. For some people who love nature, seeing bumps and scars and parasites on a lovely and ancient banyan tree, for instance, would hardly evoke criticism. In all probability the whole tree – along with its gnarls, bumps and flaws – would evoke wonder and awe. In REBT lingo, the person admiring the tree could be said to have unconditional other acceptance of it – marveling at its existence and unique characteristics. No judgment. Perhaps they might observe and acknowledge some unhealthy or damaged parts of that tree that may or may not be able to be healed or fixed. Perhaps there would be actions taken to remedy some condition in the trunk or branches that was detrimental, and again – this would come from care and not criticism or negative judgment about the tree.
   If an individual can quite easily adopt such an attitude and perception about the tree with its flaws, then if they are willing to make effort – they could work to develop such an attitude, namely unconditional self-acceptance, towards themselves, their lives, and their capabilities along with any flaws and fallibilities.

The greater an individual works on minimizing and creating an absence of damnation of self, others and life, the greater his/her potential to experience joy and happiness more of the time. If we choose to work on achieving these feats of joy and happiness – it can take ongoing effort, and it is a choice. Not only do we experience more uplifting emotions, but we act as models for others who can observe our healthy states and perhaps feel inspired or motivated to work more towards increasing such stability and equanimity in their own lives.

CONCLUSION

Life moves swiftly by. Along with its challenges it can contain experiences of elevating joy and moments of awe and wonder, when we choose to think in healthy ways and adopt healthy and realistic perspectives. REBT reminds us to remember life's fleeting nature and to choose to create and cherish opportunities to be kind and compassionate to others and towards ourselves. In so doing, societies and global communities can become infused with greater tolerance and well-being. REBT vigorously encourages individuals, clients and therapists to mindfully utilize, embody and express courage, cognition, compassion, creativity, kindness and care - and to fuel them with action. Let us hope that, in so doing, greater and increasing numbers of individuals' will more passionately embrace life, mindfully cherish their moments, minimize suffering and maximize joy!

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Chapter 69
Engaging Communities through an Art Program at a Domestic Violence Shelter

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ABSTRACT

This chapter is a case study, written from the perspective of a visual artist, designer, and educator, reflecting on a five-year volunteer initiative of developing, leading, and funding an art program at a domestic violence shelter for battered women and adolescent girls who experienced sexual violence. One purpose of this chapter is to provide information about establishing art programs that can be sustained by the institutions in which they are introduced. This chapter discusses the following aspects: 1) breaking the ice and establishing rapport; 2) training and supervising staff and student volunteers; 3) fund-raising, grant writing, and seeking support both within and outside the agency; 4) partnering with organizations or community groups to set up art exhibitions; 5) partnering with artists and writers to print and distribute an educational publication; and 6) developing research with vulnerable populations serviced by the agency.

INTRODUCTION

This case study presents a thick description (Geertz, 1973, pp. 9–10) of my experience of establishing and leading an art program at a domestic violence (DV) shelter that provides services to battered women and their children as well as to adolescent girls who have experienced sexual violence. Although this chapter focuses on a grassroots agency in the rural Midwest, many of the lessons presented will be applicable to a broad range of communities and institutional partnerships. To that end, this chapter offers a narrative of the people and events of this five-year journey, focusing on the following aspects: how it proceeded, what problems were faced, where the principal sources of support came from, and

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what insights were gained. For readers who are thinking about including art in their civic engagement endeavors, these considerations will give a sense of what to expect, what the reasonable goals are, what the organizational problems are, and how to negotiate or overcome them.

This chapter describes the essential steps and strategies I took for initiating and developing an expressive art program to complement individual and group counseling, case management, and life-skills development provided within a residential environment of an emergency shelter for battered women and their children as well as to complement non-residential short-term trauma intervention with sexually violated youth. The objectives of such a program were to facilitate the empowerment of survivors of domestic and sexual violence through art-based methods and to develop an educational outreach strategy, which included advocacy against gender-based violence. In order to accomplish these programmatic goals, essential aspects had to be addressed, ranging from the development of a treatment plan, the training and supervision of staff and student volunteers, and fund-raising and grant writing, to publishing, website development, and group art exhibitions, including a touring art collection.

Incorporating a new program into an existing and tightly functioning organizational structure can pose a challenge that can trigger resistance at a number of levels; recognition of this fact cannot be overemphasized. The new program can be construed as irrelevant or threatening to the status quo instead of being embraced as an asset. An investment of time, energy, and money that is needed to build a program can fuel the resistance, especially when the decision makers are not familiar with art methods, materials, and outcomes and lack the tools for judging the value of such a program. All of these can be difficult to accommodate in an overstretched organization, in which the providers are overworked and often experience secondary traumatic stress or compassion fatigue. The stress-induced reactions may include avoidance of the trauma stories or "feelings of horror, guilt, rage, grief, detachment, or dread, and may possibly lead to burnout and countertransference" (Simpson & Starkey, 2006, p. 1). Hence, this chapter addresses the vulnerabilities of a new program introduced with an objective to being sustained by an agency. The chapter emphasizes the critical importance of building collaborations, fostering participation, and gaining and maintaining support of staff, when there is little or no initial support from the management of an organization.

This case study shows how the development of initiatives like this program can achieve success (a) by starting small, working with a few staff members and against the disbelief that art activities can be an effective therapeutic modality; (b) by making the program visible; and (c) by building a consensus on the unique contributions of the program not only as a powerful method for healing and recovery but also as the clients' favorite program.

In addition to describing strategies for establishing an art program, this chapter introduces a theoretical and ethical framework of the Art for Empowerment (A4E) program, as it relates to the hosting agency's mission statement. Hence, this chapter will equip readers with both the strategies helpful in developing similar programs and a system of assumptions, principles, and relationships posited to guide the practice. It includes examples of artwork and recommends specific problem-solving strategies. Although artists, educators, or public service leaders might introduce and initiate an art program at a social service agency, they are outsiders, and their initiatives can be sustained only for as long as they remain involved, running a risk that the agency might not commit itself to investing in the program. This chapter describes the lessons I learned from guiding a particular midwestern agency toward developing a sense of ownership of the initiative and sustaining it without further involvement of the outsiders who put the idea in motion.

An important principle that this chapter addresses is the necessity of understanding the specific cognitive and emotional needs and characteristics of the populations that are to benefit from the new program.

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Although such familiarity is essential to the effectiveness of an art program, it does not guarantee it. Because of the dual nature of the services provided by the agency described in this chapter—that is, as a DV shelter and also as a place where rape survivors are counseled—it presents the lessons learned from addressing the programming needs of battered women who experienced chronic abuse in their intimate relationships and of adolescent girls who were sexually violated. Each group reacted to art activities differently and often required customized workshops.

The uniqueness, novelty, and many of the challenges presented in this chapter relate to the fact that it deals with a program functioning inside a residential environment of an emergency shelter for battered women. Studies of such programs are absent from art education literature. Unlike other social service institutions, DV shelters and agencies servicing survivors of sexual violence require completion of the specialized training in crisis intervention as a prerequisite to the direct engagement with their clients. This significant commitment of time can be seen by many as a major obstacle to facilitating art workshops for these populations, but the lessons presented here can be easily and immediately applied by social workers and domestic violence counselors who do not have to jump through the hoops of such training to initiate and sustain an art program at their place of employment. These lessons also apply to working with survivors in other institutional settings that do not require such training.

That is not to say that art programs inside DV shelters are the only form of art programming available to individuals exposed to domestic violence. Numerous programs and initiatives have been in existence for children, teens, and adults experiencing domestic violence, street violence, and other forms of trauma-inducing experiences in school and community settings, especially in urban areas (Cohen-Evron, 2005; Gude, 2000; Heise, 2014). Stokrocki, Sutton Andrews, and Saemundsdottir (2004) have studied the role of art in the lives of battered women who were homeless and lived at a shelter for the homeless. Art education turns from the apolitical approach to art (Bersson, 1986), catching up with contemporary art practices, which blend the boundaries between art, social process, and social activism. Art educators who recognize the necessity of expanding the traditional model of art education beyond the fine art-based and discipline-based have paved the way for others. Hence, there is growing literature on art programs initiated and/or facilitated by art educators outside the shelter environment. The push for understanding educational processes, including art education, as emancipatory forces for oppressed, colonized, and marginalized groups and for exploited ecosystems makes art-based programs and interventions more relevant than ever. Desai and Chalmers note that "giving increased attention to contemporary art practices opens new possibilities for art educational practice in schools." (2007, p. 7). The movement toward the culturally-based and localized rather than the universalist and formalist approach to art education has given rise to the recognition of the importance of personalization of students' connection to art objects and processes (Bastos, 2002; Feldman, 2002) and to critical, culture-based theoretical frameworks and practices (Freedman, 2000).

In spite of institutional constraints, risk of retaliation and the loss of jobs for encouraging emancipatory practices (Garber, 2004), socially-minded educators and art educators feel responsible for fostering in students a sense of possibility and empowerment to produce knowledge and contribute to the shaping of their lives, communities, and culture. They do so, for instance, by grounding the teaching in the local arts community (Bastos, 2002) and by deconstructing how ideologies underlying visual culture foster violence, racism, and varied forms of discrimination, including gender-based violence (Ament, 1998; Garber, 2004; Keifer-Boyd, 2003). Socially minded art educators reach outside the traditional classroom walls in this era of AIDS, violence, war, post-colonialism, and environmental crisis. They work with at-risk youth, underserved communities, minority students, traumatized individuals and groups,

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youth exposed to violence, the abused, and the homeless, to name a few from among the many forms of art-based community engagement in the United States and internationally (Gomez, 2012; Heise, 2014; InSul, 2009; Marshall, 2014; Orr, 2002; Stokrocki, Sutton Andrews & Saemundsdottir, 2004; Wexler, 2004; Wyrick, 1993).

After 9/11, confronting the painful reality of war, trauma, and violence can no longer be avoided. Socially-minded art educators recognize the need for transforming art classrooms in schools and communities into places for fostering non-violence, peace, and healing, where students can safely use art-based modalities to express anger, pain, grief, loss and raise self-awareness to develop a critical understanding of their positioning in life as gendered, sexed, ethnic, and class-bound selves embedded in the sociopolitical systems of inequality (Ament, 1998; Cohen-Evron, 2005; Congdon, Delgado-Trunk & López, 1999; Gomez, 2012; Kay & Arnold, 2014; Keifer-Boyd, 2003; Lampela, 1996). Service learning, community-based projects, and community-based programs have become important components in the education of pre-service teachers and art educators, as evidenced by the topics of master theses and doctoral dissertations such as this doctoral study presenting an exhibition titled "Window of Hope: Come and Share the View," featuring works created by female survivors of domestic violence living in a public housing facility for the homeless in Columbus, Ohio (InSul, 2009).

The growing recognition that art can diminish, prevent, and transform the devastating effects of trauma has elicited the interest in art as self-expression, art as therapy, and art as empowerment. A number of conceptual frameworks and understandings of how the creative process, art interventions, and art curricula can accomplish the buffering, preventative, medicinal, and transformative effect on trauma-affected individuals and groups have been utilized by art educators and therapists. Models of practices based on the notion of resilience have been well researched and regarded. Educators and art therapists favoring this conceptualization have committed their practice to fostering and encouraging resilience as the goal of art activities (Gerity, 2010; Heise, 2014). Other art educators emphasize the cathartic and healing effect of self-expression and the peacemaking effect of beauty, creativity, and originality (Marshall, 2014). Some focus on the power of the art-making process to transcend dehumanizing experiences, such as domestic violence (InSul, 2009), whereas others, such as feminist-oriented art educators have written about the catalytic and mobilizing effect of group sharing of self-expressive works (Kay & Arnold, 2014). Some educators emphasize a community-building effect of the collective painting of murals celebrating local communities, as reported by a retired art educator Beth Burkhauser (personal communication, March 23, 2016) who has facilitated such initiatives.

Those varied models of the healing, protective and restorative power of art have in common an emphasis on connecting art to students' lives and to the society at large, and they use art methods as a means for empowerment. They see the educator's role as that of creating a safe environment for students' expression of anger, emotional pain, anxieties, loss, grief, and confusion. Art facilitators listen empathetically, encourage self-reflection, foster non-violent communication, and affirm students' stories without asking students to retell or relive traumatic experiences. Art educators are mindful that they have not been trained as therapists and thus refrain from asking students to explicitly depict traumatic situations, which could impose an emotional burden on students. In spite of such precautions, teachers often notice that students' works spontaneously manifest their emotional struggles and traumatic experiences and observe that as a result of such retelling, students regain a sense of control and purpose in life (Heise, 2014; Marshall, 2014).

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PREPAREDNESS, TRAINING, AND THE AGENCY

Personal Objectives

I am a visual artist, graphic designer, and academic searching for opportunities to make a positive difference in the world through art and creativity. I believed that to achieve this goal, I had to go beyond the boundaries of academic routines, and seek connection with a community. Community is the realm in which things happen, real-life decisions are made, and actions are taken. It is a natural laboratory of experiential learning and human-centered research and a locus of meaningful knowledge. Unlike in controlled laboratory experiments, where one can lose a sense of connection between the production of knowledge and real-life applications, the community is a place where inspiration for research can be found, real social impact of one's actions can be felt, and wisdom can be gained. After working mostly with men in the design field, I wanted to work with women and feel the synergy of a group effort toward a common goal where the decisions would be achieved through shared willingness to find solutions.

Three aspects of my personal and professional life came together and guided my decision to collaborate with an agency serving battered women and victims of sexual violence. First, as I underwent counseling and therapy to cope with troubles in my personal life, I came to terms with my history of domestic violence and sexual assault. Second, I have been making drawings for therapeutic and self-reflective purposes for as long as I have been interested in visual arts, so I understood the medicinal and transformative effects of self-expressive art making on troubled minds and hearts. Third, I enjoyed working with not-for-profit organizations. If only I could make art and touch, inspire, and guide other women toward empowerment, my mission could be accomplished.

Training in Crisis Intervention

Advocacy and engagement involving direct contact with the victims of domestic and/or sexual violence cannot be carried out casually. Such engagements require at least 40 hours of specialized training in crisis intervention with either the victims of domestic violence or victims of sexual assault. It may take as many as 68 hours of training if it pertains to both populations. To qualify for training, potential volunteers respond to a series of prescreening questions at a meeting with a volunteer recruiter at an agency of their interest. The goal is to determine what, why, and how the potential trainee seeks to contribute to the agency and the well-being of the women and children served by the agency. In order to work with both survivors of domestic violence and survivors of sexual violence, I had to complete the training pertaining to both populations.

While this mandatory training can pose a major barrier against involvement with these populations and may restrict access to research opportunities in the residential setting of a DV shelter or a social service agency servicing victims of sexual violence, it provides the trainees with a unique opportunity for learning directly from counselors working with the victims and from the survivors themselves. The myths and truths about such difficult-to-access, vulnerable populations are examined during the training. The trainees learn about the effects of domestic and sexual violence on the victims' mental, physical, and cognitive health and about the dynamics of domestic and sexual violence as sociocultural and political phenomena in personal, local, and national contexts. In other words, the trainees learn the true answers to the questions "Why doesn't she just leave?" and "Why doesn't she get over the rape?"

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It is not surprising that approaching vulnerable populations, including victims of violence, requires preparation so that one does not cause harm unintentionally by acting in ignorance or under misperceptions. Even though the vulnerability is not a permanent attribute but one associated with where the survivors are in their life situations and the healing process, it is imperative to understand the complex dynamics of those situations. The goal is to lower a risk factor of emotional harm.

Survivors of domestic or sexual violence who have overcome their own issues and seek to put to work the knowledge and wisdom they have gained from their healing and recovery make ideal candidates for such involvement (Tedeschi & Calhoun, 2004). The fact that a volunteer is a survivor herself may be particularly useful in developing a rapport with other survivors who are in the process of reclaiming their lives from abuse and violence. It does not guarantee success, but it warms the initial contact and helps to break the ice. The survivors at a DV shelter who have been approached by an "outsider" can relax into the knowing that "she is one of us and knows what we are talking about." Whether or not educators, artists, or public service leaders seeking engagement in the residential setting of the shelter have been victims of violence themselves, it is fundamental that rapport be based on absolute respect for the individuals who are coping with a major crisis in their lives.

Training in Using Art with Survivors of Domestic Violence

A Window Between Worlds (AWBW) is a not-for-profit agency located in Venice, California. It provides training in the use of art with trauma survivors, including battered women and children and survivors of combat trauma. The two- or three-day training programs focus on the methods of using trauma-informed art-based interventions. Unlike the crisis intervention training offered by the shelter, it is optional and not free of charge. I attended the AWBW training and found it immensely informative and beneficial, primarily because it discussed group management strategies and examined typical scenarios of participants' behaviors that often occur during art sessions. Trainees are guaranteed continuous access to the AWBW's educational resources for as long as they facilitate structured, trauma-informed art sessions at a DV shelter in the United States or at an agency working with veterans suffering from the effects of combat trauma. The resources include a wide range of art workshops that were developed by art facilitators working with survivors; funding for art supplies and exhibitions; advice on managing difficult situations; and other forms of support.

Grant Writing Skills

While the various training discussed so far took place prior to my involvement with the social service agency, I also attended workshops on grant writing for institutions and individuals during my involvement. The local university and institutions in the community offered these workshops. The need for competency in grant writing emerged as the art program was underway and it became clear that funding was critical to develop and sustain the program. That is not to say that such training is necessary to succeed in general but that it helped me to navigate the grant writing challenge. As a non-native English speaker, I felt empowered by acquiring the language and linguistic conventions often used in grant writing narratives and by understanding the dynamics of the funder-grantee relationship.

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The Agency: Populations Served and the Approach

To preserve the anonymity of those involved in this narrative, I will not use actual names and locations. I approached a DV center in the rural Midwest, hoping that it did not have an art program, and it would be open to the idea of using art in counseling to complement individual and group counseling, case management, life-skills development program and parenting classes the center offers to battered women and their children living in the shelter. I soon discovered that the agency services not only battered women and their children but also adolescent victims of sexual violence, and it indeed did not have an art program. This grassroots organization was one of the first DV centers established in the country and has been providing free-of-charge, confidential services since the 1970s. It serves a geographic region that is isolated from the cultural offerings of cities and has a high poverty rate among the predominantly white population. Other notable groups served by the agency include African American survivors (25%) and Hispanic or Latina women and children (2%). The latter group often needs help to communicate in English. With an operating budget of more than $1.5 million, the agency provides services through the combined efforts of about 30 paid professional staff, degree-seeking interns, and trained volunteers. On average, 36% of the adult survivors of violence receiving services are between the ages of 18 and 29 years, nearly 50% are between 30 and 49 years, and 13% are over 49 years old. In an average year, the center provides safe shelter and comprehensive services to 850 adult victims of domestic violence and 145 children, not including services provided to victims of sexual violence.

The defining characteristic of the agency is that it is pro-choice in all aspects of women's personal, social, family, educational, economic, and legal rights. It follows a feminist and client-centered counseling approach, which emphasizes supporting women in making their own decisions about their lives by providing them with information about their options and choices. These principles predetermined the philosophy of the art program, defining how the art-making sessions were conducted and what the role of the facilitators and expectations from the participants would be. Different agencies providing services to victims of violence adhere to different approaches. I felt fortunate that this agency operates according to the principles that resonate with my own deeply held beliefs and values regarding critical pedagogy. Critical pedagogy is the pedagogy of emancipation, empowerment, and social justice "with an explicit aim toward establishment of a more harmonious and peaceful world" (Darder, 2015, p. 6).

The agency fosters a feminist orientation in counseling, primarily because its founding mothers were activists of the women's movement associated with the second wave of feminism of the 1960s through the 1980s. These women activists fought for social equality regardless of sex through social, political, and grassroots means and for antidiscrimination laws, including the Equal Rights Amendment to the Constitution to guarantee social equality for women and others. Their efforts led, for instance, to the U.S. Congress passing Title IX of the Education Amendments of 1972, which "required all educational institutions receiving federal funds to eliminate discrimination against women and girls" (Fraser, 2001, p. 49). Women-only organizations were created, including the National Organization for Women in 1966, as well as informal "consciousness-raising" groups for women empowerment (Fraser, 2001; Rampton, 2008). Inevitably, the beliefs and goals of the founding mothers and the social-political climate of the period shaped the organizational philosophy and mission of this grassroots agency.

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THEORETICAL FRAMEWORK

Art for Empowerment Program: The Feminist-Based Methodology

The present tense used in this section of the chapter serves to indicate that the Art for Empowerment (A4E) framework is not exclusive to trauma-informed methods presented in this chapter, but has been further developed and is currently used with non-clinical populations.

The pro-choice imperative and the tenets of feminist counseling have given the impetus to the naming of and the methodology of the art program discussed in this chapter. Importantly, the notion of empowerment refers to the increase of autonomy and self-determination in individuals and communities. It is defined as "holding a positive attitude toward one's own self-efficacy, mastery of environment, and the possibility and ability to influence the outside world, along with taking individual or collective action to fight against oppression and discrimination" (Song, 2012, p. 1115). As such, it corresponds to the mission of the agency: ending violence against women through women's empowerment.

The goal of the naming has been to emphasize the sought-after positive outcome of the creative process without making references to therapy, medicine, interventions, or treatments. In alignment with the feminist approach, the A4E framework does not associate the survivors and their situation, beliefs, and worldviews with pathology. Linking art with medical terminology, which is fixated on detecting what is wrong with a person, would invite the narratives of victim blaming. It is common for battered women to be accused of perpetuating violence by not leaving the pathological domestic situation. Clinical models of domestic violence search for psychological factors in the individuals that cause violence, conceiving wife abuse as an aberrant behavior of some men with poor impulse control or psychopathology (Bograd, 1998; Joyce, 1997).

The most important contribution of the feminist approach to the understanding of domestic violence is that it connects psychological analyses with understandings of the social context of gender inequality. Rather than see domestic violence as a result of the pathology or aberrant behavior of the few, this approach conceives gender-based violence as a method for usurping and maintaining power and control over women as a social group. Recognition that social structural factors and gender-based power relations perpetuate gender-based violence helps in understanding the overwhelming prevalence of domestic violence in the United States and globally (Bograd, 1988; Whalen, 1996; Worell & Remer, 1992). More than 1 in 3 women (35.6%) and more than 1 in 4 men (28.5%) in the United States have experienced rape, physical violence, and/or stalking by an intimate partner in their lifetime and about 1 in 4 women (24.3%) and 1 in 7 men (13.8%) have been victims of severe physical violence by an intimate partner in their lifetime, as reported by the National Center for Injury Prevention and Control (2010). Considering that about 1 in 3 (35%) of women worldwide have experienced either physical and/or sexual intimate partner violence or non-partner sexual violence in their lifetime the prevalence of violence against women in all of its manifestations is a major global health problem and a violation of human rights, as reported by the World Health Organization (2016).

Feminist counseling conceives psychological stress as a response to societal oppression and problems in living conditions or coping strategies. It refuses to conceptualize distress as caused by pathological cognitions or behaviors. Unlike traditional, mainstream counseling that focuses on an individual in isolation, feminist counseling is relational and situates women's distress in the broader context of family dynamics, gender relations, and social-political systems of power relations and institutions (Ballou & Gabalac, 1985; McLeod, 1994). This is a strength-based and strength-building method for developing

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self-awareness and critical consciousness raising, because it does not dwell on traumatic memories and insists that survivors shift their attention to identifying and visualizing the assets and skills they used to survive (Saleebey, 2009). Combining the relational interpretations of abuse with an emphasis on women's strengths help to ameliorate the self-blame and guilt and the sense of powerlessness that survivors harbor as they enter counseling.

An important aspect of the A4E framework is the absolute respect for individual women's experiences and the refusal to pathologize these experiences. Hence, women's understandings of their experiences are the points of departure for group discussions. To this end, survivors' art products are viewed as positive outcomes of artistic activity and as the tangible accounts of the survivors' efforts to reflect upon and reevaluate their situations and heal themselves. It is important to keep in mind that the pro-choice and person-centered approach means that domestic violence counselors and A4E facilitators "follow the survivor." Survivors are provided with information about their options, but it is up to them to decide what to do with that information. Survivors are "shown the path" and supported in making their own decisions, no matter what those decisions might be. Returning to the batterer is a valid and supported option, if the survivor decides that is the best option in her situation at the time. The reality of leaving abusive partnerships is grim. One indicator of the difficulty of deciding to break the partnership, disrupt the family, and leave the abusing partner or spouse is that, on average, it takes seven attempts to leave before the survivor actually leaves for good (Robinson, 2013). Moreover, leaving an abuser puts women in danger of being killed: "Of the total domestic violence homicides, about 75% of the victims were killed as they attempted to leave the relationship or after the relationship had ended" (Domestic Abuse Shelter, 2015).

The Three-Step Process

Group art sessions are staged around creative activities that include varied media and techniques, such as drawing, painting, collaging, sculpting, or assembling. At the beginning of art sessions, participants are provided with prompts that focus the creative activity on a particular theme that is relevant to the survivors' experiences. Most often the prompts cover the themes of healthy relationships, before-and-after, coping, gender, body image, reactions to stress, dreams, and life as a journey. The goal of the A4E methodology is to encourage survivors to speak their truths unapologetically and to hear themselves communicating those truths to others in a safe and respectful environment. This aspect reflects the account of feminist practice derived from person-centered counseling "Encouraging women to trust themselves, to become more assertive and to be able to acknowledge and express anger are other central themes in feminist work" (Walker, 1990, p. 75). In the A4E practice, it means that survivors are invited to use the creative process to bring the traumas, memories, and beliefs into the open and view them in the safety of the art group. The creative process does not merely relieve pain or alleviate a problem without addressing the underlying causes. Under the right conditions it can be utilized as a modality for self-help. To this end, we (the A4E facilitators) intuitively adopted a three-step process of (a) creating the work, (b) reflecting upon one's own creative product, and (c) communicating these reflections to others.

The three-step approach and assumptions that drive it are best understood through conceptualizations found in expressive art therapy literature (Betensky, 1973, 1995; McNiff, 1998). The three-step method rests on the assumptions that the creation and reflection upon the created work can generate self-discovery and that communicating the insights to others can advance self-discovery by generating more insights. Ideally, each step adds up, and collectively they can stimulate new understandings of

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one's own condition and the desire to transform and overcome the limitations of that condition. The create-reflect-communicate method is based on the premise that some insights can be gained only at the intersection of these processes.

The A4E framework is eclectic in that it combines common-sense ideas and workshops taken from expressive art therapy with cognitive-behavioral therapy, person-centered counseling, and a structured trauma intervention model that relies on three steps: re-exposure to traumatic memories through drawing, developing a trauma narrative, and cognitive reframing (Steele & Kuban, 2012). The latter is a model of intervention developed by the National Institute for Trauma and Loss in Children (TLC), supported by research demonstrating a significant reduction of trauma-specific reactions (Steele & Raider, 2009). Cognitive reframing involves the altering of trauma narratives in order to make them manageable. The initial narrative "This experience has ruined my life and leaves me no choices" (Steele & Kuban, 2012, p. 165) often changes into "I survived this experience; I'll survive others and rebuild my life." Self-initiated voicing of the trauma narratives in front of other survivors who also had similar experiences helps normalize feelings associated with traumatic experiences. Cognitive reframing helps individuals transition from seeing themselves as powerless victims to seeing themselves as survivors, which is associated with a sense of some control over life events. It is a passage toward empowerment.

In the A4E framework, creation and reflection are expected of the participants, whereas the sharing of insights and reflections with others is optional. Following the pro-choice approach, all the interpretations are made by the survivors themselves rather than by the facilitators of the art sessions. Facilitators' involvement at the reflection stage runs a risk of influencing and overshadowing the reflections made by the survivors. Because of the unequal power relations between the facilitators, who are in a leadership position, and participants, who by virtue of being participants listen to the facilitators, participants are inclined to consider facilitators' interpretations as more important or valid than their own. However, survivors may abstain from sharing their works and reflections with the group. Giving participants the choice of whether or not to discuss their works in front of the group communicates an important message to the survivors of abuse: they are free to make their own decisions, and those decisions are respected. It is one way to foster empowerment. Having options counteracts the fact that in abusive relationships, survivors are deprived of the freedom to choose. The abusive partners control most of the decisions in the relationship by using varied methods of coercion and oppression, such as psychological, physical, and economic, to name a few.

Art as Healing

The A4E methodology adopts many ideas about the connections between art and healing from the expressive arts literature, which regards the creative process as a treatment in its own right. The approach of the British pioneer in art therapy Edward Adamson is particularly relevant to feminist counseling and the pro-choice ethics. Adamson articulates an egalitarian position, which I call the "ethics of empowerment." It is aligned with the fundamental principle of feminist counseling that every woman has the capacity to help and heal herself, just as she is the one who carries the weight of the journey toward the change and the healing. No one can help or empower a survivor unless she is ready to make the first step and has the perseverance to carry on. Similarly, Adamson believes that healing properties of the creative process can be experienced by anyone because the creative process fulfills the creative impulse that all humans have. Adamson refuses to interpret patients' works, believing that to foster the self-healing and medicinal effect of expressive art is to award the patients "the dignity of helping to cure themselves"

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and to let "Nature's healing powers . . . restore balance and harmony to the troubled mind" (Adamson, 1990, pp. 2, 5). In this approach, the art facilitator's role is to provide a safe space in which participants can heal themselves by engaging in the creative process. The respect for each survivor and recognition of her right to self-determination and creative expression of her individuality guide the dynamics of the art group at the DV center.

Using drawing, painting, collaging, or sculpting as a therapeutic modality to complement traditional talk therapy is based on the distinction between verbal and nonverbal means of expression. Nonverbal modalities are valued in therapy on the premise that some content, such as embodied feelings and unconscious beliefs, can be evoked and better expressed through images than with language alone (Hogan & Pink, 2012; Kazmierczak, 2006). Hence, the expressive art process is utilized not only as a way for connecting with the preverbal dimension of the self but also as means for stimulating the externalization of somatic and sensory experiences, memories, and the psychological content that otherwise may remain unexpressed (Oster & Gould Crone, 2004; Siegesmund, 2013; Waller & Dalley, 1992). "For those who have been battered, talking is often impossible due to sensory memories of trauma and depression, withdrawal, and shock associated with violent episodes" (Malchiodi & Miller, 2012, p. 336).

Drawings and paintings, for example, are regarded as a point of access to the emotional realities of individuals by displaying concrete markers of the inner self. Importantly, expressive works encode not all but most salient aspects of personality, including important themes, social dynamics, and attitudes toward the self and others (Groth-Marnat, 1990). Including nonverbal modality in domestic violence counseling can eliminate possible sources of bias by reducing variables like language skills development, verbal skills, communication disabilities, and sensitivity to performing under pressure. Language skills, verbal skills, trauma, and stress play a dominant role in counseling at DV shelters; traumatized and silenced women, girls, and children, many of whom are immigrants, can effectively communicate complex ideas through images, whereas they experience difficulties in expressing themselves in English.

Interpreting and Sharing as Community Building

Feminist counseling recognizes the individual as a locus of knowledge, especially the knowledge about herself. In alignment with this principle, A4E facilitators do not interpret the works created by survivors. By abstaining from interpretation, facilitators avoid running the risk of projecting their values and personalities onto the survivors' works. Experimental studies have indicated that even though the makers of expressive works imbue the works with meanings, interpreters are not passive recipients of those meanings but rather cocreators. Personality characteristics, theoretical affiliations, and experiences can affect how expressive works are diagnosed and interpreted. For instance, experimental studies of personality factors in relation to psycho-diagnostic skills found positive associations between high levels of hostility and anxiety in clinicians and high frequency with which they saw these personality characteristics in the drawings (Hammer & Piotrowski, 1997; Mintz Emmons, 1955). My own dissertation study showed that interpreters who experienced intimate partner abuse as victims saw indicators of abuse in an overwhelming majority of self-expressive drawings created by undergraduate students, even though most of those drawings were created by the non-abused (Kazmierczak, 2015).

By not getting involved in the interpretation of survivors' works, A4E facilitators also avoid potentially imposing their theoretical orientations and learned theories of diagnostic meaning, which can as much obscure the meanings delivered by the survivors as enhance them. Differences appear among clinicians' attitudes to interpretation, depending on the their training: a psychoanalyst looks for deep, unconscious

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motives, while a cognitively oriented clinician looks for indicators of personal coping strategies embedded in the works. Again, the A4E facilitators' role is to create a safe, nonjudgmental space that is conducive to self-reflection through art making and group interactions.

The goal of reflection in the three-step process is to enable survivors to formulate and "own" the meanings of their works. The meanings are theirs to discover in the works and to share with others. While facilitators do not comment on the meanings of the works, survivors participating in the art sessions are encouraged to comment on each other's works. The objective of the communication phase in the three-step process is that these conversations present opportunities for survivors to hear themselves speaking their minds in front of others and to be heard. An important aspect of the group interactions is building a sense of community, trust, and belonging among the survivors. At DV shelters, the residents not only share bedrooms, cooking responsibilities, cleaning, laundry, and other chores but also discover that they share life experiences that are not limited to abuse. They offer each other advice based on their experiences, and more often than not the advice is well received. Survivors enter the shelter, feeling isolated, alone, and misunderstood. Participating in shared activities and communicating with each other help to take the edge off those feelings and make them manageable. Again, self-disclosure is valued as a normalizing process. Individual survivors realize that their loneliness, concerns, fears, and anxieties about what has happened and is happening to them have also been experienced by many others. During art sessions, as participants contribute to each other's reflections about the works and share their own experiences, they develop communal wisdom. As a collective, they build a body of shared knowledge that has practical and immediate applications. It is an elating and empowering experience for individual survivors in the group.

A4E facilitators on the whole maintain a passive stance at this step. They may comment on aesthetic aspects of the works to boost survivors' confidence in their creativity, but otherwise facilitators create a nonjudgmental environment by listening empathetically, showing understanding, acceptance, and concern. By doing so, they create a forum for group interactions, which they monitor. Whenever inappropriate comments are made, abusive language is used, or hurtful criticisms are uttered, facilitators use those instances as teachable moments to introduce and model by example the principles of non-violent communication. Because of the abuse, survivors often have poor communication skills and lack experience with non-threatening and mutually supportive relationships. Participation in group activities, including art sessions, is one way to foster experiential learning of life skills that the survivors can utilize as they rebuild their lives outside the abuse and violence.

Self as a Process

In the ethics of empowerment, meanings and reflections voiced by survivors about their works are recognized as temporal and malleable rather than as fixed and stable. They are concrete manifestations of transient states of mind, beliefs, and emotions. The meanings reveal aspects of survivors' inner worlds, marking the steps of their mental journey toward self-healing. As survivors' understandings of themselves and their situations change, their expressive works convey new meanings and insights. The insights are revised and updated as new events take place and new understandings of the self evolve. Change, self-healing, and recovery imply that the inner states are in flux, and the inner changes occur at their own pace, depending on an individual survivor's personality, severity of abuse, and other circumstances.

In the safety of the DV center, survivors are provided with conditions fostering their empowerment. Survivors undergo individual and group counseling, which equips them with the tools to understand that

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they have been victims of abuse and that they are neither responsible nor to be blamed for the abuse. They are provided with information relevant to securing their safety and acquire skills necessary to rebuilding their lives: healthy coping skills, life skills, money management skills, parenting skills, and orientation to family law, to name a few.

Challenge of Facilitation

It can be difficult for A4E facilitators to resist the urge to get actively involved in the group interactions, interpret the works created by the participants, and urge them to act "smart." But the facilitators are not supposed to "teach" or urge anyone, or recommend how survivors are to act, especially when it involves criticism of the survivor's decisions. Facilitators facilitate by presenting alternatives and creating an atmosphere of safety and acceptance that is conducive to creativity, reflection, and open communication. The A4E facilitator's job is not to administer an intervention but to help survivors realize what lies within and ahead of them and to help them get in touch with their inner worlds without activating the panic reaction of the drama, danger, and pain they lived through daily.

The A4E workshops have been designed so that to guide the participants toward self-expression of their individuality and connect with their inner resources through visualization, reflection, and communication. Facilitators are responsible for creating a space in which participants could empower themselves through the creative process. The participants do so in their own ways, at their own pace, and in their own styles. There has been the astonishing diversity of expressions and the creativity manifested in the survivors' works, many of which display childlike simplicity, directness of expression, and aesthetic grace (see Figure 1).

BREAKING THE ICE AND ESTABLISHING RAPPORT

Building a Community of Supporters

I approached the agency cold, proposing an art program to help survivors of domestic violence understand their situation and envision the future through creative means. Even though I volunteered my services, my initial reception at the agency was mixed at varied levels: counselors, management, and survivors. Some counselors were keenly interested in my proposal while others were skeptical, and the management had no interest in supporting the initiative at that time. I worked closely with the senior volunteer recruiter, a respected and accomplished staff member who believed in the idea and gave me entry.

To ensure the survivors' safety and well-being, the counselors who were interested in art did not want to introduce new methods without "testing" them first on themselves. To that end, for two and a half months, I led evening art sessions every other week for the counselors who welcomed the idea of an art program at the shelter and who supported the idea of an art program and were interested in incorporating art making into their counseling routines. Some of the participants were occasionally using art media in individual counseling but lacked ideas for workshops and confidence in their skills to facilitate them. Others had not used art but wanted to bring it into their practice to complement talk therapy. The training was conducted with two goals in mind: (a) to demonstrate how art sessions can be facilitated at the shelter and (b) to equip the counselors with experiential knowledge of how expressive art making can lead to better self-awareness, cognitive reframing, and self-empowerment. Above all, the overarch-

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ing goal of the training was to build a community of committed supporters of the initiative. Certainly, without the collective support from within the agency, setting up a new program would not be possible.

There were no lectures, no assigned readings, no slide presentations. Instead, participants were immersed in the intensive, hands-on experience with the trauma-informed themes, media, and three-step process. The workshops for the counselors were conducted as if they were taking place with the survivors at the shelter. The instructional goal was to provide the counselors with a model experience, on the basis of which they could develop their own styles of facilitation and utilize their counseling competencies. The counselors worked through the topics that were pertinent to their emotional and cognitive needs. These overworked professionals at the understaffed agency suffered from secondary trauma and unknowingly ached for an opportunity to channel their emotions, get in touch with their inner worlds, and restore their inner strength and resilience.

Art at the Domestic Violence Shelter

As soon as all the interested counselors were trained and ready to facilitate, we approached the administrators of the agency with a plan to introduce the program at the shelter. We experienced both passive and active resistance and disbelief. Neither the shelter Coordinator, nor the Director of the center had prior experience with art as a therapeutic modality. Not surprisingly, they could not support the idea that might interfere with the existing programs or have deleterious effects on mental health of the residents. They viewed art making as a hobby, rather than a valid counseling method. They also considered art making too "touchy-feely" to inspire lasting changes in emotions, coping strategies, and worldviews. Moreover, grants that funded the existing programs had no provisions for art therapy or art-based activities for adult residents. The funds for art-based counseling and art activities were available only for children's programs.

Instead of giving up, the A4E supporters, decided to self-organize, collect the funds for art supplies, and gain the support from the bottom up: starting with the clients. The counselors have incorporated art in individual counseling, but they had no time to facilitate an art group outside their work hours. A young and adventurous counselor who was totally committed to making the program a reality, helped me facilitate late-evening art sessions at the shelter every other week. This counselor, whom I shall call Ann, devoted her after-work hours to volunteer with me. We met in the evenings because that was the only time when the residents had no scheduled activities and could devote two-hours to art.

Small posters and handouts detailing the four-and-a-half-month schedule were distributed at the shelter and among the clients receiving counseling services on a walk-in basis. Thanks to Ann's unconditional commitment and support, the program prevailed. It took over a year of holding art sessions in a semi-underground manner, until the program was fully accepted by the management and other counselors thanks to the clients who reported to the administration that art sessions were helping them recover. With the executive decision that art activities were a valid therapeutic modality, attendance at the art sessions was made mandatory for all shelter residents and the biweekly meetings were held in the mornings, interchangeably with parenting classes. At that time, the A4E-trained counselors were given permission to get involved.

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The Collective Curriculum and Empowerment

Ann's approach to utilizing art methods in counseling was transformed over the time of our collaboration. It shifted from intimidation to confidence and flexibility with the format, media, and the curriculum. Ann's transition from a novice to an expert illustrates how self-empowerment can be gained in a new area of competency through persistence, repetition, and reflexive practice. Others who regularly incorporated art in their group counseling sessions underwent the same process of self-empowerment. They moved from rigid reliance on lesson plans for each activity to flexibility with the topics, media, and types of activities. At times, they facilitated the workshops without prompts or lesson plans, even though on the whole they preferred to have them handy.

An initial curriculum for a four-and-a-half-month period was developed collectively. All trained counselors contributed to its development by including topics that they believed were most relevant in domestic violence counseling. The media used were also a collective decision, so that everyone could facilitate activities that were executed in their preferred media. Favorite activities included working with watercolors, Super Sculpey, and oil pastels; collaging; making dream catchers; painting on bottles; and box making, to name a few. Many ideas for the activities were inspired by lesson plans, which were supplied by AWBW. Our goal for the collective decision-making was that everyone was vested in carrying the curriculum. Over time, we developed different curricula for different seasons: spring, summer, and fall. The approach proved effective and had a lasting effect on some facilitators. For instance, when Ann worked at a DV center in a different state, she organized and facilitated an art group there as well, using the curricula. One counselor customized the curricula and used them with elderly clients at another social service agency. Each workshop held at the shelter was co-facilitated by one counselor who was trained in A4E methods and by me. During an average semester, the program was staffed by two or three counselors who worked with me on a rotational basis. The goal was to keep their time commitment to art facilitation low because it competed with the time they could devote to the heavy case load that each carried.

Art with Adolescent Survivors of Sexual Violence

The agency provided services not only to domestic violence survivors but also to adolescent survivors of sexual violence. The dual function provided an opportunity to develop art curricula for two populations. Several months after the introduction of the art program at the shelter, a new sexual assault counselor was hired. I shall call her Becky. Influenced by her mother, who was a painter, Becky was immediately open to utilizing expressive art methods with adolescent survivors of sexual violence and had experience in a variety of art media and techniques. Becky also had many ideas for engaging art activities, which she developed for fun and learning with her children at home. Adolescents immediately embraced art activities and were eager to experiment with the media, the themes, and the creative process. The program was demonstrably successful, because it resulted in an adolescent support group, which did not exist before the art methods were incorporated. The girls were excited to make art and wanted to learn new techniques, even though the workshops often dealt with painful or difficult topics. Soon after the program was initiated, the second counselor joined in. The workshops for adolescents, then, were staffed by two counselors who both regularly co-facilitated the workshops with me.

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Art as a Challenge

In retrospect, the initial resistance and lack of support are not really surprising. It is naive to assume that everyone loves art without realizing that art process and art materials can be intimidating for anyone without prior experience with art. Having to make something creative can generate anxiety and self-conscious feelings about one's lack of creativity or drawing skills. The adult survivors doubted their ability to make anything creative, until they discovered that they can. Moreover, the adults did not know how to relax and enjoy themselves because they had responsibilities but no time for self-care.

It has to be noted that facilitating art workshops is demanding, as it requires commitment of extra time and energy for preparations and cleanup in addition to the actual facilitation with the clients: up to 45 minutes for the creation of art samples and the setup and about 15 minutes for the cleanup.

CONTINUOUS TRAINING PROGRAM

To the end of sustaining the program from within the agency and building allies of the program, we, Ann and I, developed a training program for the employees. The initial set of three training sessions took a total of four hours, during which participants were immersed in hands-on workshops, delivered during time slots that were designated for weekly staff meetings. Each module lasted one hour and 20 minutes. It consisted of sampling of topics that were popular among the survivors participating in the A4E program, and demonstrations of how to conduct them. Counselors who were seriously interested in trying out the art methods with their clients in individual or group settings, received one-on-one tutoring and individualized assistance. On average, it took helping the counselor to prepare and facilitate two group sessions until the counselor would overcome her fear of art and feel comfortable enough to conduct the workshops on her own. All interested counselors were provided with a handbook of workshops, which included enough workshops to cover four and a half months of weekly meetings.

Demand for training sessions grew as word got out that counselors would learn how to use art with difficult or resistant clients, how to use art to initiate counseling sessions, and how art activities could help focus a counseling session. Counselors seeking to incorporate art in individual and group counseling with their clients and volunteers who were interested in helping with art sessions for the shelter residents participated in individual or group training sessions. The demand for repetitive training sessions was specific to this agency and was necessitated by high personnel turnover, which was caused by the burnout often seen among counselors who work with the trauma of others (Simpson & Starkey, 2006). The volunteers who were undergraduate students earning credit hours for their work with the program were trained at the beginning of a semester. The introductory training sessions lasted three hours, followed by experiential learning through apprenticeship. The learning-through-experience process culminated in an opportunity to facilitate the workshop at the end of a semester. Volunteers who stayed with the program for a year or longer had more opportunities for facilitation. Those volunteers who were involved in the A4E program for a longer time were interested in gaining hands-on experience in preparation for graduate schools in art therapy.

Repetitive trainings are not needed in agencies that are adequately funded and staffed, have strong organizational coherence, and are open to non-verbal modalities in counseling. For example, I reached out to an organization providing residential treatment and counseling to adolescents and adults who have problems with drug and alcohol abuse. In contrast to the DV center, this organization's management

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immediately expressed an interest in utilizing art in counseling. I was hired to develop and conduct a structured two-day training for all counselors and therapists working at the agency at the time. Over time, the counseling team developed their own facilitation styles, workshops, and curriculum.

FUNDING: ASSURING THE SURVIVAL OF THE PROGRAM

Considering that there was no grant money for the art programming for adults, the A4E program had to be fully self-sufficient. The initial challenge was related to the fact that even if we could identify a grant that would support art programming for adults at a social service agency, no grant funds were available for a program without a track record. Hence, we sought and received art supplies from local art retailers, art teachers, and the art department at the local university. We also organized a fund-raising event at Ann's house, asking for art supplies or money for the program in return for food and entertainment. Through this event, we raised enough money to buy supplies, which complemented the supplies we received through the calls for supplies in the community. The art program used anything that could be appropriated as art supplies: old magazines, leftover craft materials, found objects, and office supplies. Such resources enabled the program to operate over a year, establishing the program's track record and thus making it eligible for foundation funding.

Our strategy—that through the unofficial sessions at the shelter the program would gain momentum, overcome resistance, and achieve acceptance at the administrative level—proved successful, even though it was not the preferred strategy. We were setting a bad precedent: introducing a program that did not require funding or institutional support. It is not a recipe for longevity when an agency that pays no price for its passivity and shows no commitment to an initiative nonetheless carries the program serving its target population. To sustain the program, the agency had to commit to it and take fiscal responsibility for it. By doing so, the agency could fully take credit for offering it.

Once the art program was institutionally established and mandated as a treatment program, it qualified for institutional funding as part of the agency's operations. Here, however, there was another challenge in fund-raising: obtaining funding outside the agency's traditional charitable channels. Again, none of the grants supporting the center included spending for art activities for adult survivors. Moreover, this underfunded and understaffed agency was unable to take on an additional budgetary responsibility, that is, to identify new sources of funding and apply for support for the art program.

This situation prompted me to exercise resourcefulness and structure leveraging sequences to seek and receive funding from the donors who were focused on the community arts and humanities rather than on mainstream social services. Over the years, the program was supported by local, statewide, and national funding agencies. Sponsors have different requirements for what is suitable for funding. Humanities councils typically do not support art making, although they support its interpretation. Art agencies usually do not support causes for social justice or antiviolence movements, but they do support promotion of art in underserved populations and for the strengthening of the connection between art and ordinary people's lives. They also support bringing arts to communities.

Hence, each application highlighted aspects of the initiatives related to the art program that matched the funding objectives of a given sponsor. It has to be emphasized that arts organizations played a vital role in the success of the A4E program. They funded in part specific initiatives and one-time projects but not long-term operational expenses. Arts councils supported survivors' art exhibitions and outreach initiatives, including an online gallery. The state humanities council funded in part a publication educating

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about the value of arts in the well-being of women and communities. We sought and received funding for the antiviolence aspect of the educational outreach from the Puffin Foundation of New Jersey, which supports projects combining art and social causes.

AWBW was instrumental in supporting the program's operating expenses. As explained earlier, the AWBW's mission is to support art programs for survivors of trauma, including trauma of domestic violence and combat trauma. Thus, after a year of providing regular workshops at the shelter, the A4E program was eligible for the AWBW's funding. After two years, the program had developed a positive track record with AWBW so that it qualified for additional grants, which supported survivors' art exhibitions.

All the applications were institutional. The center served as the art program's fiscal agent, but in all respects, we—the art facilitators—were responsible for the fulfillment of the grants' requirements. The Director of the center graciously supported and signed the applications. Although applying for grants is a lengthy process, I learned a great deal from that experience because it forced me to make explicit the content of the initiatives and why they are important to the community.

To gain support from patrons of the agency, we persisted in regularly including announcements about A4E and its initiatives and successes in the agency's newsletter. The announcements were illustrated by photos from the art openings and by examples of art created by the survivors. The announcements never failed to quote survivors commenting on the positive impact of the program on their healing, recovery, and lives. The goal was to let patrons of the agency know that the program existed and that it positively contributed to the survivors' empowerment. This strategy proved effective as the agency started to receive donations that were exclusively designated to the art program. Active and retired art teachers and artists in the area supported the program through their donations. As a result, a separate art account was established to maintain fiscal transparency and accountability. Slowly but surely the program was establishing its credibility and grew stronger thanks to the solidarity and the support of the arts organizations and local art communities.

EDUCATING THROUGH TRANSFORMATIVE ART EXHIBITIONS

Annual art exhibitions of survivors' art were organized at varied locations locally and statewide. Sharing with the community the transformational works created by survivors of violence not only then, but in general, is important in many ways: it increases public awareness of gender-based violence, increases awareness of the presence of an art program at a social service agency, educates about the healing power of art, destigmatizes survivors, and bolsters the survivors' self-esteem by public exhibitions of their works. Moreover, exhibitions help the center and other agencies exhibiting survivors' works to develop a positive public image quite different from the one social service agencies traditionally have been associated with. Instead of focusing on dark societal secrets of violence and abuse, exhibitions make a positive contribution to the communities through art. Exhibitions also reach quite different populations from those usually served by social service agencies.

The survivors whose works are on display serve as champions for other survivors, many of whom are unable to speak for themselves. Seeing the works in the open gives great hope to others and boosts self-esteem. We have learned that best for the survivors are locations not too distant from the agency that provides the services, so that the survivors can attend the openings and see how their works are displayed. We also learned from the survivors that they feel validated and honored. While exhibitions farther away from the social service agency have no survivors in attendance, they are important for public relations

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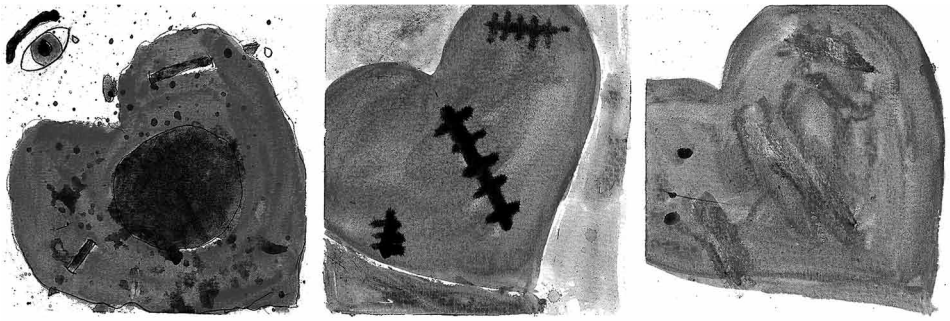
and the visibility of the agency. Exhibitions provide the link between the agency and the community. They display art *by* the community members and art *for* the community members and situate art *in* the community. Each aspect points toward a different impact the works can potentially have on viewers.

The artworks manifest the universal power of art making across language barriers, age, and education. An important educational aspect of exhibiting self-expressive and transformational works is that statements about the emotional transformations that occurred during their creation supplement the works. Figure 1 is an example of one such work by an 18-year-old survivor of sexual violence. The artworks and the statements depict and describe emotional states and cognitions emerging during the process of recovery, ranging from anger, depression, and resignation to self-acceptance, hopefulness, and strength. The emotions are indicative of stages in the recovery process, which for many leads to a survivor's ability to have a normal life and healthy relationships with intimate partners.

Figure 1. Yesterday–Today–Tomorrow, created by an 18-year-old survivor of sexual violence



YESTERDAY: My heart was full of hate and unforgiveness. I thought I would never recover.
Our world is full of love and hate.

TODAY: I'm healing. My rips and tears are sewn together. I will heal with pride.

TOMORROW: I still have scars but the pain and the hate are gone. My heart forgives. I'm full of love.

2007, WATERCOLOR

Our exhibitions featured color laser prints of the originals that were executed in a variety of media, ranging from watercolor, drawing, ink, and painting to collage and sculpture. The originals were returned to the survivors, as reminders of their passage to recovery. Over the years of exhibiting, the A4E program gathered enough funds to uniformly frame all the works (15 x 21 inches). Figure 2 shows three informational panels and the framing of the works. The curatorial goal was to present the work in the best possible light to demonstrate that there is a lot of creativity in ordinary people. Such exhibitions send message to the community that anyone can be creative. Informational posters and educational take-home materials about the role of art in healing from domestic or sexual violence and how to identify warning signs of abusive relationships accompanied the exhibitions. Exhibitions require considerable resources and funding for scanning and image preparation, mounting, framing, packing and transporting, and contacting and cultivating venues. But, once prepared, exhibitions become a permanent resource by documenting the work of the organization and the survivors' journey.

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Figure 2. Three informational panels (far left) and the framing of the works

PARTNERING WITH ARTISTS, WRITERS, AND EDITORS

Educational Outreach Through a Publication

Exhibitions have short life spans, and they are limited to audiences of gallery goers. We wanted to create something of value that had lasting power and could reach women throughout the state and beyond. Thus, an edited and self-published educational book and an online gallery of survivors' art have been created.

The book results from a collaboration of at least 33 individuals—artists, writers, humanists, therapists, and editors—to communicate with the larger community issues of violence against women and the transformational power of creativity. It has been designed to be concise and high quality: offset-printed in full color on archival paper to ensure longevity. The book focuses on art as a source of self-knowledge and transformation in the lives of women artists and survivors of trauma and violence. It shows larger cultural and social contexts for understanding violence against women and the role of creativity in the search for meaningful lives.

The publication features visual works; commentaries of artists and survivors; and essays on such topics as the experiential nature of the creative process, quilting as a means of communication, aesthetics, healing, and the impact of trauma on women's self-worth. Copies of the book that were funded by grants were distributed free of charge to shelters, social services agencies, libraries, colleges, art organizations, and galleries that were oriented toward social justice issues.

Partnering with an Editorial Community

I functioned as the editor of the publication in collaboration with an assistant editor; we both capitalized on years of experience in preparing our own manuscripts for scholarly publications. We made the basic selections of materials to be included, working on the materials over the course of nine months. However, ensuring the quality of such an editorial enterprise begged for professional editors. Here again, there was a need for engagement of community members. This time, editorial professionals had to be found and engaged to make this project a reality: a copy editor, a proofreader, and a design and production manager at a large academic press with whom discussions helped develop a clear vision of the project with the reader in mind.

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RESEARCH WITH VULNERABLE POPULATIONS

Doing research with survivors of domestic violence and/or sexual violence means doing research with vulnerable populations. Approaching vulnerable populations requires knowledge and sensitivity so that harm is not unintentionally caused by acting in ignorance or under misperceptions. Even though the vulnerability is not a permanent attribute but one that is associated with where women and children are in their life situations and the healing process, it is imperative to understand the dynamics and complexity of those situations. The intent is to lower a potential risk factor of emotional harm.

It is essential not to associate survivors of domestic and/or sexual violence with a permanent state of victimization and powerlessness. Conceiving of survivors as strong and resilient women and children who are at a phase of life that makes them vulnerable is the ethical imperative. This view of vulnerable populations reduces the risk of revictimizing the survivors. It is important to make this distinction because it is too easy to blame the victims for withstanding the abuse and to perceive them as weak and pitiful. One has to remember that the desire to make changes and ensure safety for their children's lives brought the women and their children to the shelter in the first place. These are the women in transition, women making sense of the trauma they experienced from the hands of partners who were supposed to foster loving and supportive relationships, partners with whom the women were committed to building lives—whereas their partners were committed to destroying them.

SOLUTIONS AND RECOMMENDATIONS

Art for Empowerment Outside Domestic Violence

Methodology of A4E is not exclusive to applications pertaining to domestic violence and/or sexual violence. The framework and the methods can be used with other populations. If feminism and gender inequities are not a preferred lens, empowerment-based, resilience-based, strength-based, person-centered, and solution-focused models of counseling can be emphasized instead. I have taught two different six-week courses at a community college. The first was focused on creativity in general counseling, and the second pertained to stress management. Counselors, art educators, teachers, special education teachers, mental health professionals, health professionals, social workers, psychologists, and artists took these courses, many of whom received professional development credits for completing them.

Again, the primary responsibility of an A4E facilitator is to create a safe space for the participants' self-reflection, self-expression, and self-empowerment through visual art making and respectful and supportive group interactions. All of these help to build a sense of community and belonging through the shared practice of art making. Whether A4E sessions take place at a DV shelter, at a local cultural center, or at a church, sharing art making and reflections with others can help to develop social skills and confidence. The beauty of the works and wisdom of the meanings they convey can help to reconnect with one's inner resources and assets, and foster the sense of empowerment.

Workshops and Curriculum

The following guidelines will help you facilitate expressive art workshops:

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1. Be familiar with and understand the likes, characteristics, and needs of the group for whom your program/workshop has been designated. If you learn about the population from a textbook or an expert, meet at least two individuals from that group to ground your learning.
2. Feel at ease with art materials and how to use them in public. You do not have to be trained in art or know how to draw or paint realistically to be an effective facilitator. However, you must have prior experience with the specific project you plan to facilitate if you want to know what you are doing when you stand in front of the group. As a general rule, prepare examples of the projects you will ask your group to make. Going through the process yourself will give you an understanding of the technique and the subject matter that only hands-on experience can generate.
3. Be prepared to have a curriculum consisting of workshops tailored to address the unique needs and interests of your group. Know where to access more workshops to ensure that you will not recycle the same ones. Offering a variety of workshops will keep your group interested and engaged. Make sure to diversify: follow emotionally challenging themes dealing with the dark side of the human condition with emotionally light and entertaining workshops; diversify projects in terms of media, sizes and techniques—for example, drawing, painting, collage, prose writing, sewing, quilting, bead making, jewelry making, journaling, and poetry. When working with youth, consider technology-based projects, including photography and video. At one workshop make butterflies or dream catchers; at another use found objects. Interchange seriousness with silliness and individual art making with team creating. Group projects help develop social competencies. Art therapists recommend starting the curriculum with representations of a safe place. Going back in one's mind to that place of safety when feeling anxious, especially after dealing with emotionally difficult topics, will ground and disarm the edgy emotions. When you ask the group to draw "a monster in me," make sure that the next session deals with light and positive feelings. For example, ask the group to paint a "personal needs flower" or ask the group to make a mosaic that will show how participants can "put themselves back together."
4. At the beginning of a session, individually greet every person entering the room and thank her or him for coming in. This will make the participants feel that they matter. At the end of a session, praise the group members for having the courage to create, to share, and to heal themselves.
5. Do not jump in with your interpretations of participants' work. Refrain from offering solutions to participants' dilemmas. Instead, encourage members of the group to comment on other's work in a non-judgmental way. Listen attentively and empathetically and be affirming. The goal is to ensure that participants can make interpretations for themselves and decide how they want to approach a problem. Positive cognitive reframing often takes place during that process. When participants are in charge of the creative process, they are more likely to feel empowered to make their own decisions and to recognize their strengths and assets; they become aware of how strong they are and of "how many of the answers they already know" (Ernst & Goodison, 1988, p. 27). For example, invite the participants to draw, paint, create a collage, or make an assemblage by starting with a statement "I am strong because…"
6. If you organize educational art exhibitions make their content and purpose self-explanatory and transparent to viewers. For instance, include informational panels describing the role of art in healing and warning signs of an abusive relationship, if you work with survivors of domestic violence.

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Sustainability

1. If your goal is sustainability of the program, get as many people involved as necessary to cover the strategic functions, such as organizing art supplies, cleaning up after the workshops, grant writing, bookkeeping, exhibition preparation, securing venues for exhibitions, and the like. Avoid doing everything alone. Delegate. Give others opportunities to gain a sense of accomplishment and pride.
2. Equip the agency and individuals working there with the knowledge and tools for sustaining the program without your involvement: provide the training, share the resources, and encourage collective decision-making. Give support and advice at the beginning, but limit your engagement so that others can be proud of what they have accomplished and can sustain the initiative from within.
3. You will need at least one person you can trust from the agency to be your informant and unconditional supporter. When you feel like giving up, that individual will keep you going. When you feel insecure or uncertain about your methods or the choice of topics, that person will provide a realistic assessment of the situation.

Record Keeping

Once the program is in operation, do the following:

1. Archive what you, others, and the program have done and accomplished.
2. Systematically count and record numbers of participants attending each session.
3. Keep a record of what workshops have been offered: media, format, and themes. Take notes about how the workshops were received, whether anything noteworthy happened during each workshop, and how participants reacted to it and evaluated it.

Utilizing Resources

1. Use resources that communities have to offer: arts organizations, granting organizations, libraries, civic centers, and more. Organizations that helped me develop varied aspects of the Art for Empowerment program included state and regional arts councils; the state humanities council; Puffin Foundation of New Jersey, which supports art initiatives of social significance; and AWBW, which plays an essential role in the training and funding of programs for victims of violence and military trauma. It is worth noting that there are expanded opportunities for funding arts with veterans through, for instance, the National Endowment for the Arts (NEA). Recently, Congress specifically supported the NEA's increased work with military service members and the arts in fiscal year 2016. Moreover, there are new funding possibilities, as the Every Student Succeeds Act, signed into law on December 10, 2015, includes the arts alongside math and language arts in its definition of a "well-rounded education." That "ensures that arts education programs and teachers are eligible to receive federal funds through provisions such as Title I, which supports disadvantaged students, and Title II, which supports teachers" (Americans for the Arts, 2015).
2. Be prepared to do grant writing for the agency, if you want to have your initiative funded. It is likely that no one in your situation knows art as well as you do, so it is up to you to make a connection between the arts and the goals of the organization or community in which you are active. My experience taught me that grassroots, not-for-profit organizations have no manpower to apply for

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grants for initiatives that may fall outside or stretch their original mission statements. Be prepared to make connections with new funders to demonstrate that art initiatives can be sustained, but do so as the agency is fiscally responsible for the funds devoted to the art-based initiatives.

CONCLUSION

This chapter has presented a case study on integrating arts into an organization providing services to survivors of domestic and sexual violence. It has introduced an empirically based method, Art for Empowerment, that was developed in response to the unfolding needs at a particular agency, where an expressive art program was focused on fostering self-reflection, self-healing, and self-empowerment of the participants of the program. This chapter has outlined the methodology and assumptions behind the A4E framework, which is not exclusive to the events that took place at the agency discussed in this chapter. Importantly, the methodology created through the practice at the DV shelter has been further developed and can be used with many other populations.

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KEY TERMS AND DEFINITIONS

A Window Between Worlds (AWBW): A not-for-profit organization in Venice, California. AWBW provides specialized training and resources pertaining to using art as a healing tool for survivors of domestic violence and trauma.

Art for Empowerment: A strength-based and solution-focused conceptual framework and methodology for using visual arts to foster self-reflection, self-healing and self-empowerment. It has been empirically developed by this author through community engagements.

Feminist Counseling: An approach to therapy, which is attuned to the needs and problems of women. It focuses on contextual (societal, cultural, and political) causes of problems and stress and helps the clients recognize their own inner resources, strengths, and responsibility for making a change.

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Survivors of Domestic Violence and/or Sexual Violence: Individuals of any gender or sexual orientation who reclaimed their lives after having been abused or violated physically, emotionally, sexually, or experienced other forms of violation of their personhood.

Warning Signs of an Abusive Relationship: Patterns of coercive behaviors in which a partner or partners focus on gaining power and control over the other partner or partners. It can involve: physical violence or the threat of physical violence, psychological/emotional abuse, intimidation, isolation, economic manipulation, jealousy, name-calling, possessiveness, and so on.

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Chapter 70
Emotion Analysis for Opinion Mining From Text: A Comparative Study

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ABSTRACT

In the past few years, web documents, blogs, and reviews have played an important role in many fields as organizations always aim to find consumer or public opinions about their products and services. On the other hand, individual consumers also seek the opinions or emotions of existing users of a certain product before purchasing it. This method is currently one of the most vital methods for adapting the organizations' plans. In this article, the authors provide a survey for different techniques and approaches for emotion analysis from the text. They also demonstrate the techniques and the methods that have been proposed by different researchers with criticizing many of these methods according to the applied approach and the accuracy level.

INTRODUCTION

The fields of opinion mining (Mohsen, Hassan, & Idrees, 2016; Mohsen, Hassan, & Idrees, 2016) and emotion analysis (Othman, Hassan, Moawad, & Idrees, 2018; Othman, Hassan, Moawad, & Idrees, 2016) have had a deep focus recently as their impact have been strongly proved in the different fields of business including the educational field (Idrees & Hassan, 2018; Khedr, Kholeif, & Hessen, March

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2015; Khedr & Idrees, 2017; Khedr, Kholeif, & Hessen, April 2015; Khedr & Idrees, 2017), the agricultural field (Hassan, Dahab, Bahnassy, Idrees, & Gamal, 2015; Hassan, Dahab, Bahnasy, Idrees, & Gamal, 2014), health field (Hazman & Idrees, 2015), and the business intelligence field (Badawy, Abd El-Aziz, Idress, Hefny, & Hossam, 2016; Helmy, Khedr, Kolief, & Haggag, 2019; Idrees, 2015; Khedr, Abdel-Fattah, & Nagm-Aldeen, 2015). The success of processing large volume of text data that express the opinion is not a trivial task. Processing this information needs complicated analysis to find positive or negative opinions and emotions about a special topic or a product. This section introduces the main definitions related to this field.

Natural language processing is one of the computer science domains which target is to process and understand the people language (Dahab, Idrees, Hassan, & Rafea, 2010). This process is performed through determining the text from documents, then parsing the text automatically by applying determined steps to find their meaning. First step which is considered the main step and has a high impact on the results' accuracy is "input preprocessing". Input preprocessing means preparing the input text for the understanding step (El Seddawy, Sultan, & Khedr, 2013; Mostafa, Khedr, & Abdo, 2017), this preparation includes the following tasks:

1. **Tokenization:** Considers parsing text and split text into a sequence of sentences and then splitting the sentence into a sequence of tokens. Some tasks which are performed in this step is removing punctuations and white spaces. The output of this step is a set of tokens;
2. **Filtration:** It is mainly related to the removal of stop words such as (the, an, a, etc.) that will not affect the meaning of the text;
3. **Lemmatization:** Considers converting the token to its original form like (walks, walked) to (walk);
4. **Stemming:** Considers replacing the token to its stem such as replace the token "interesting" to be "interest";
5. **Part of speech "POS" tagging:** Considers determining and tagging each word with its type, either it is a verb, noun, adverb, adjective, etc.

Opinion Mining

Opinion as stated in (Liu, Sentiment Analysis and Opinion Mining, 2012) is a personal belief or judgment of a person or a group of persons about a specific subject or entity. Turney and Littman (Turney & Litiman, 2003) argued that an opinion is the result of the emotion or interpretation of facts which may be presented by a discussion. Moreover, different people can present different opinions for the similar subject or entity. On the other hand, Sentiment analysis or opinion mining is the area of performing analyses to the person's document discussing an entity or a product and its attributes (Wiebe, Bruce, & O'Hara, 1999). It aims at determining a set of parameters and then detecting the sentiment of the writer towards the defined entity. Item classification has different successful approaches (Khedr, Idrees, & Elseddawy, 2016), in this research, we focus on the text classification approaches.

Sentiment analysis has different levels, a sentiment is either positive or negative or a deeper level representing the emotion of the writer which may be sad, happy, angry, etc.

According to (Liu, Sentiment Analysis and Opinion Mining, 2012), the main levels in opinion mining are as follows:

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1. **Document level analysis (Padmaja & Fatima, 2013):** This level considers classifying the whole document for the sentiment level. This level assumes that the whole document focuses on a single subject;
2. **Sentence level analysis (Wiebe, Bruce, & O'Hara, 1999):** This level considers each sentence in the document as an individual component and perform the sentiment analysis for each sentence;
3. **Entity and aspect level analysis (Hu & Liu, 2004):** This level is also called feature level, it directly considers extracting the main subject features and the person's opinion for these features. as an example, the document "HTC mobile quality is good, but its battery is too short" includes two aspects (quality and battery) describing one entity (HTC mobile).

Looking to opinion mining as a process, it is composed of determined phases, the following discuss these steps with considering the previously mentioned example:

1. **Entity extraction and Entity categorization:** In this phase, the entity extracted is "HTC mobile";
2. **Aspect extraction:** In this phase, the extracted aspect is "good";
3. **Opinion holder extraction and standardization:** This phase considers extracting the person who provided the opinion;
4. **Time extraction and standardization:** This phase considers extracting the time in which the opinion is provided;
5. **Aspect sentiment classification:** This phase is the main target which considers the detecting the required classification according to the determined level, for example, either it is positive or negative;
6. **Opinion quintuple generation:** This is a final phase which create the opinion sentence vector (E, A, H, T, S).

Emotion Analysis

Emotions are the person's subjective feelings and thoughts (Shixia & Huamin, 2010) mostly reached by a direct experience although it could be acquired indirectly. Examples of these feelings could be: happy, pride, joy, sorrow, fear, envy, or anger. Emotional responses could also include physiological reactions (Chaudhuri, 2006) such as heart rate changes, blood pressure, sweating, and so on, which directly affect human actions and facial expressions. Researchers have focused on a subset of emotions according to their research, for example, Liu in (Liu, 2011), considered that person has six primary emotions: love, joy, surprise, anger, sadness, and fear, however, other researchers have not followed the same set, in (Boa, et al., 2012), emotions list included sad, happy, and like. Opinion mining and emotion mining have a natural correlation, for example the positive opinion includes happy, joy, or like and negative opinion includes sad, depressed, or angry.

The following sections discuss the emotion mining using different directions, section II discusses emotion mining by applying information retrieval techniques while section III focuses on Lexicon based techniques which is based on the intelligent methods for building Lexicons, and section IV considers machine learning techniques.

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Information Retrieval Techniques

Information retrieval refers to the recovery of specified information from a group of unstructured text documents (Khedr, Kadry, & Walid, 2015). In the field of opinion mining and emotion mining, information retrieval techniques are applied targeting to the retrieve the tokens that represent the emotions in the text. According to (Sharma & Patel, 2013), Information retrieval techniques are categorized to two models, they are: Boolean models and vector space models. Figure 1 demonstrates the hierarchy of models categorization which are discussed in the following subsections, while Table 1 illustrates a brief comparison between vector space models according to determined criteria including the accuracy level in retrieving the emotions and the applied domain with highlighting the reference and the used dataset nature in the research.

Figure 1. Techniques and sub techniques for information retrieval techniques

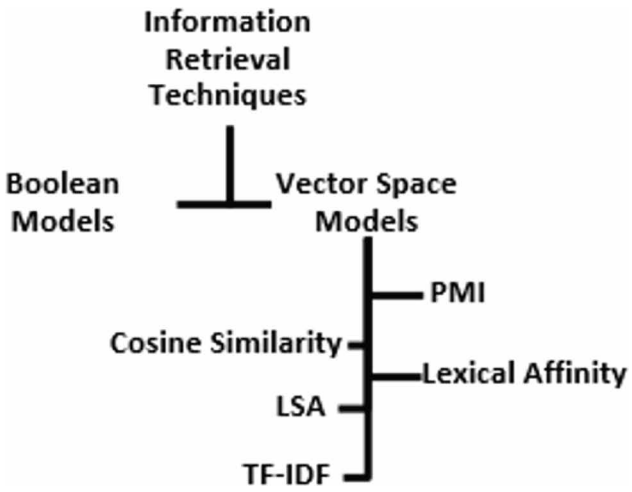

Table 1. Information retrieval techniques

Model	Paper, Year	Dataset	Accuracy	Domain	Emotions Used
Cosine Similarity	(Gohary, Sultan, Hana, & Dosoky, 2013)	Children Stories	65%	General	Joy, fear, sadness, anger, disgust, surprise
	(Martinazzo, Dosciatti, & Paraiso, 2012)	Tweets news	70%	Portuguese language	Joy, fear, sadness, anger, disgust, surprise
	(Agrawal & An, 2012)	Tweets	86%	General	Happy, sadness, anger, fear, surprise, disgust
PMI	(Agrawal & An, 2012)	Wikipedia, eBooks	58%, 50%	General	Happy, Sad, Anger, Fear, Surprise, Disgust, Neutral
	(Polisetty, Polisetty, & Rao, 2014)	Movie reviews	Unknown	General	anger, disgust, fear, joy, sadness, surprise, Emoticons
LSA	(Wang & Zheng, 2013)	ISEAR	Avg. 39.4%	General	Anger, disgust, fear, guilt, joy, sadness, shame
TF-IDF	(Patil & Patil, 2013)	ISEAR	71.64%	General	Anger, Disgust, fear, joy, sad

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Boolean Models

Boolean models apply search approach which aims to find the required tokens in a specified text document. For example, a user query "cats and dogs" can be answered by retrieving all documents that contain these two words. Simply, Boolean models depend on the operators (and, or, not). Following this concept, the main operation of the previous query is "and."

Vector Space Models

Vector space models follows an algebraic approach which is applied by different models, each with its own perspective as discussed in the following subsections. The main steps can be briefly stated as follows:

- Build the Opinion quintuple generation vector for all extracted emotion terms;
- Apply a weighting technique;
- Apply a similarity measure which parameters is the user query and the extracted terms with respect to the term weight.

Cosine Similarity

Cosine similarity is calculated by applying Equation (1) (Khedr, Idrees, Hegazy, & El-Shewy, 2017):

$$Similarity\left(A,B\right) = \frac{A \times B}{\left|A\right| \times \left|B\right|} = \frac{\sum_{i=1}^{n} A_i \times B_i}{\sqrt{\sum_{i=1}^{n} A_i^2} \times \sqrt{\sum_{i=1}^{n} B_i^2}} \quad (1)$$

where A, B are the documents vectors.

Gohary, Sultan, Hana and Dosoky followed the cosine similarity model for extracting the Arabic text emotions in (Gohary, Sultan, Hana, & Dosoky, 2013) which was applied the on Arabic children stories. The research also aimed at constructing an emotion lexicon using the same dataset, therefore, the dataset was divided into two parts, the first part is used for manual building to the emotion lexicon, while the second part was used for applying the proposed approach for emotion mining to prove its applicability. The research focused on a determined set of emotions which is {Joy, fear, sadness, anger, disgust, and surprise}. The research approach was to annotate each sentence in the document with the determined emotion, then the emotion for the whole document is determined using the weighting technique for all detected sentences' emotions. The research by Gohary and his colleagues reached a precision equal 65% which is an average score. Earlier, another research is conducted by Martinazzo, Dosciatti and Paraiso in (Martinazzo, Dosciatti, & Paraiso, 2012) is conducted which had higher contribution and reached an accuracy equal 70%. The research focused on Brazilian text and followed the required pre-processing steps with respect to the language nature. The research also built a manual emotion lexicon which included the token and associated emotion, then the document matrix was built and finally the cosine similarity measure was applied. Although the research by Martinazzo and his colleagues was promising, however, the accuracy level was also average, more work in the same year has been conducted by other researchers such as in (Agrawal & An, 2012) which reached an F-measure equal 86%. This accuracy was reached

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by using the WordNet (Miller, 1995) as a lexical database source and a corpus of statements with its associated emotion, then these sources were used for emotion mining.

Point-Wise Mutual Information (PMI) Similarity Measure

PMI measures the impact of one token to the other which formulates the whole sentence meaning. Mutual information is explained in (Khedr & El Seddawy, 2015) as follows.

Considering there are two words x, y:

- P(x, y) is the probability that the two words can be found together in the same context;
- P(x) is the probability that x is found individually;
- P(y) is the probability that y is found individually;
- Then the joint distribution of x and y in a given dataset or documents is measured as in Equation (2):

$$I\left(x,y\right) = \log_2 \frac{p\left(x,y\right)}{p\left(x\right)p\left(y\right)} \tag{2}$$

In the same research of Agrawal and An (Agrawal & An, 2012), an algorithm was proposed using unsupervised context-based learning for emotions detection at the sentence level. PMI similarity is applied in one of the steps by measuring the relation between words in the documents such as (looks, beautiful). The results were 52.5% for WIKIPEDIA dataset when the text is un-stemmed and 58.08% for stemmed text. Another experiment using GUTENBERG dataset reached an accuracy equal 54.76% for un-stemmed text and 55.34% for stemmed text. Another research is conducted by Polisetty and his colleagues in (Polisetty, Polisetty, & Rao, 2014), the research proposed an approach for Emoticons analysis for movie reviews. Emoticons are the emotions that are represented by faces' reaction. The sentences in the movies dataset was classified to six basic emotions (anger, disgust, fear, joy, sadness and surprise). The research followed the same approach by using a *lexicon* of words, however, this lexicon had an additional feature by providing a relation between the six categories of emotions with emoticons using these words. PMI was then applied after the exhaustive preprocessing step that included all required tasks. The main contribution of the research by Agrawal and An (2012) is the size of dataet which provides more confident in the proposed approach.

Latent Semantic Analysis (LSA)

LSA (Landauer & Dumais, 1997) aims at analyzing the relations between the documents and extracts the most important terms that represent the documents context. This model is based on building the terms' matrix for the documents, the matrix includes a column for each term and a row for each document. The term frequency in each document is calculated and assigned to the term/document cell. Then, singular value decomposition (SVD) method is applied on the matrix, and finally, the similarity is measured for all documents. Wang and Zheng applied and improved LSA model in (Wang & Zheng, 2013) by using LSA for emotions classification using VSM model targeting to increase the accuracy level. The research succeeded to reach a raise of 4% than the normal accuracy level as illustrated in Figure 2.

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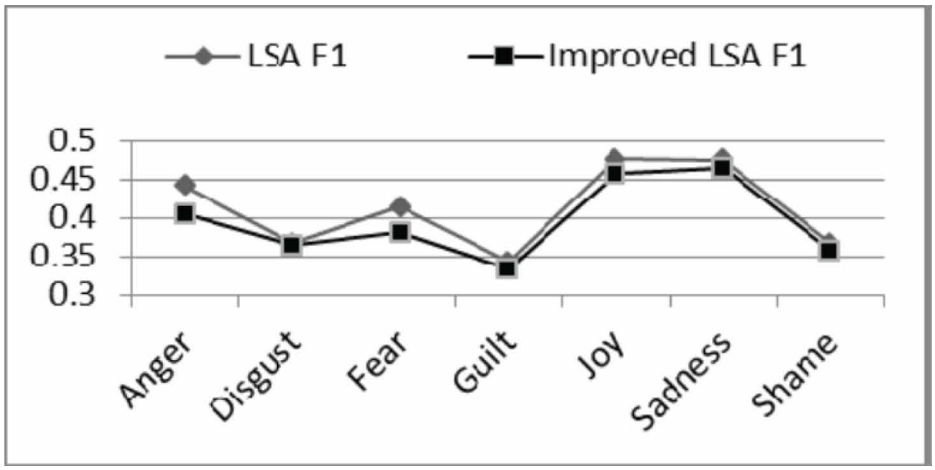
Figure 2. LSA compared with Improved LSA results



Lexical Affinity

Lexical Affinity considers the measurement of the relations between words by determining how the subjects and objects of a sentence compose a definite meaning. This measurement basically depends on uncertainties and probabilities such as Bayesian networks (Dahab, Idrees, Hassan, & Rafea, 2010). In (Lu, Hong, & Cruz-Lara, 2006) Lexical Affinity was applied for sentence level emotion detection. The research applied semantic labeling for the words in the text targeting to identify if the word is adjective, verb, or objective. Then they a web mining engine such as Google is used to identify the definitions of the labeled words. These identifications were the main key for building the relations between these words. Finally, detecting emotions was achieved by detecting the relation between the tokens with different labels. The overall meaning of the sentence is also considered as it may affect the detected emotion.

Tf-idf (Probabilistic)

Tf-idf (Hassan & Idrees, Sampling Technique Selection Framework for Knowledge Discovery, 2010), (Khedr & El Seddawy, 2015) is a weighting measure represented in Equation (3). Tf-idf is determined by defining the relative frequency of tokens in a specific corpus document (tf) with a comparison to the inverse of the term frequency in the whole corpus (idf). Tf equation is represented in Equation (3) while idf equation is represented in Equation (4). Finally, TF/IDF is computed by multiplying TF with IDF as represented in Equation (5) (Mohsen, Hassan, & Idrees, 2016; Mohsen, Hassan, & Idrees, 2016):

$$tf\left(t,d\right) = 0.5 + \frac{0.5 * f\left(t,d\right)}{\max\left\{f\left(w,d\right) : wd\right\}} \tag{3}$$

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$$idf\left(t,D\right)=\log_2\frac{N}{\left|\left\{d\ \ D:t\ \ d\right\}\right|} \tag{4}$$

$$Tf-idf\left(t,d,D\right)=tf\left(t,d\right)\times idf\left(t,D\right) \tag{5}$$

The research in (Patil & Patil, 2013) presented a method for emotions' classification in a news headlines dataset. After the preprocessing phase which included filtering, tokenization, stemming and pruning, training set was determined and Tf-Idf (El Azab, Idrees, Mahmoud, & Hefny, 2016) was computed for the tokens in the training set. Tf-idf was calculated for the documents' terms and SVM is applied to classify the words representing the emotions and their emotion category. The classification process is then applied to the testing set and the method proved to reach an accuracy level of 71.64%.

Lexicon Based Techniques

Although some of the previous discussed research have used a lexicon, however, they were a supportive component to the main approach to build the emotions' corpus in addition to the manual process to build these lexicons. Lexicon based techniques mainly aims at supporting emotion mining field by building an emotions' lexicon for various types of emotions, this lexicon is then used for emotion mining in the targeted documents. Different techniques are proposed for building the emotions' lexicon, they are Concept net, Lexical Chain, Corpus Based, and Dictionary Based. Table 2 presents a brief comparison among these techniques while the following subsections discuss each technique.

Table 2. Lexicon based techniques

Technique	Paper, Year	Dataset	Accuracy	Domain	Emotions Used
Concept Net	(Ezhilarasi & Minu, 2012)	WordNet	unknown	General	_
Lexical chain	(Kumar & Suresh, 2012)	Wiki news articles	86%	General	happiness, sadness, anger, fear, disgust and surprise
Corpus based	(Lei, Raob, Li, Quan, & Wenyin, 2013)	BBC News	63.57%	General	Touching, empathy, boredom, anger, amusement, sadness, surprise, warmness
	(Gohary, Sultan, Hana, & Dosoky, 2013)	Children Stories	65%	General	Joy, fear, sadness, anger, disgust, surprise
Dictionary based	(Tokuhisa, Inui, & Matsumoto, 2008)	EP corpus	Unknown	Dialogue systems	happiness, pleasantness, relief, fear, sadness, disappointment, unpleasantness, loneliness, anxiety, and anger

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Concept Net

Using this technique, the text is analyzed for extracting the main domain concepts targeting to build the concept net. Concept net represents the concepts with their relationships with highlighting the relationship between the concepts and the related topic. Ezhilarasi and Minu in (R.Ezhilarasi & Minu, 2012), built an emotion ontology network for classifying the text documents according to emotion classes. The main idea can be summarized as identifying the tokens which is expected to represent the emotions and confirm these expectations using WordNet (Miller, 1995). Confirmed emotions terms are then used for building the ontology net for further document classification.

Lexical Chain

Lexical chain technique (Turney & Litiman, 2003) is based on natural language processing paradigm. Lexical chain builds a linguistic ontology net by detecting the relation between sentences in the corpus according to the terms' similarity which exist in these sentences. Lexical chain considers a number of criteria including the length of the sentence namely the chain length, the number of the term occurrence in the chain. The classification is then determined by determining the product of the homogeneity index and the chain length. Kumar and Suresh (Kumar & Suresh, 2012), considered detecting six basic emotions (happiness, sadness, anger, fear, disgust and surprise) in their research, their proposed approach reached an accuracy of 86%. In this research, the lexical chains are constructed in a terms' semantic relations basis and the chains score is calculated, and finally, high scores chains are highlighted to represent the emotions of the document.

Corpus Based

Corpus based techniques aims at building an emotion corpus which can be used later for emotion mining tasks. Lei and his colleagues presented a lexicon-based system in (Lei, Raob, Li, Quan, & Wenyin, 2013) which targeted to classify the documents based on their emotions and reached an accuracy of 59.11%. The main idea of the research was based on extracting the main words representing each emotion by the user from a set of documents and build a lexicon of words representing the emotions. The emotions set included (Touching, empathy, boredom, anger, amusement, sadness, surprise, warmness). Another research in (Gohary, Sultan, Hana, & Dosoky, 2013), focused on the automatic detection of emotions in Arabic text based on the sentence level which reached an f-measure score equal 65%. The proposed approach was based on a moderate sized Arabic lexicon which was used to annotate Arabic children stories dataset terms. The corpus consisted of 100 documents with 2,514 sentences. The sentence classification was measured according to the kappa statistics value, a value equal 1 represents a total agreement while a value equal 0 represents a total disagreement. The average value of Kappa in this research was 0.46 which represented that moderate agreement. The Lexicon was built for the six emotion categories (Joy, fear, sadness, anger, disgust, surprise) from annotated sentences and directly from English emotions lexicon.

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Dictionary Based

Dictionary based technique aims to classify the emotion represented in a token based on the definition of this word in dictionaries such as WordNet (Miller, 1995) and their hierarchies. Tokuhisa, Inui and Matsumoto presented a research in (Tokuhisa, Inui, & Matsumoto, 2008) which reached an accuracy of 84.6%. The research aimed at documents' classification according to the emotions of these documents following their sematic meaning. The proposed research targeted the dialog chatting system for extracting emotions' terms, then this step was then followed by connecting these results with the context of human computer dialog and assign massive examples of emotion-provoking events that can be extracted from the Web by determining their accuracy level with determining the accuracy threshold. These examples are then used to build a semantic content-based model for fine-grained emotion classification. The model also considered the quantity and accuracy of emotion-provoking examples to be collected and Emotion-provoking corpus for extracting data. Moreover, in (Boa et al., 2012), a high-quality moderate sized emotion lexicon is manually created using Mechanical Turk and WordNet Affect (Strapparava & Mihalcea, 2007; Idrees, Ibrahim, & El Seddawy, 2018); the lexicon is built based on questioners distributed to the subscribers of Mechanical Turk.

Machine Learning Techniques

Machine learning is an Artificial Intelligence (AI) paradigm that aims at learning computers without being programmed manually (Sayed, Salem, & Khder, 2019). Main focuses of machine learning are the development of computer programs that can self-learn automatically to grow and change when being exposed to new data. Different machine learning algorithms are applied in data mining, pattern recognition and some computational theories. It is divided into 3 main categories (Supervised, Unsupervised and Semi-Supervised). A brief comparison is demonstrated in Table 3 for different research considering this area while the following subsections discusses some of the research for each category.

Supervised Learning

Supervised learning is a machine learning task aims at deducing a model from supervised training data (Idrees & Hassan, 2018), then prove the applicability of this model using testing dataset. Some of supervised learning approaches are discussed in the following subsections.

Support Vector Machine (SVM)

SVM is a discriminative classifier that aims at separating the training examples by a determined separator such as spaces, then it constructs a hyper plane or a set of hyper planes in a high- or infinite-dimensional space which then can be used for classification, regression, or other tasks. In (Inkpen, keshtkar, & Ghazi, 2009), a Text Affect dataset was used (Strapparava & Mihalcea, 2007) and SVM was applied over a segment equal 1250 headlines from the dataset which produced an accuracy of 48%. Another annotated corpus was also used in which SVM is applied on 2090 sentences and produced an accuracy of 65.45%. Moreover, Binal, Wu, and Potdar in (Binal, Wu, & Potdar, 2009), targeted to detect the emotions during E-learning as it affects the learning experience. They proposed a conceptual framework that can extract, analyze, and predict the emotion of learners to assist the lecturer for decision support by applying the

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Table 3. Machine learning techniques

Technique	Sub Technique	Paper, Year	Dataset	Accuracy	Domain	Emotions Used
Supervised	Support vector machine	(Inkpen, Keshtkar, & Ghazi, 2009)	Newspapers headlines	48%,	General	Happiness, sadness, anger, disgust, surprise, fear, no emotion
			annotated blog corpus	65.45%		
		(Binal, Wu, & Potdar, 2009)	Student reviews	NO	E-learning	Negative (sad, confused, frustrated), positive (happy, engaged, excited), neutral
		(Haji, Chen, & Vidyasagar, 2010)	Blogs	96.4%.	General	sadness, happiness, anger, fear, disgust and surprise
		(Patil & Patil, 2013)	ISEAR dataset	71.64%	General	Anger, disgust, fear, joy, sad
	Naïve BAYES	(Boa, et al., 2012)	online news collection	53.67%	General	Touched, empathy, boredom, anger, amusement, sadness, surprise, warmness
		(Donglei, Zhikai, Yulan, & Deyu, 2019)	News dataset	43.072%	General	Touching, Anger, Amusement, Sadness, Shock and Curiosity
	Deep Learning	(Ankush, et al., 2019)	News dataset	71.43%	General	Anger, Happy and sad
Unsupervised	Graph based	(Sugandh, Mulye, & Wadhai, 2011)	_	_	General	anger, fear, happiness, sadness

natural language steps using GATE tool (tokenization, sentence, splitter, POS tagger). These steps allowed the proposed framework to detect the students' emotions towards the subject. The student could experience either positive (happy, engaged, excited), negative (sad, confused, frustrated) or neutral emotional experience. Another research in (Haji, Chen, & Vidyasagar, 2010) have used the GATE tool, with detecting and annotating emotions' terms in the corpus. The resulted words are considered as input features to the support vector machine for training. The system proved the success by an accuracy of 96.4%. Moreover, in (Patil & Patil, 2013) a proposed approach which joined SVM with tf-idf for emotions' classification and reached an accuracy of 71.64%. Moreover, in (Balabantaray, Mohammad, & Sharma, 2012) support vector machines are also applied and reached an accuracy of 73.24%. Other research applied SVM in different fields such as in (El Azab, Idrees, Mahmoud, & Hefny, 2016; Idrees & Taie, 2016; Khedr, Kholeif, & Saad, 2017). Finally, recent research such as (Nida, Kirmani, Mohd, Muttoo, & Mohd, 2019) proposed a method that applied support vector machine approach with the support of an emotions' terms' dictionary. The emotions were Joy, fear, sadness, anger, disgust, surprise. The research used different datasets that were collected from news headlines and were classified among 3 corpuses. An accuracy of 59.71% was achieved for corpus 1, 63.24% for corpus 2 and 67.86% for corpus 3.

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Naïve Bayes

Naïve Bayes (El Azab, Idrees, Mahmoud, & Hefny, 2016; Khedr, El Seddawy, & Idrees, 2014) is based on a statistical theory called Bayes. So it is probabilistic classifier that is trained much efficiently in a supervised learning settings. A system was presented in (Boa, et al., 2012) which consisted of two components targeting to extract the emotions from social network. First component is the emotion terms model which used naïve Bayes to determine the emotions within documents and words. Second component is LDA topic model which uses LDA to classify the topic from documents (Othman, Hassan, Moawad, & Idrees, 2016). The two components are working coherently for documents classification according to their associated emotions with respect to the topic and the relation between these documents. This system reached an accuracy of 53.6%. Moreover, Donnglei and his colleagues constructed a model (Donglei, Zhikai, Yulan, & Deyu, 2019) that uses Bayesian networks in order to detect hidden topics about emotions. They assume that words within the same sentence carry similar emotions and reached an accuracy of 43.072% for their target.

Deep Learning

Deep learning as discussed in (Yann, Yoshua, & Geoffrey, 2015) as it applies a computational model for data representation learning with respect to the abstraction level by applying a set of multiple processing layers. Another research in (Ankush, et al., 2019) proposed an approach to detect emotions from text using deep learning. The proposed approach focused on three emotions, they are: angry, sad and happy and reached an average f-measure of 59.68% for the happy emotion, 80.79% for the sad emotion, and 73.55% for the angry emotion.

Unsupervised Learning

Unsupervised learning deals with unlabeled data and not has to be evaluated. Also, there is no measuring for error because there is no in indicator for classifying. Sugandhi, Mulye, and Wadhai in (Sugandh, Mulye, & Wadhai, 2011) proposed a system which applied a graph-based method targeting to extracting tokens representing emotions from text. The emotion token was considered as a token, and all other basic tokens were related to the extracted nodes in a semantic basis. The research considered two levels of emotions, the first level included an emotion set of 4 items, they are: {anger, fear, happiness, sadness}, the second level included an emotion set of 22 items, they are: {aggressiveness, anger, avoidance, compassion, courage, excitement, fear, happiness, helplessness, humility, impatience, indifference, joy, optimism, pain, patience, pessimism, sadness, selfishness, surprise, unselfishness, vigilance}. Finally, the weight for each node was calculated according to its relations with other nodes in the tree.

Emotion Mining vs. Opinion Mining Challenges

There are many challenges in the field of opinion mining and emotion mining. First, the ability to detect both levels in the same text in different analysis levels (document, sentence, or term). Second, the ability to provide an explanation for the extracted opinion or emotion. Third, the ability to provide a weight representing the impact of the extracted opinion over the context according to the holder's knowledge. Fourth, the ability to apply multilingual approach for opinion mining and emotion mining.

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Other challenges considered the ambiguity in the Positive or Negative sentiment words may have opposite orientation, for example "This Samsung mobile sucks" could mean a negative opinion about Samsung while another sentence with the same terms such as "This Samsung mobile is really sucks" could mean a positive opinion about Samsung. Moreover, the sentence may contain sentiment words which may not express any sentiment such as the example "Could you tell me which Samsung is good?". Sarcastic sentences are also challenging such as "What a great Samsung! It stopped working in two days". Finally, many sentences without sentiment words can imply opinions such as "This Samsung mobile consumes a lot of electricity" which represent a negative opinion about with no inclusion of any term representing this opinion.

CONCLUSION

This paper provided an overview on opinion mining and emotion mining and their basic definitions. The paper also discussed the main steps of the mining process included all phases. A review of the techniques for emotion mining in text have been presented and their relation with opinion mining. Finally, a comparison among different techniques has been discussed through some criteria such as datasets and error rates.

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Chapter 71
Accessible Mobile Rehabilitation Games for Special User Groups

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ABSTRACT

This chapter presents viewpoints of 104 users upon trials on four mobile games which combine cognitive stimulation and physical exercise in rehabilitation. The first game requires users to control by tilting a mobile phone embedded in a balance board; the second game can be controlled by tilting the tablet computer; the third game is a modified version of Trail Making Test A—a memory test that can be played by tapping figures on the screen of tablet computer; and the fourth game is an activation game with a special controller, dedicated for people with severe physical limitations. Users welcomed the use of games as self-rehabilitation tools that can be adjusted according to personal skills and limitations. The games not only gave them meaningful activities, but also saved time and efforts of professional care takers who might be unable to socialize frequently with clients.

INTRODUCTION

People with special needs are too often seen as a minor and marginalised group having no use or even interest for game technology. However, alongside with the ageing of populations and dwindling resources, modern user-friendly technology applications have shown huge capacity in intensifying care and rehabilitation services. Active ageing, self-supported care, and other aspects in quality of life would take an enormous step forward with deployment of user-friendly technologies (Leinonen, Koivisto, Sirkka, & Kiili, 2012; McCallum, 2012; Confalonieri, Guandalini, Da Lio, & De Cecco, 2012).

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Having real possibilities to be mentally, physically and socially active is an important part of well-being in all ages. People with special needs, like cognitive or physical limitations, often feel unnecessarily disabled because of attitude and belief prevailing in the environment, including care professionals. To break the unnecessary impediments, new means and methods are required. Elements of entertainment and therapy content can be put together into mobile games, such as four games investigated in this study, to make games become tools for rehabilitation that is adoptable for anyone in need (Leinonen et al., 2012).

Several studies show that both physical exercise and game play have positive effects on people, including older adults or people with learning disabilities, who are combating serious depression or even Alzheimer's disease (e.g. Fairchild & Scogin, 2010; Geda et al., 2010; Spector et al., 2003; McCough et al., 2011; Merilampi, Sirkka, Leino, Koivisto, & Finn, 2014). Findings from scientific research studies show that, in general, playing video games can lead to changes in an individual pleasure, vigilance, dominance, and therefore improving the overall experience of well-being. In the case of older adults, simple and easy to play video games are well accepted, as the games were found to be able to create positive feelings and enjoyment (Khoo & Cheok, 2006; Koivisto, Merilampi, Kiili, Sirkka, & Salli, 2013; Sirkka, Merilampi, Koivisto, Leinonen, & Leino, 2012; Snowden et al., 2011). Even a few minutes of regular game playing exercise on daily basis can generate cognitive benefits, improving skills required to enhance performances like attention and concentration (Gao & Mandryk, 2012a). This knowledge has inspired the Well-being Enhancing Technology research group (WET-RG) to create games that combine physical movement with cognitive impetus, and then testing the games in several target groups.

In Finland, the WET-RG at Satakunta University of Applied Sciences focuses on generating gamification tools to activate and assist people with special needs. Instead of investing in design-for-all, WET-RG chose to design for somebody. This chapter presents findings of trails on four different cognitively stimulating mobile games, where the games were tested with different target groups. The chapter also discusses the subjective experiences of participants and the observations of staff related to these trials.

DESIGN PRINCIPLES OF THE GAMES

Four different games presented in this study are categorised based on the control method and the game display. The first game (Game#1) is controlled by tilting the mobile phone allocated in a balance board, and the visual of the game is displayed on a large television screen. The second (Game#2) and the third (Game#3) games are playable on a tablet computer, in which figures of the second game can be controlled by tilting the tablet; while figures on the third game can be manipulated by tapping the screen. The fourth game (Game#4) is playable by moving custom-made a hand controller and a head controller, in which the visual of this game can be showed either on a tablet computer screen or on a bigger screen.

Game#1 was tested with older adults and people with learning disabilities. Game#2 and #3 were tested by a group of older male participants with diagnosed memory impairment. Game #4 was tested in a rehabilitation centre with people with varying physical disabilities.

The target groups consisted of people with special needs, such as diagnosed memory impairment, older adults and people with learning or physical disabilities, therefore a special attention was paid on the game design. Due to the impaired perception and sensation skills in the target users, the following six accessibility principles were deployed in the game design: a) large target button elements, 2) simplified and only necessary graphics, 3) minimal amount of animation, 4) colours used conservatively with high contrast, 5) simple one-view display at the time, and 6) placing important information in the middle of

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the screen. (Díaz-Bossini & Moreno 2014.) Apart from the above-mentioned accessibility principles, game designers used obvious logics instead of showing additional introduction of how to play a game. This feature is especially important for people with learning disabilities, even when they are assisted by staff to start playing the game (Koivisto, Merilampi, & Sirkka, 2015)

Time pressure was also added to all games to assure achieving both goals in the game, entertainment and rehabilitation. Multiple short game playing sessions, with moderate-intensity on regular basis, have been proven more beneficial than less-frequent but longer play sessions (Gao & Mandryk, 2012a; Gao & Mandryk, 2012b).

In general, the games should correlate with the physical conditions of targeted users, as well as their skills to achieve the so-called "flow feeling". The games are designed to generate a positive effect in players, and are most engaging when they facilitate the flow experience. Csikszentmihalyi (1990) introduced the flow state through the study of people involved in activities such as rock climbing, playing music, chess and dancing. 'Flow' describes a state of complete absorption or engagement in an activity and refers to the optimal experience. During the optimal experience, a person is in a psychological state where he or she is so involved with the goal-driven activity that nothing else seems to matter. Activity which can produce such experiences is so pleasant, to the extent that a person may be willing to do something for its own sake, without being concerned about what to get out of it. Theoretically speaking, the flow state consists of nine dimensions, but immediate feedback, sense of control, loss of self-consciousness, clear goals and the challenge-skill balance dimension provide a meaningful approach with which to embody engaging elements into exergames used in activation (Kiili, 2005; Kiili, de Freitas, Arnab, & Lainema, 2012; Kiili & Perttula, 2013; Koivisto et al., 2013; Merilampi et al., 2014; Wilson et al., 2002).

The design of games depicted in this chapters emphasizes on accessibility factors. These games should require minimal amount of equipment to play. To make the games appealing enough to generate the "flow feeling", the gameplay should be activating, easy and fun while being a "serious game" that serves certain goals and purposes of rehabilitation. These requirements led the WET-RG to select components of game playing technology, like mobile phone, internet connection and television or tablet computer display.

Issues associated to the accessibility and usability play an important role on the gameplay when designing games for people with severe limitations (Bierre et al., 2005). A concept of 3D-printed controller jig was designed and used to make games accessible and entertaining despite of physical impairment. As a novel method, it does not limit the use of game playing hardware to those available in the market, instead it is truly designed for individual special needs.

Game#1 Chase-the-Square / Cheese

The concept of Game#1 is a mobile phone that embedded an acceleration sensor to control game characters on a wide television screen. By constantly reading the acceleration data, the phone communicates commands to a socket server via internet. The socket server determines the moves of game characters in the game run in the mediating computer.

The choice of using the socket server solution was made to make multiplayer possible in the trials. Node.js was used as the socket server to attain the best possible interaction between the HTML5 game on a browser and mobile phones as game controllers. Game#1 was stored in the web, enabling any of mobile client to join a game session, and to use television browser as a game console.

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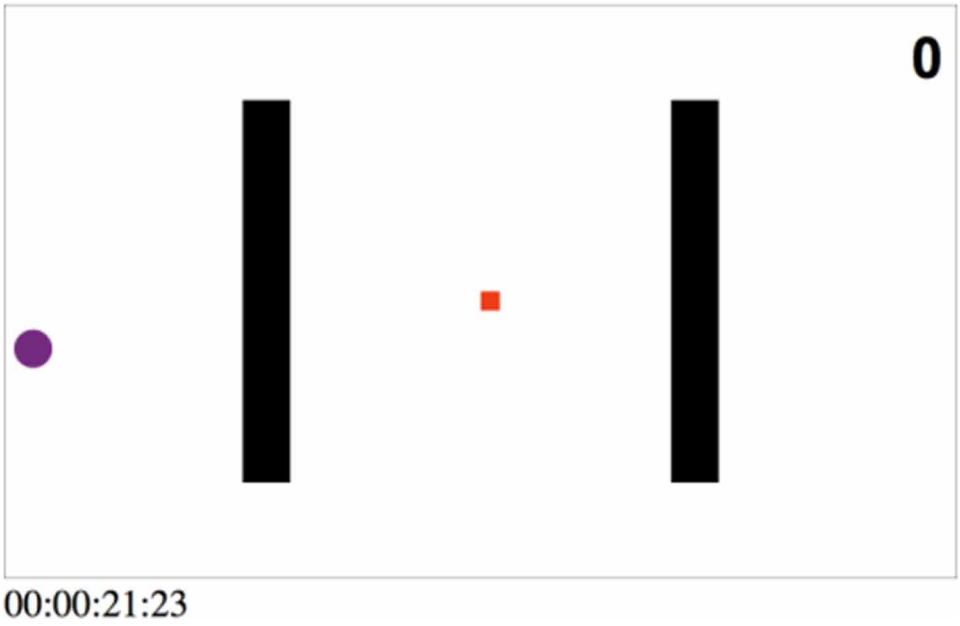
Phonegap app was deployed in building the game controller application inside the phone due to its ability to access phone hardware easily, while allowing application construction to all major mobile phone platforms. Deploying this app prevented complication in connections caused by sleep mode of phone, which may close connection to the internet and terminate a playing session.

When playing Game#1a, players practice motor coordination of hands or feet by catching a red square with a purple ball. The game also involves cognitive stimulating as players must observe and react to positions where the next square appears. The game was tested in trials with older adults and adults with learning disabilities (see Sirkka et al., 2012), which justified why the design was kept visually clear and logically simple. Players must bypass two impenetrable obstacles in the game field, as shown in Figure 1.

Figure 1. Game#1a chase-the-square



Players control the movement of the ball by tilting the mobile phone. The steeper the tilt, the faster the ball moves on the screen. Two different controlling modes were used: a) manually control by making wrist movement, or b) making foot movement to control the phone attached into a balance board. In both modes, players were seated during the game for safety reasons.

The square object and the ball objects in Game#1a were replaced by three mouse characters, a cat character and cheese chunks in the second trial with adults with learning disabilities (Game#1b). The modification was based on feedback given by the older adults from the first trial. This modification increased the difficulty level in the game by adding adversary component into the game (see Figure 2), making it cognitively more challenging.

Players played Game#1b using the balance-board control mode to collect as many cheese chunks as possible in one minute. The game starts with no opponents, but players must bypass the impenetrable obstacle. The game becomes more challenging after collecting five cheese chunks, as the first adversary, a cat character enters the game scene and starts chasing the mouse characters. Another cat appears after

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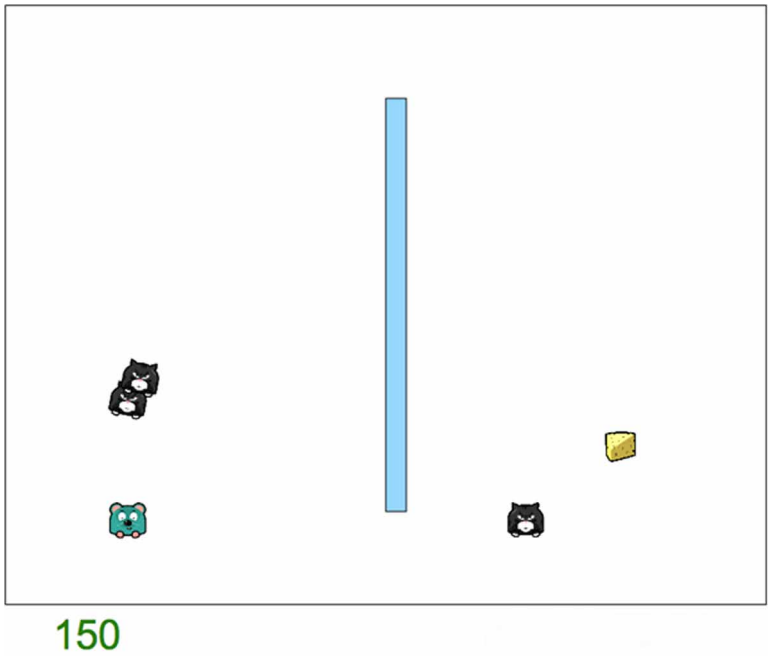
Figure 2. Design of game#1b, chase-the-cheese (balance board) and game#2 chase-the- cheese (tablet computer)



collecting ten cheese chunks, while the first cat moves faster, making it difficult to evade. The third cat appears after collecting 15 cheese chunks, while two existing cats moves faster in chasing the mouse. The game ends when the one-minute time is up or when any cat catches the mouse.

Game#2 Chase-the-Cheese on Tablet Computer

Games#2 and Game#3 are cognitively stimulating games designed through a collaboration with professionals specialised in memory disorders. The design of Game#1 was modified to generate a tablet computer version, which can simplify game playing events and data communication, affording direct communication between the tablet and the server using Near Field Communication or NFC identification facilities. The gameplay was identical to the Game#1b (Figure 3), but the phone controller was replaced by a tablet computer, eliminating the calibration of computer-internet-television screen requirement. The tablet computer version of Game#2 and Game#3 were tested in trials conducted with a group of older male participants with diagnosed memory disorder. The feedback given by participants of trials conducted in Game#1b, the animal characters helped players understand the logic of the game, making the game exciting as the level of difficulty increase gradually.

Game#3 Trail Tapping

Game#3 is a modified version of Trail Making Test A (TMT-A), which is commonly used in memory diagnostics. The standardised test distributes numbers 1 to 25 randomly over a sheet of paper. A test taker should draw a line connecting the numbers in ascending order as quickly as possible without lifting the

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pen from the paper. The time to draw the trail is measured. The test taker is allowed to correct possible errors which will increase the completion time reported in seconds—the longer the time, the greater the memory impairment ("Trail Making Test", n.d.; Tombaugh, 2004)

As shown in Figure 3, blue digits are randomly distributed over the screen and the test taker is instructed to tap on them in ascending order as quickly as possible. Correctly tapped digit turns translucent while an error turns red. The size and colour of numbers were made as visible as possible. The game may end in three conditions: when all digits are tapped in correct order, after making four errors, or when time runs out (240 seconds).

Important adjustment was made in trials on the difficulty level, in which a menu to select a desired difficulty level, ranging from 5 to 40 digits in five-digit intervals was added in the game design.

A game score registry system was built to trace personal progress. Each participant was provided with a personal NFC identification card to log in the game. When starting the game, a player touched the NFC reader in the tablet with their personal card. Based on identification, the game presented the latest personal records on the screen. The NFC technology registered data of each play event, enabling the analysis and the progress tracing of each player.

Figure 3. Game#3, tapping the trail

Game #4 Maze and Breakout With Modified Game Controllers

Game #4 was modified based on Game #1 in order to match the physical limitations of the most challenging clients in a rehabilitation centre. The client prompted the challenges related to the game controller. Special 3D-printed controllers were developed with the help of the rehabilitation personnel. Every game controller contains two parts, a sensor that contains External Texas Instruments CC2650 and a jig. The

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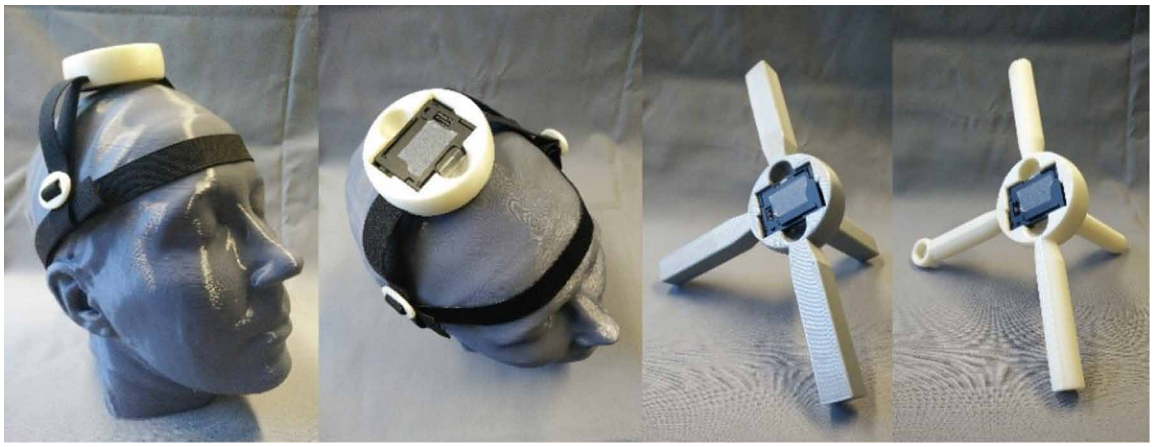
Figure 4. Game controllers attached on headband or easy-grip handle



jig could be placed on the head of a player or held in hand (Figure 4). The game controller sends gyroscope data through Bluetooth Low Energy (BLE). The data is interpreted in the game code to determine the direction and the speed of player's movement. Different shapes of handles were printed to be used based on individual player's gripping abilities. The handles can be fixed to the players body by using a belt in order to provide extra support and avoid dropping the controller due to compulsory movements. The sensor in the head controller could also be modified based on the player's needs.

The game was modified and divided into two different versions: a) a maze where a player character competes with a non-player character enemy in catching heart shape objects within a time; and b) a breakout game which is based on a 1970's arcade game, where a player character moves a paddle on the lower part of the game screen in order to break bricks on the upper part of the game screen using a ball that may bounce back on individual tiles after breaking them. The paddle moves only to the right or left, making the game easier to play using the head controller. The speed of the game was optimized for the both types of controllers, but it can be changed afterward according to specific needs.

Both versions of Game#4 were regarded as 'activation games' in this study, in which special game controllers were designed to motivate and intensify physical rehabilitation. Activation games can also generate tools for game modifications based on the user's functioning accessibility, personal likes, and rehabilitation needs on individualization and motivation. The logics in the games is based on the classic Breakout game and the heart collection Maze, which is easy for players to learn (Figure 5).

GAME INTERVENTIONS AND STRUCTURED INTERVIEWS

This chapter presents results of game interventions and structured interviews, in which data were collected in several trials with various target groups. The trials are explained here in more details.

Game#1a trials were organised in two different organisations in Finland for two weeks. The target group contained 34 participants (17 female & 16 male) who were over 70 years old, living in assisted living conditions. The average age of the participants was 85.9 years old. Game#1a was tested in non-recurring game events where participants may play the game as many times as they wished. Professional staff, researchers, and other game testers were observing these game events. Subjective experiences and

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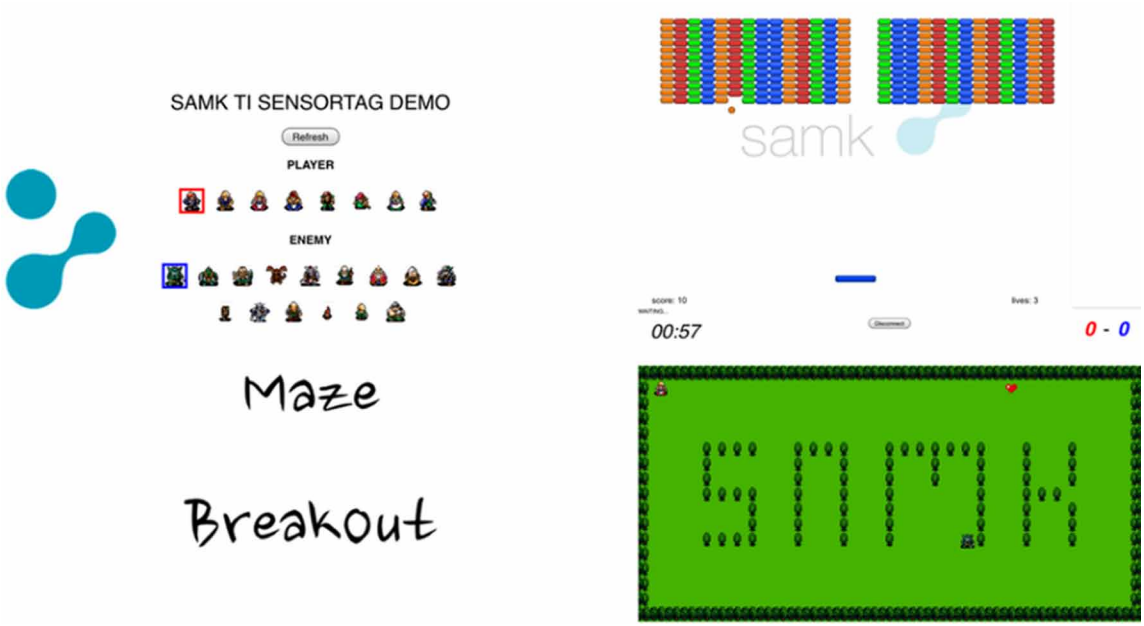
Figure 5. Two self-rehabilitation games created for people with physical disabilities. On the left main menu and on the right Breakout (upper figure) and Maze (lower figure) game screens.



perceptions, including commonly stated free comments over the trial, were collected immediately after each participant's play event through a structured interview. The data was analysed through a quantitative content analysis method, which involved calculating the frequency of responses in each theme.

Game#1b trial was targeted to adults with learning disabilities. A total number of 23 participants (N=23; male n=16, female n=7) aged between 21 and 60 years (average age 39 years) who worked in a sheltered working facility took part in this trial. Majority of the participants had no diagnosis apart from intellectual disability or mild learning disability. In particular, two participants were diagnosed with Asperger's Syndrome, one with Down's syndrome, one with cerebral palsy, one with Tourette's syndrome, and two with autistic features. Seven participants had difficulties in paying attention and nine had difficulties in coordination and perceptive skills. The subjective user experience analysis had been included as a part of a larger study conducted by Koivisto et al. (2013). The data was collected through thematic interviews by asking participants to assess and describe their subjective perceptions of the games and play settings. The qualitative results of the thematic interviews are presented in this chapter.

Trials associated to Games#2 and #3 were carried out in a three-month trial setting in a rehabilitation home for male war veterans. The trial aimed to measure possible impacts of cognitively stimulating mobile games on older people's cognitive skills when playing on regular basis. A group of nine Finnish male war veterans who stayed in the assisted living environment volunteered to participate in this trial. They were between 88 and 97 years old (average 90.1 years old). Although they were diagnosed with mild or medium level memory impairment, they were still cognitively active.

Data related to user experiences and usability issues were collected through structured interviews, immediately after the three-month game playing period. Each participant was interviewed privately to obtain authentic and subjective information related to their past experiences of the use of mobile games and devices, subjective experiences about the trial period and its impacts on their cognitive skills and

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general well-being, subjective meanings set on game playing, and general comments on usability of the devices and games. Observations and comments of the care taking staff were incorporated in the data as reflection.

In addition to the Finnish trials, a cultural comparison pilot was performed in China for Game#2 and Game#3 to examine whether different culture would affect the game playing experience of elderly users or not. During the trials in China, the games were played in a semi-controlled environment in which care taking staff were assisting on request while the researchers were observing the players. Six Chinese participants who resided in an elderly home in Changzhou, China took part in the trial. The average age of these participants was 82 years. The number of participants was intentionally kept small since this study was supposed to be a preliminary trial. The study focused on qualitative findings, specifically to understand personal characteristics and cultural aspects, such as past game playing experiences, likes and dislikes, lifestyle, social manners and norms, history, environment. Participants volunteered themselves to join the trial. After playing those games, each participant was interviewed privately in order to obtain authentic and subjective information.

Trials associated to Game #4 was conducted in a rehabilitation centre for people with physical limitations. All 17 test takers were volunteers, having a variety of physical limitations. All of them played the game for the first time. The data was gathered by researcher through observations and follow-up interviews. A staff of the rehabilitation centre was present throughout the observation of trials. Authentic user experiences from this preliminary trial were presented in this chapter.

RESULTS AND DISCUSSION

User Experiences of Game#1: Older Adult Participants (N=34)

Experiences of participating in the game trials were divided into positive experiences and negative or indifferent experiences. Most participants (30 out of 34) found the game playing a positive experience. The experiences were described as fun (11 participants), interesting (7 participants), easy to play (4 participants), challenging (3 participants), rewarding (3 participants), and entertaining (1 participant). The game was reckoned as good for social activities and events (6 participants).

Most participants believed that the game provided rehabilitating and activating experience (32 out of 34). They considered the game can assist in motor coordination (11 participants), give sensible limb activation (8 participants) and activate brain (7 participants). People with impaired mobility thought the game playing experience was more rewarding and suitable as a rehabilitation method than able-bodied people who could participate in other physical exercises.

In contrast, three negative comments of personal conditions were collected: “game controlling created pain”, “my hands were shaking too much”, and “the game elements were hardly visible”.

User Experiences of Game#1: People With Learning Disabilities (N=23)

The majority (17 out of 23) of people with learning disability could play Game#1 independently. The need for assistance during game playing events was limited to verbal instructions, mental encouragement or minor physical support. Thanks to the recognisable characters, the participants can easily comprehend the game idea.

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All participants took the game positively and regarded the experience as event entertaining events while providing good leg exercise. 20 of the participants wanted to continue playing the game at home. They described the climate during the game playing events as comfortable (18 participants) or excited (5 participants). The excitement cumulated when the cat character appeared, increasing the level of difficulty. Part of the excitement came from having audience or experiencing something completely new. All participants felt capable to focus in the game playing. The event was social and loud, as participants were giving instructions and spurring other players.

Only few negative comments were stated: "The loud audience was distracting" (2 participants), "I could not imagine playing the game on my own" (3 participants), and "Playing game with legs was weird" (1 participant). Four of the participants found using the "balance board controller" challenging. Some participants commented about slipping or getting the board in the wrong position on the floor.

Improvements Made to the Concept of Game#1

The feedback obtained in the trials of Game#1 was used to improve Game #2 and Game#3. Five participants and one third of professional staff suggested to add difficulty levels into the game. Seven participants reckoned that higher level of challenges might discourage playing. Game elements should be coloured to make them more distinguishable.

Three participants in the group of adults with learning disabilities wanted some sound effects to be added into the game. Another improvement in the game was to increase the variety of animal figures or animations. Some older adults commented that the game was too difficult, even after modifying the original game and adapting more flexibly to the progress of individual players. Many players ended the game at the first cat's appearance on the screen. Multiple cheese chunks on the screen were also suggested to make scoring points easier.

User Experiences of Game#2 (N=9)

The war veterans were found engaged with the tablet computer version of Game#2 in the trial. Prior the three-month game playing period, all participants went through standardised Mini-Mental State Examination (MMSE) and TMT-A tests. When the results of pre- and post-trial were compared, only a couple of participants improved their cognitive test results. Therefore, no significant impact of game playing was detected in the trial. However, subjective experiences of participants upon the trial were outstandingly positive. Majority of participants found the regular game playing event activating, interesting, and entertaining as it provided suitable cognitive rehabilitation. Game playing events helped them to stay alert and active throughout the day time, which otherwise contained not many cognitive impulses or things to do. Apart from being mental stimuli, the game offered useful activity to train finger dexterity and attention skills. The game also played an important role as social activator, involving staff, visitors and family members to compete with each other and to share play experiences.

User Experiences of Game#3 (N=9)

The second game in the war veteran trial was a modified version of TMT-A test. The game followed the key idea of the standardised TMT-A test to connect numbers. Instead of drawing a connecting line, participants tapped numbers in correct order as quickly as possible. This modification was made to test

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whether or not the omission of line drawing makes the test easier to complete. In this trial, tapping digits in correct order did not decrease the played time; what actually happened was rather on the contrary.

The TMT-A game had several difficulty levels. The participants were instructed to increase the difficulty level each week by adding five more digits on the screen. Participants played the game successfully until they reached the level of 25 digits on the screen, which became the ultimate top level in the trial. Only one participant in the test group attempted all the most difficult level (40 digits on screen) but the participant did not complete the level successfully (see Table 1).

Table 1. TMT-A game shots per difficulty levels

Difficulty Level	Played Game Shots in Total 729	Completed Shots	Success Rate
Level 5	23	12	52%
Level 10	263	235	89%
Level 15	167	161	96%
Level 20	139	111	80%
Level 25	62	44	71%
Level 30	65	50	81%
Level 35	5	3	60%
Level 40	5	0	0%

The overall play time of completed TMT-A game shots became shorter over the trial. The increased difficulty levels indicated that aging people were still able to learn and develop their skills in attention, reaction and dexterity with regular activities. Two most active participants decreased the count of error numbers over the total time spent on the trials (Table 2).

A majority of participants found the mobile games easy-to-play, interesting, and suitable for cognitive activation. The usability of tablet computers improved outstandingly when silicon covers were used to improve gripping of the tablet computer, especially for older people with dry skin.

The games on tablet computer were commented as being easy-to-use and light to handle. One worth mentioning comment was regarding the low touch sensitivity of tablet screens. The screen did not always react to the tapping of older adults, and this affected negatively on game results, causing false errors and increasing game playing time. The touch sensitivity was set to be as sensitive as possible upon triggers. Prior to the actual test, a touch event was triggered even when a player lifted a finger from the screen. One detected reason for the weak touch sensitivity issue was poor conductivity of electricity due to dryness of skin in fingertips of older adults. This was one drawback to the otherwise effective working of capacitive touch screens where function is based on the change in capacitance caused by an electrically conductive object such as human touch. For future trials with older adults, a touch pen or touch gloves should be used to increase touch sensitivity. Another option is to employ resistive touch screens which do not require any electrically conductive touching object.

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Table 2. Errors per participants in various difficulty levels in the TMT-A game

Player	Games played in level 10	Errors in level 10	percentage in level 10	Games played in level 15	Errors in level 15	percentage in level 15	Games played in level 20	Errors in level 20	Error percentage in level 20	Games played in level 25	Errors in level 25	percentage in level 25	Games played in level 30	Errors in level 30	Error percentage in level 30	Games played
ID 1	13	0	0	3	0	0	3	1	33.3	4	3	75	2	2	100	**25**
ID 2	38	0	0	32	0	0										**70**
ID 3	9	0	0	4	0	0	2	0	0							**15**
ID 4	22	11	50.0	22	3	13.6	21	9	42.9	3	1	33.3				**68**
ID 5	36	7	19.4	23	0	0	43	11	25.6	24	5	20.8	23	4	17.4	**149**
ID 6	17	0	0	14	0	0	14	0	0	2	0		6	0	0	**53**
ID 7	13	0	0	1	0	0	2	2	100	10	9	90	8	8	100	**34**
ID 8	42	4	9.5	24	2	8.3	14	3	21.4							**80**
ID 9	73	6	8.2	44	1	23	40	2	5	19	0	0	26	1	3.8	**202**
Tot.	**263**	**28**	**10.6**	**167**	**6**	**3.6**	**139**	**28**	**20.1**	**62**	**18**	**29.0**	**65**	**15**	**23.1**	**696**

User Experiences of the Cultural Comparison Pilot in China for Game #2 (N=6) and Game#3 (N=6)

In China, although the test group had prior experience of using mobile device, the participants were somewhat heterogenous to the use of technology. The games received a warm welcome by the participants and the staff involved in this trial, and the overall feedback collected from the trial was positive. The games concerned were seen as interesting, exciting, entertaining and evidently catching the interests of participants. Immediately after the first participant tried the first game, other participants turned from being skeptical to very excited, interested, and supportive.

Same usability issues prevailed in both countries, but the only recurring challenge was about the touch screen. Typically, the Chinese participants pushed the screen too hard. In addition, if the players were holding the tablet computer in their hands, the thumb of a holding hand constantly touched the screen, avoiding tapping action to be registered by the game. Dry skin in finger tips also prevented the tapping to be recognized as productive action, similar to the situation faced in Finland (Merilampi et al., 2017).

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User Experiences of Game#4 (N=17)

The test group (N=17) in the rehabilitation centre was satisfied with the visual elements of the games. Only two regarded the games being a bit hard to learn, and one commented that the game logic was difficult to understand. The time pressure feature divided the opinions in this test group. Seven test takers saw time pressure inspiring to play, while six had an opposite stand. Most participants (14 out of 17) expressed that the game was suitable for rehabilitation purposes. All game controller types received positive feedback, even though five test takers noted some momentary problems with the sensitivity of the controller sensor and the touch screen. In conclusion, the more severe the disability, the more motivating the game playing was. One possible explanation to this phenomenon might be: there were not many motivational games created and dedicated for this user group (Sirkka, Merilampi, Koivisto, Tommiska, & Saarinen, 2017).

Similarities in Subjective Experiences of Various User Groups

The games were well accepted by each test taker group, since they received mainly positive feedback and user experiences. The most important factor behind the positive user experience would be the right balancing of personal skills and gameplay, which is a well-known fact in game design (McGough et al., 2011; Mountain & Craig, 2012; Szturm, Betker, Moussavi, Desai, & Goodman, 2011). Success in mastering the gameplay and increase of game scores boosted the motivation, which in turn reported as a part of the positive experience. Other identified motivating elements were: the ability to experiment with something new and to play and control a game, especially to participants who were not used to play computer games.

Various user groups reported similar ideas for game improvement regarding the adjustability of difficulty levels. If the difficulty level and general gameplay could be adjusted to match individual player's health conditions and skills, the subjective user experiences would be more positive. This improvement could be realised by adjusting game tempo and difficulty setting (beginner, normal, and expert), in collaboration with users who require highly individualised characteristics. Levelling the game difficulty is a challenge for game developers, especially in maintaining fun of the game playing even at low difficulty levels.

The games used in this study were not specially designed for social activities. Nevertheless, the game events in all trials turned out to be active social events. Some participants enjoyed watching others play and giving mental support. Social aspects around the games extended to additional moments with a nurse or "having something common to do with my grandchild". Majority of players regarded the presence of audience as something positive, which indicated a wide acceptance of social games designed for people with special needs. Only Game#3 required more concentration and therefore it was played privately. The social aspect in this game was restricted to sharing the results and experiences with other players.

Divergences in Subjective Experiences of Various User Groups

Despite of many similarities across different target groups, some clearly defined target group centred requirements emerged in the study. People with learning disabilities were more heterogeneous than the groups of older adults (with a variety of ages and capabilities). Based on the feedback, adjustable difficulty levels, animations and sounds seem to be very important especially for the younger players.

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On the contrary, older adults (in Finland at least) disliked unnecessary elements in the game, and they were against expectations of the WET-RG. Simple game setting was not seen as being childish at all. The participants preferred simple logics and elements which clarify the mission of the game. This indicates that well-known concepts and characters can help people with special needs to grasp the idea in gameplay. Similarly, typical age-related impairments in senses should be notified when designing and adjusting games for older adults.

Although the user experiences of older adults in Finland and in China had great similarities, the feedback from the cultural comparison pilot study suggested possibility to increase motivation of participants to play by localizing the games for different countries and cultures.

The most significant differences when comparing the Finnish to the Chinese elderly people, is the game visualization. The Chinese loved colorful and rich graphics, voices, and animations. They suggested different progress visualizing approach, like showing game scores by collecting flowers instead of numbers. In addition to richer graphics, one concrete example was the hope of game localization using Chinese animals in the games. Researchers reported that Chinese participants were typically betting while playing, which was why the researchers may consider developing some sorts of "earning coins" feature in the game (Merilampi et al., 2017).

In China, the close relationship between the care taking personnel and the participants was evident in terms of holding hands, hugging, helping with the games by holding the tablet together, applauding, cheering and proving genuine support. In Finland, the nursing staff was supportive but the relationship with the participants was not as close as the scenario in China. The effect of the nursing staff support on game experience would be an interesting future research topic (Merilampi et al., 2017).

The competition status and players' scores displayed on screen appeared to motivate the older adults to play and achieve higher scores. The group of people with learning disabilities was less competitive, as they were focusing only on each player's own performance.

As to Game#3, the results of individual participants varied a lot even within one day. The game was also reckoned as rather boring to play in the long run. Even if the participants were facing higher difficulty levels of challenge, the game did not motivate them to keep on playing. It might be worthwhile to modify the game, making its design closer towards the original TMT-A that requires combining numbers by drawing lines.

Participants with physical limitations were mostly used to computer related technologies and assistive devices. However, the challenge in game playing was more about accessibility. By providing the accessible technology, this target group showed great interest for entertaining products. The target group was also very heterogenous when indicating a necessity of modifiable game design.

Although the user groups studied in this chapter had different characteristics and skills, the findings indicated that having a clear concept and purpose of the game were enough to be applicable for several user groups, even with slight modifications in graphics, controlling methods and difficulty level adjustments.

User Experiences on Rehabilitative Elements in Games

All user groups experienced the games as potential rehabilitation tools despite the differences in participants' health, cognitive and physical conditions. Some participants in all target groups had motor skill limitations, but in the case of Game#4, some had relatively more severe physical disabilities. The challenge related to physical limitations in game design was to find the ways to adapt the game control according to the player's abilities.

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Mobile phone as game controller could easily be integrated in different kinds of assistive technology or training equipment, or attached on different parts of the body. The use of a balance board in game controlling broadened the user groups to people who were unable to use their hands. Participant who took part in the testing of the balance board games were seated during game for safety reasons.

Game#4 was tested using the special game controller to compensate uncontrollable body movements, and they were meant for physical workout. However, in the case of participants with severe physical limitations, the goal of Game#4 was changed to create moments of happiness and new contents to everyday living. The sensor was embedded into a balance board in the Game #4 as in the Game #1, which actually was tested in the rehabilitation centre with clients in wheelchairs. People who still could sit and use the legs for tilting the board, the concept provided entertaining leg workout. This maybe a direction to investigate in further trials.

For older adults with memory impairment, the rehabilitative element was more cognitive than physical. However, also tilting the tablet or playing with balance board by feet required some light exercise and practice.

To summarise the results, the motivational aspects required of a new self-rehabilitation tool is provided in game playing. Games can be adjusted and modified according to a user groups' or most importantly personal capabilities, interests or requirements. The results of trials indicate strongly that gamification has potential in rehabilitation. Therefore, the future challenge is to integrate a wider palette of therapeutic contents in such games to maintain and enhance functional capabilities (social, cognitive, physical). Also, novel technologies, such as virtual reality and robotics, are of key interest of the WET-RG to boost game playing experiences and accessibility of the games. Due to limitation in the trials discussed above, long-term research trials should be arranged to collect wider and measurable quantitative data, particularly about the impact of the games on different user groups. The results also show convincing evidence that long-term learning through games and activation through games. In addition, attitudes towards mobile applications are better while possible thresholds are lowered. In other words, elderly people may use mobile devices more easily.

Figure 6 presents the overall feedback rate of various target groups (N=107, including nursing staff). Apart from the players participating in game trials, feedback was also gathered by interviewing the care taking staff. The staff interviews contained their assessment of therapeutic usability of the games as well as their observations both on the game playing situations and on their clients over and after the gameplay.

Even if the overall feedback was very positive, some challenges are still left for further development. The sensitivity issue of tablet screens appeared to be challenging especially among older adults, but the concept of care taking or rehabilitation seemed to be rather conservative. In the mindset of many people, having fun and exercising at the same time was seen as diminishing the value of professional rehabilitation. Even if there are loads of evidence available to confirm how good games would be tools in maintaining and improving cognitive and motor skills, there is still obvious caution in the public mindset, impeding the deployment of game playing initiative as part of the therapeutic pallet in long-term care taking.

From pure business point of view, there is also prejudice about the market of games for special user groups. There are not many games created, targeted and made available for special user groups. Yet, based on experiences of the WET-RG, there is a demand for these games. This could be an opportunity for game companies, since there is not much competition in the market. One possible solution is to convert commercial games into physical well-being games, creating an administrator view for nursing staff where they may adjust the gameplay so the games become more suitable for special user groups. Conventionally, the special user groups might be marginal target groups, whom are probably seen as very

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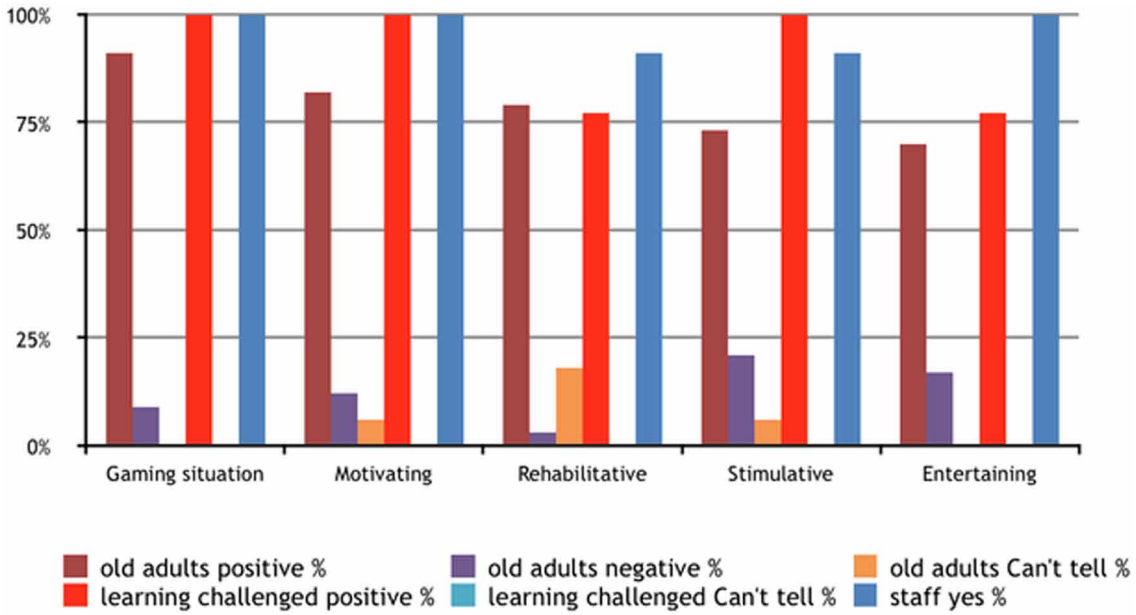
Figure 6. Summary of the feedback gathered from various target groups (N=107)



challenging and requiring too much work for a too small market. However, if the games are designed to be modular, extra requirements set by more challenging target groups would not mean that much of extra work. Perhaps, minor modifications would be needed to transform otherwise ready games. This chapters presents examples of those needed modifications. In most cases, different graphics or controlling methods will do the trick, whereas the game logic and most aspects of the game can remain the same.

Design for Somebody (DfS) is a design philosophy used by the WET-RG. The goal of this philosophy is to provide solutions to live in optimum capacity despite of limitations in functioning. DfS serves especially small target groups with highly specific needs as a "bottom-up" philosophy (from small to all). Modular design with replaceable "modules" is the key in individualised modification, utilising a generic solution base which is designed for the big crowds and added only with required specific modules. A person, referring to an individual or a very narrow target group, is at the centre in the DfS development process. A thorough and deep user needs analysis is performed by a multidisciplinary team, including the end-user. In addition, the development process requires creativity, technology know-how, understanding of service systems, business, and regulations. The modularity of design is of key importance (Merilampi et al., 2017).

CONCLUSION

New technology provides cost-effective, individualised, reasonable and mindful ways to activate and motivate people to be self-supportive, mobile and vigilant. In particular, long- term care taking facilities should encourage targeted users to maintain their cognitive, motor and social skills by deploying new and easy-to-use technology to provide meaningful things to do, individually and in groups.

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As seen in Figure 6, positive experiences make the difference in overall well-being. Easy- to-use technology is available and more and more evidence confirm that it is useful for and accepted by older people as well as people with special needs. In these trials, the games were welcomed as potential self-rehabilitation tools that can be adjusted according to personal skills and limitations. They also give meaningful activities to those in care saving time and efforts from professional carers who very often feel guilty of not being able to socialise with clients as much as needed and wanted.

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KEY TERMS AND DEFINITIONS

Activation Game: Game which is meant for activation of physical, social, or cognitive activity.

Design for Somebody (DfS): A design philosophy that serves especially small target groups with highly specific needs as a "bottom-up" philosophy. Modular design and user engagement are corner stones of the philosophy.

Flow: A state of complete absorption or engagement in an activity, flow refers to the optimal experience.

Functional Ability: The ability to perform activities of daily living (includes physical, mental, social, and cognitive abilities).

Trail Making Test A (TMT-A): A standardized memory diagnostic test that distributes numbers 1 to 25 randomly over a sheet of paper, measuring the time spent by a test taker to draw a line that connects the numbers in ascending order as quickly as possible without lifting the pen from the paper.

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Chapter 72
Deconstructing Racial Stigma in the Therapeutic Relationship

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ABSTRACT

This chapter seeks to deconstruct racial stigma of mental illness held by counselors within the therapeutic relationship. The authors will provide counselors with practical tools that will help them work through their own prejudices, discriminations, and stereotypes about people of color and mental illness. This chapter will provide background information on stigma, specifically racial stigma, the process for incorporating theoretical variation in clinical work, and its importance. Additionally, the authors will explore best practices that will help counselors obtain the knowledge and skills needed to effectively work with a variety of clients who are racially and ethnically diverse.

INTRODUCTION

Unfortunately, stigma is not a new concept. In 1963, Erving Goffman's book *Stigma: Notes on the Management of Spoiled Identity* took a look at the stigma of character traits. The stigma of character traits as outlined by Goffman (1963) are the "blemishes of individual character perceived as weak will, domineering, or unnatural passions" possessing "treacherous and rigid beliefs", and favor "dishonesty". These characteristics are "being inferred from a known record of, for example, mental disorder, imprisonment, addiction, alcoholism, homosexuality, unemployment, suicidal attempts, and radical political behavior" (p.2). The stigma of mental illness is historically wide spread. Stigma for individuals struggling with mental illness robs them of what is perceived as a "quality life: good job, safe housing, satisfactory health care, and affiliation with a diverse group of people" (Corrigan and Watson, 2002, p. 16). Stigma related to mental illness exists in the workplace, in homes and within families, in the education systems and, most surprisingly, in the practice of therapy. Two types of stigma are prevalent in the literature,

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public stigma and self-stigma. Public stigma "is the reaction that the general population has to people with mental illness" (Corrigan & Watson, 2002, p. 16). Public stigma includes discrimination, stereotypes and prejudices. Racial stigma emerged in the literature and will be explored to better understand its impact on clients of color in the therapeutic relationship within the United States.

Howarth (2006) references Goffman's view of stigma as being seen as a way to reduce the whole person to a "tainted, discounted one" (p.442). Racial stigma emerged as spotlighting what happens when stigma is applied to minority groups of people. Racial stigma is recognized in a variety of settings including the media, education and in the field of medicine. The authors suggest that racial stigma is also present in the therapeutic counseling relationship. Racial stigma "reduces the identity and the potential of those seen as *raced;* they are spoiled or blemished by the racist gaze" (Howarth, 2006, p.442). Howarth (2006) suggests that, "racial others" are individuals with skin that is brown and black who are seen as "less than, different from, unequal to the realizing, normatively white other" (p.442). Howarth (2006) also suggests that "race produces and sustains inequalities and is anchored in histories of prejudice, exclusion and poverty" (p.442). Howarth (2006) further explains that race, as stigma must be understood in order for it to be deconstructed. The authors suggest processing this understanding in order to help counselors become more aware and educated when working with individuals who are different; individuals who are also perceived as being so different that they are not considered normal. Additionally, race as stigma highlights how race reduces one's identity and potential. Howarth (2006) speaks to the fact that race is institutionalized and has historical implications. It is important to understand the impact and legacy negatively associated with race.

Education and awareness are critical to helping counselors engage whole-heartedly and authentically with clients who identify racially and ethnically different from the counselor. It is the intent of this chapter to provide practical ways to help counselors acknowledge and work through their own personal prejudices, discriminatory views and stereotypical behaviors related to racial and ethnic minorities with mental illness. The terms counselor and clinician will be used interchangeably as the terms differ according to therapeutic setting. This chapter highlights the theoretical orientation, Relational-Cultural Theory and will provide therapeutic applications that will help counselors engage clients in a harmless, productive and harmonious way. This chapter is designed to assist current counselors or clinicians in becoming efficient in working with people of color in therapy. In addition, this chapter serves as an additional training guide for counselors-in-training to be utilized in counseling programs.

BACKGROUND

Due to the various levels of stigma, individuals do not seek out the assistance they need to reduce their mental health symptoms leading to the public's prejudicial fear and negative perception (Corrigan and Rao, 2012). Challenges faced by those who have mental illness are diverse and may include the struggle to: understand their illness, gain insight into how the illness effects their lives, understand treatment options, deal with society and how this leads to stereotyping, prejudices and discrimination. Within the counseling setting, it is important to ensure that clinicians are prepared to work with any person seeking their clinical help. Historically, people of color and other marginalized groups have opted out of therapy. Black/African Americans have been prone to not engage in therapy for a variety of reasons including the cost, religious views and the stigma associated with counseling. Only about one quarter of African Americans seek mental health treatment compared to 40% of White Americans (NAMI). With this known

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history, it is important that counselors are aware of their own stigmas towards Black/African Americans and other people of color (POC). The 2014 American Counseling Association (ACA) Code of Ethics, known as *the Code*, "serves as an ethical guide designed to assist members in constructing a course of action that best serves those utilizing counseling services and establishes expectations of conduct with a primary emphasis on the role of the professional counselor" (p.3).

Therapeutic Relationship

As stated above, clinicians should be mindful of ethical standards when working with clients. However, what makes a relationship therapeutic goes beyond ethical standards. Several theorists began defining a therapeutic relationship as a working alliance that includes unconditional positive regard, empathy, honesty, and acceptance. "Unconditional positive regard implies that clients are the best authority on their own experiences" (Sommers-Flanagan & Sommers-Flannagan, 2017, p. 222). "The authors also suggest that a therapist's judgments are always based on inadequate information because we have not lived our client's lives or their experiences, so we do not know their internal motives" (Sommers-Flanagan & Sommers-Flannagan, 2017, p. 222).

"For Carl Rogers, unconditional positive regard was based on the belief that consistent warmth, acceptance, and encouragement of clients enhanced clients' growth toward their potential" (Sommers-Flanagan & Sommers-Flannagan, 2017, p. 222). Another word that can be used in the place of unconditional positive regard is *respect.* Respect is universally understood. "According to quantitative and qualitative research and clinical anecdotes, it appears safe to say that clients from all minority groups respond better when they have unequivocal respect from members of the dominant culture" (Farber & Doolin, 2011). However, respect can be shown and perceived very differently depending on one's racial background and this is why multicultural awareness and competence is necessary.

Another important aspect of the traditional therapeutic relationship is empathy. Clinicians should not only be skilled listeners, they should be empathetic listeners. Rogers (1980) defined empathy as the counselor's sensitive ability and willingness to understand the client's thoughts, feelings, and struggles from the client's point of view. This is different from sympathy. The counselor should not treat the client in such a way that causes her/him to feel sorry for the client. Being empathetic requires the counselor to put her/himself in the client's shoes and imagine what it is like to experience the experience.

A relationship is not therapeutic without an element of a *working alliance*. In 1979, Bordin introduced a three-dimensional model referred to as the working alliance. The model consisted of goal consensus or agreement, collaborative engagement in mutual tasks, and development of a relational bond. Collaboration is key in the therapeutic relationship. Research shows that clients who have a collaborative bond with their clinicians presents with the most improvement.

Others have supported this view:

What remains in question is how clinicians can best foster a working alliance with culturally diverse clients. A good beginning is to provide clients with a clear statement of purpose individualized to specific cultural orientations. For example, with a client who has a collectivist orientation: "My goal is to provide the best help I can to you and your family" (Sommers-Flannagan & Sommers-Flannagan, 2017, p. 252).

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Effective counseling is likely to occur when there is a working alliance and that alliance will not be developed without trust. That trust includes the therapist's ability to understand the client and his/her level of competence.

Others have reinforced this opinion:

Competence encompasses practicing from a theoretical evidence-based approach. Theory is the lens through which the counselor gains a perspective on the client, however theory is useless without a counselor. The clinician, however, comes with her or his own experience. Ideally, there should be a good fit between the clinician's own eyes or worldview and the theoretical lens she or he chooses (Sullivan, 2005, p. 283).

Racial Identity Models

When trying to deconstruct racial stigma in the therapeutic relationship, clinicians must be aware of the idea of racial identity development. A person's perception and worldview depends on her/his racial identity development. How a person understands her/himself and how one relates to others is also a part of racial identity development. Counselors should not only be aware of their development but should also be aware and understanding of clients' development.

In 1990, Sue and Sue proposed a seven-phase process that integrates many characteristics that explain White racial identity in their White Racial Identity Development Descriptive Model. The first phase is known as naiveté and occurs during early childhood (3-5 years). During this phase, individuals may notice differences but awareness of social meaning is absent or minimal. In the next phase, conformity, minimal awareness of self as a racial/cultural being and characteristics of the naiveté phase are maintained. For example, the individual believes that cultural differences are not important so as a result they "do not see color". In the dissonance phase, obliviousness breaks down when the person becomes aware of inconsistencies in their day-to-day experiences. For instance, the individual may have the belief that "all men are created equal" yet see POC being treated as second class citizens (Sue & Sue, 2016). Individuals become increasingly conscious of Whiteness and may experience dissonance, resulting in feelings of guilt, depression, helplessness or anxiety.

The fourth phase is known as resistance and immersion. In this stage, White individuals begin to realize what racism is all about and begins to question and challenge their own racism. For example, the individual's awareness of racism is enhanced as they see evidence in media, written materials, etc. In the fifth phase of introspection, individuals no longer deny being White, honestly confront their racism, understand the concept of White privilege, and feel increased comfort in relating to people of color. In the sixth phase of integrative awareness, the individual understands and appreciates self as a racial/cultural being while shifting focus from trying to change people of color to changing self and other White people.

The final phase is the commitment to antiracist action and is characterized by social action. When individuals get to this phase, they see things that they perceive as wrong and actively work to make them "right". This is done by objecting to racist jokes, trying to educate family, friends, and coworkers about racial issues and taking direct action to eradicate racism in schools, in the workplace, etc. As clinicians working with diverse clients, progression into the final phase is necessary to maintain the therapeutic relationship. In this phase, the clinician not only has an awareness and understanding of self, there is also an awareness and understanding of others' worldviews and sensitivity to racial issues that impact experience, growth and development.

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In 1999, Sue and Sue developed the Racial/Cultural Identity Model. This five-stage model depicts identity development among minority groups. The first stage is the conformity stage which is marked by the desire to assimilate and acculturate and believing in White superiority and minority inferiority. A minority individual in this stage spends a large amount of time trying to "fit in" with the majority group. Unconscious and conscious desire to escape one's own racial heritage is presented in this stage. Physical and cultural characteristics identified with one's own racial/cultural group are perceived negatively, as something to be avoided, denied, or changed. Reports show that Asian women have undergone surgery to reshape their eyes to conform to White female standards of beauty may (but not in all cases) typify this dynamic (Sue & Sue, 2016).

The second stage, dissonance, is when the person of color experiences a breakdown of her/his denial system. Dominant-held views of minority strengths and weaknesses begin to be questioned and the individual begins to realize that attempts to assimilate or acculturate may not be fully allowed by the larger society. For example, a Latino adolescent boy tries to befriend a group of his White peers at school but is met with racial slurs. Individuals in this stage begin to become aware of racism, racial microaggressions and covert gestures of oppression. In resistance and immersion, the third stage, individuals begin to understand social-psychological forces associated with prejudice and discrimination. Members of the dominant group are viewed with suspicion and there is considerable anger and hostility directed toward White society.

Stage four is known as the introspection stage. The POC begins to spend more and more time and energy trying to sort out aspects of self-identity and begins to increasingly demand individual autonomy. For example, the individual spends a large amount of time trying to disconnect from White society instead of attempting to understand one's cultural heritage. In the final stage, integrative awareness, the individual develops an inner sense of security as conflicts between new and old identities are resolved. The individual begins to perceive himself or herself as an individual who is unique, a member of one's own racial-cultural group, a member of a larger society, and a member of the human race. At this stage, the POC finds comfort in being a part of all of these systems and takes pride in her/his diverse uniqueness.

Relational-Cultural Theory

Having a strong theoretical foundation is important in working with all clients. However, it is imperative when working with clients who differ from the counselor to be aware of their worldview and how those differences may impact their interaction with and care for the client. It is the belief of the authors that counselors should revisit their theoretical orientation as they prepare to engage in a therapeutic relationship with diverse clients. Relational Cultural Theory (RCT) is an alternative theory that has emerged as a framework for working with racially and ethnically different clients because it an act of social change and an emphasis on movement out of isolation (Jordan, 2009). Although RCT was initially developed to address the concerns of women it has advanced and is applicable to a more diverse population. RCT was developed to "better understand the importance of growth-fostering relationships in people's lives" seeking to "lessen the suffering caused by chronic disconnection and isolation whether at an individual or societal level, to increase the capacity for relational resilience, and to foster social justice" (Jordan, 2009, p.23). Maureen Walker (2002) suggests that the connections and disconnections in relationships are characterized in a context that has been "raced, engendered, sexualized, and stratified along dimensions of class, physical ability, religion, or whatever constructions carry ontological significance in the

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culture" (Jordan, 2008, p.23). As a good first step to ensuring one will openly engage in the counseling process, beginning with RCT is a way to become more introspective.

There are seven key components of RCT that will help counselors frame how and why utilizing a theoretical framework such as RCT can help nurture the therapeutic relationship in a more meaningful and developmental way. The key components according to Jordan (2002) include understanding that: people grow throughout the lifespan because of relationships in their lives; mature functioning occurs because of movement toward mutuality not when separation occurs; the differences between individuals and the elaborations of those who are in relationship together create growth for those involved. As counselors, being able to acknowledge the differences between oneself and one's clients can be used as a tool to foster growth for both parties. Additionally, mutual empathy and empowerment, along with authenticity are necessary for the development and prospering of healthy relationships. The relationship is not a one-way endeavor but takes both individuals to foster development. It will take courage for the counselor to go beyond what is the norm for them and reach out to create a therapeutic relationship that will help clients grow. Engaging in the tenets of RCT, requires counselors to live outside of their comfort zone and garner a relationship with someone who may hold many differences than they do. Committing to clients in such a way means committing to the process of establishing an authentic relationship.

MAIN FOCUS OF CHAPTER

Issues, Controversies and Problems

Being aware of and understanding why racial stigma may exist in the therapeutic relationship is a very significant part of assisting clients. However, knowledge and awareness is only the first step. Clinicians need to take an active role in deconstructing racial stigma in the therapeutic relationship. This is important for a few reasons. Firstly, minorities are not seeking out treatment for their mental health needs. Secondly, minorities that are getting treatment do not always feel safe, supported or understood by the public, and more importantly clinicians.

"Public stigma is the most prominent form observed and studied, as it represents the prejudice and discrimination directed at a group by the larger population" (Corrigan and Rao, 2012). Most times, public stigma develops due to how mental illness is portrayed in the media. People of color are already discriminated against because of the color of their skin and the assumptions that surround their racial identity. Thus when they are experiencing a mental illness, this adds to the negative perception that the public has about this population; racially and mentally.

Self-stigma has been a term coined to describe how an individual struggling with mental illness experiences self-hate, low self-esteem, and a lack of self-efficacy due to how they are perceived by others. This self-perception is detrimental and can cause counter-productivity within the person's life and the counseling process. Self-stigma can also cause additional pathologies such as depression and may lead to suicide attempts and suicide completion. As reported by the Office of Minority Mental Health (2016), suicide was the leading cause of death for American Indian/Alaska Native girls between the ages of 10 and 14 in 2014. Due to these varying levels of stigma, people of color are not receiving the assistance that they need to reduce their symptoms which causes an increase in the person's symptomology and the public's negative perception.

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Although mental health professionals do not intentionally practice a level of stigma when working with clients, several discriminating factors play a role in the counselor-client relationship if the counselor is not self-aware. Certain cues can be very debilitating for an individual experiencing mental illness and can have a negative impact on the therapeutic relationship as well as future attempts for the client to seek help. Microaggressions and non-verbal communication signals can affect this therapeutic relationship.

"For effective therapy to occur, the therapist and client must be able to send and receive both verbal and nonverbal messages appropriately and accurately" (Sue & Sue, 2016, pp. 258). Clinicians are continuously observing and assessing their clients so that they do not miss anything of importance. The same way that counselors watch and observe clients, clients at times are also watching the counselor. Counselors must be aware of the types of messages that are being sent when nothing has been said. For some clients, any small gesture from the counselor, for example a head tilt, can be misinterpreted by a client. Nonverbal communication varies from culture to culture, so counselors need to be aware, culturally competent, culturally sensitive and aware while engaging with clients.

Some nonverbal behaviors are microaggressions. Microaggressions are "brief and commonplace daily verbal or behavioral indignities, whether intentional or unintentional, that communicate hostile, derogatory, or negative racial slights and insults that potentially have a harmful or unpleasant psychological impact on the target person or group" (Sue, Bucceri, Lin, Nadal, & Torino, 2007). One common example of a microaggression is clutching a purse tighter while passing by a young Black male on the sidewalk. This action signifies the notion that all Black men are dangerous and will steal purses when walking by others. Another example is asking an Asian American individual where they are from. This last example sends the message that the Asian American individual is not American even if he/she was born in the United States. Microaggressions can also be delivered environmentally through the physical surroundings of target groups, where they are made to feel unwelcome, isolated, unsafe, and alienated (Sue & Sue, 2016, pp. 179).

Based on the literature, although all forms of racism can be hurtful and traumatic, there are different levels of oppression. These different levels can be seen within three different types of microaggressions. The three different types of microaggressions are micro-assault, microinsult, and microinvalidation.

The term microassault refers to a blatant verbal, nonverbal, or environmental attack intended to convey discriminatory and biased sentiments" (Sue & Sue, 2016, pp. 179). Microassaults are overt and are intended to purposely violate and hurt a person or group of people. For example, calling a Latino individual a *spic* is highly offensive and derogatory.

"Microinsults are unintentional behaviors or verbal comments that convey rudeness or insensitivity or demean a person's racial heritage/identity, gender identity, religion, ability, or sexual orientation identity" (Sue & Sue, 2016, pp. 188). An example of a microinsult is assuming that an Latino male should be placed in remedial classes due to one failed test. This assumption would be solely based on his racial background and gender. Microinvalidations are verbal comments or behaviors that exclude, negate, or dismiss the psychological thoughts, feelings, or experiential reality of the target group (Sue & Sue, 2016, pp. 189). "Colorblindness" is an example of a microinvalidation.

Deconstructing racial stigma also includes counselor competence. Counselors have a responsibility to their clients to not only be competent but to be culturally competent. There are several ways a counselor can enhance competency. When counselors lack self-awareness, are not culturally competent, and lack exposure/experience they can unintentionally create racial stigma in the therapeutic relationship. Baruth and Manning (2003) state that it is often easier to rely on stereotypical beliefs about others than to learn about cultures and to get to know people on a first-hand basis. Stereotyping can result both from

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a counselor's personal prejudices and biases as well as from a lack of factual information about cultures and individuals. "Just as a European American counselor might hold stereotypical perceptions about African-American, Asian-American, Hispanic American, and American Indian clients, a counselor from any of these cultural groups might hold stereotypical perceptions about European American clients" (Baruth & Manning, 2003).

Within counselor competence, there is also a need for theoretical approach variation. All clients are not created equally; meaning, counselors cannot treat all clients the same by using the same theoretical approaches for every client. A common issue that maintains stigma in mental health is counselors' lack of theoretical variation. It is an expectation that counselors learn a variety of approaches for all individuals and be able to utilize any of these approaches, when necessary. RCT therapy requires counselors to understand the vulnerabilities that many clients come with and foster a nurturing relationship that allows the therapeutic alliance to develop. Being empathetic and authentic allows clients to feel seen and heard. This level of acceptance fosters allows for growth within the therapeutic relationship.

Self-exploration is a main part of every counselor's educational program, however after one graduates the exploration should not stop. White counselors may be: unintentional racists; unaware of their biases, prejudices, and discriminatory behaviors; and using therapeutic approaches to multicultural populations that are likely to be more harmful (unintentionally) than helpful (Sue & Sue, 2016). "An important part of the solution to deconstructing racial stigma in clinical practice is that White clinicians need to examine the contexts of power and privilege that pervade every encounter with a client or colleague of color" (Lee, 2005, p. 96). A large part of understanding a client's worldview and life situation, is first understanding our own.

A current controversial misconception is that just because the counselor and client share the same racial background, means that the counselor can identify with the client. Race is only one part of an individual's world. Even if they have race or ethnicity in common, the client may experience comfort due to that commonality, however, this can affect the therapeutic relationship, negatively or positively. Building rapport with the client and showing genuine concern is key. Baruth and Manning (2003) stated that regardless of the client's native communication and cultural backgrounds, building rapport during counseling sessions depends significantly on communication between the counselor and client.

Lack of self-awareness and exploration, most times, comes with a lack of exposure/experience. Racial stigma can develop due to counselors not engaging in opportunities that will enhance their understanding of people of color. When new counselors enter into the world of counseling, they come with only the experiences that they had while in their graduate programs. This experience is limited and most times lacks culture.

A significant part of being culturally competent is being exposed to different cultures to enhance knowledge. According to the 2016 CACREP annual report, 61.12% of students graduating at the master's level are White. The likelihood that people of color seeking counseling services will be seen by someone who does not identify culturally as the client is very high. As stated earlier, identity development is the driving force of one's perception of self. Oftentimes, a counselor does not know where a client is regarding identity development. This lack of information can promote racial stigma due to the client feeling that the counselor does not understand her/him. Another part of cultural competence is understanding a client's acculturation level. For example, whether a 60-year-old Latino man has lived in the United States all his life or only a few years makes a difference when attempting to understand behaviors, values, and family dynamics.

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SOLUTIONS AND RECOMMENDATIONS

Counselors must engage in professional development that will challenge their positions of privilege and help them understand their position of power within the therapeutic relationship. It is important that practitioners deconstruct their stigma towards a particular group by becoming aware of differences that could set them apart from engaging at an authentically human level with a client. This process begins with re-education to set the tone of what can be the start of a culturally competent and sensitive counseling relationship.

To increase awareness and re-educate counselors should begin by becoming active in the profession. Being active in a professional organization will give counselors an additional layer of support and education they would not normally receive. Additionally, being involved in a professional organization will provide insight into new, cutting edge information. As apart of the larger network there are divisions or special interest groups that address specific interests and needs of counselors allowing individuals to connect with colleagues who have similar interests.

A counselor's approach to therapy and how they relate to the client is key in ensuring a successful therapeutic relationship. This is extremely important when engaging with people of color. As stated previously, counselors who are engaging in therapy should be aware of their theoretical orientation and have a toolbox in which to pull from. Each client, whether a POC or otherwise is different with varying needs, wants and desires. Thus, the counselor should be able to diversify their clinical approach to therapy to help the person before them. There are many therapies that can be utilized to address a variety of needs for clients.

One specific therapeutic approach the authors feel would enhance the counselor's skill level for working with persons of color is Relational Cultural Theory (RCT) therapy. RCT is an advanced treatment guided by one's desire "to lessen the experience of isolation, increase the capacity for self-empathy and empathy for others, and develop an appreciation for the power of context and limiting cultural/relational images" (Jordan, 2008, p.35). RCT therapy is most concerned with the attitudes and the quality of mutual engagement as opposed to the types of interventions and techniques used in the counseling process. Changing the clinical approach to focus on relationship building rather than fixing or correcting a client can produce a change in the life of the client that may not be quantifiable.

As with all treatment modalities, RCT therapy begins with an assessment by gathering the usual demographic information. However, with RCT therapy close attention is paid to significant past and current relationships. It is the intent of the counselor to ensure what the client's goals are for seeking assistance. RCT clinicians do not focus solely on the pain that brings clients into treatment but on their strengths and coping skills and how effective they have been. It is important for counselors to assess the resiliency of clients and to determine if they have a community in which the client feels they matter and/or belong. It is also important to assess whether or not a client can engage in constructive conflict. Engaging in constructive conflict will allow the client and counselor to pursue authentic dialogue and create a trusting relationship. It is important, also, to assess if the client can present their needs and views to others even if those views may conflict with the other person's perspective. Additionally, it is also important to understand how the client disengages from others when in conflict. The goals of assessment in RCT therapy are to "identify the sources and functions of the relational images, including controlling societal images, and coping strategies that have shaped the client's experience and to establish the basis for the therapeutic relationship" (Jordan, 2009, p. 37). Gathering such information allows the counselor to effectively meet the client's needs while engaging in the therapeutic process.

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It is also of much importance for the counselor to "develop an awareness of their own strategies of disconnection, including when they get activated and how they affect each particular therapy relationship" (p. 38). It is recommended that the counselor develop self-awareness. Being able to identify the signs of disconnection in therapy will help keep the therapeutic relationship authentic. Checking in with the client if the counselor feels a shift in the energy or tone is essential to creating an environment in which sensitivity and awareness are evident. Being sensitive and aware of what the counselor is feeling about their client or the therapeutic relationship will help to build against isolation and disempowering cultural forces. RCT therapy builds the client's desire for connection and is about building "networks and community" (Jordan, 2009, p. 41). RCT therapy emphasizes the utilization of empathy. Exhibiting empathy towards a person of color in the therapeutic relationship reflects that the counselor is authentically engaged and wholly present with the client.

Another recommendation for counselors that would help with becoming culturally aware is to engage in a service learning opportunity. Although service learning is a concept that is usually applicable to secondary education and undergraduate curriculum, the authors propose that utilizing service learning in the field of counseling will increase the awareness and education of counselors working with diverse clients. The incorporation of a service learning experience in the re-education of counselors would be helpful and beneficial to changing how a counselor engages with individuals who are persons of color. Service learning is known for incorporating a community service activity into the instruction of a particular discipline. Being able to apply theory in a real world setting would be beneficial in exposing counselors to a world they may not be familiar with. In return, counselors gain a valuable perspective that would help them engage empathetically with clients who are racially and ethnically different from them. Additionally, communities would gain much from the service provided. For example, if counselors enroll in continuing education courses on diversity this framework can be useful when a counselor engages in a service opportunity with a Black or African American church that is raising monies to support HIV/AIDS research. Immersion in this type of engagement creates a sense of community between the counselor and that population allowing the counselor to shift her paradigm on what she initially thought about Black Americans.

It is a recommendation of the authors that counselors become active and engaged in the larger community as change agents. By engaging in resistance against stigma and racist activities and posturing oneself as an anti-racist counselor is a powerful stance to take. This stance creates a safe zone within one's office space. Positioning oneself as anti-racist could create a steady flow of clients who would feel safe engaging with them in therapy. This position allows counselors to be collaborative with like-minded colleagues helping to de-stigmatize race in the therapeutic relationship.

As mentioned, counselors are required to have an appropriate level of self-awareness including but not limited to one's biases, cultural understanding and ethical standards when working in the mental health field. Exposure (contact) to diverse people and situations will enhance this self-awareness. Counselors should learn about people of color from sources within the group such as clients and colleagues. Purposeful experiences such as travel and venturing out of one's own community will allow counselors to not only learn about other cultures but will also allow them to experience their feelings regarding being around people of color.

Another way to be self-aware is to be mindful of types of communication being used and received in day-to-day living. Being aware of your own microaggressions and nonverbal communications that may be perceived as racially stigmatizing promotes change personally and professionally. Understanding communication of others that could be based on cultural style is also important. Owen, Jordan, Turner,

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Davis, Hook and Leach's work (as cited in Sue & Sue, 2016) supports the idea that clients' perceptions of racial microaggressions are negatively associated with therapeutic alliance.

Certain types of nonverbal communication such as proxemics, kinesics, and paralanguage can also play a part in creating a therapeutic disconnection. Proxemics refers to perception and use of personal and interpersonal space (Sue & Sue, 2016). For example, a White counselor that is comfortable with close spacing could cause an Asian client to withdraw and feel awkward. Kinesics refers to body movements such as facial expressions and hand gestures. A Japanese smile may mean discomfort (Sue & Sue, 2016). Paralanguage is known as vocal cues including pauses and silences. A counselor could misinterpret a Black client as being angry when speaking loudly about something she or he is passionate about.

As cited earlier, self-awareness includes understanding where one is in their development of identity. Counselors may need to ask themselves, "What does my race mean to me?". This question should generate some exploration into cultural biases, values, beliefs, and the counselor's worldview. Baruth and Manning (2003) found that common barrier in counseling occurs when counselors only expect (perhaps unconsciously) clients to conform to the counselor's cultural standards and expectations. "For example, expecting African American women to emulate European American standards of beauty (or vice versa) has a demoralizing effect and can create racial stigma in the therapeutic relationship" (Baruth & Manning, 2003, pp. 59).

Counselors also need to be aware of what their race may mean to other people, especially their clients. Oftentimes, clients already look at their counselors as experts and the counselor's race can also be seen as powerful or even superior. Sue, Capodilupo and Holder (as cited in Sue & Sue, 2016) found that African Americans consistently report that intellectual inferiority is a common communication they receive from Whites in their everyday experiences. Counselors need to be aware of these perceptions and how they are affecting the therapeutic relationship.

Self-awareness can be developed through a variety of avenues and by several different ways. One way to develop self-awareness is through diversity training. It is imperative that all counselors participate in ongoing diversity training. It is a requirement for all licensed counselors to obtain continuing education units to maintain licensure. Diversity training should be a part of this continuing education experience. Not only will diversity training enhance counselor self-awareness but this experience will also increase counselors' understanding of various cultural groups and cultural evidence-based practices.

FUTURE RESEARCH DIRECTIONS

Forward thinking requires that counselors position themselves to continue to advance their own self-awareness and skills for working with people of color. This requires understanding one's own layers of identity as well as their client's multiple identities and how those roles are addressed in the counseling relationship. The term, intersectionality was coined by Kimberlee Crenshaw in 1989 although the issues it addresses have been around since slaves were freed. Intersectionality is when the overlapping of social identities along with their related system of oppression creates an environment for discrimination (Crenshaw, 2016). It is important to frame an understanding of what it means when individuals have multiple social identities and the impact those identities have on their lives. It is not only just about the identities they hold but also about the oppression associated with those identities. Initially, this concept was developed to address concerns faced by Black American women who were confronted with issues of racism and sexism and how the intersection impacted their lives. The judicial system set a prece-

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dence that would not allow lawsuits to be brought forth when the plaintiff suggested was being dually discriminated against. Essentially, these Black women had to choose a struggle – gender or race but not both. Just as discrimination against a woman because she is a woman and she is Black is a reality so is stigmatization in the counseling relationship.

However, intersectionality can be applied to any individual who has multiple identities that are the opposite of what society deems as normal, proper or the standard. For example, Asian American gay men have two intersecting identities – race and sexual orientation in which they can face stigma, social injustice and discrimination. Intersectionality is applicable to a variety of groups of people to include people of colors with identities such as LGBTQ and people of color who are not able-bodied, to name a few.

Counselors must understand not only the impact of race when working with a client who is an ethnic or racial minority but also be mindful of the intersectionality of their own multiple identities that cause injustice, oppression and additional stigma. It is also important for counselors to understand their own biases and stigmas related to these varying identities. It is not possible for individuals to separate one identity from another – it is their own identity and they are whole people. Additional research on intersectionality and counseling would help clarify its impact on clients and counselors.

CONCLUSION

Stigma continues to be an issue in our society. Individuals who struggle with mental illness are perceived and judged, at times, based on this mental illness, which leads to developing a negative outlook and self-stigmatization. Due to public stigmatization and self-stigmatization, people are not seeking counseling services or are not benefiting from the services that are being utilized. This stigmatization phenomenon is even more prevalent among people of color because they are not only being perceived by others negatively because of their mental illness, but also because of the color of their skin. Oftentimes, individuals come to counseling due to experiences of racism, discrimination and oppression. The therapeutic relationship is known to be a supportive alliance built on trust, empathy, and respect. Clients come to counseling hoping to find comfort in a safe place. Counselors must be the driving force in deconstructing racial stigma because counselors are the foundation of the therapeutic relationship.

As mentioned, identity development plays a part in understanding one's self as well as understanding others. Counselors must be aware of many aspects of themselves to appropriately serve clients and deconstruct stigma. Being aware includes being educated, competent, and sensitive to culture. Additionally, understanding how a person's race intersects with other identities that are held by the person is valuable because these factors make the person whole and counselors need to understand the wholeness of the individual.

The ACA *Code of Ethics* speaks to counselors' duties regarding multicultural competence, however these guidelines need to be taken a step further when practicing in the counseling field. Counselors must be purposeful in their cultural experiences. Gaining knowledge and competence includes exploring culture by exposing one's self to it. One aspect that is important for counselors to consider when experiencing cultural exposure is being aware of her/his behavior. Microaggressions and non-verbal communication are significant and can make or break the therapeutic relationship.

Lastly, working with people of color means that counselors must have a full clinical toolbox that includes various theoretical approaches and interventions. What works for one client may not work with another, thus being knowledgeable and purposeful when choosing appropriate culture-specific

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interventions and theoretical approaches is key. The authors suggest RCT therapy because it is a holistic approach that considers the collectivistic nature that most minority groups value. As society continues to develop new roles and aspects of human nature, it is the responsibilities of mental health providers to keep up with this growth in a way that assists in the deconstruction of racial stigma. It is the ethical duty and responsibility of clinicians to appropriately respond to matters of diversity and stigmatization. In summary, this chapter has assisted in identifying practical approaches that counselors can use when deconstructing racial stigma in the therapeutic relationship.

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Chapter 73
The Diversity Management for Employment of the Persons With Disabilities:
Evidence of Vocational Rehabilitation in the United States and Japan

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ABSTRACT

The purpose of this chapter is to discuss the latest knowledge of effective diversity management—from businesses and academia—with regard to the employment of persons with disabilities. From a broad perspective, this knowledge is found in the field of industrial-organizational psychology. From a more narrow perspective, and based on evidence from a substantial study, the knowledge of vocational rehabilitation has relevance for persons with disabilities. Vocational rehabilitation is the practice of providing employment supports that will build win-win relationships between employers and persons with disabilities. This chapter reviews recent findings documenting the effective employment and management of persons with disabilities, and summarizes effective actions and workplace considerations for the employment of persons with disabilities.

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INTRODUCTION

This chapter focuses on diversity management in industries and organizations in the employment of people with disabilities in the United States (USA) and Japan. Diversity in the labor market has previously focused on race or gender. However, diversity now is "any and/or every dimension of attributes one may have" (Taniguchi, 2008, p. 69), and includes disabilities (within that dimension). Employment of individuals was previously an issue that fell under the welfare domain in both the USA and Japan. However, employment of people with disabilities is now becoming an industrial and/or organizational issue. Globally, the United Nation's Convention on the Rights of Persons with Disabilities in 2006, the nationwide promotion of Employment First in the USA, the amendment of the Disabled Persons Employment Quota System and the enforcement of the Comprehensive Support for Disabled Persons Act in Japan, have facilitated protection of the rights of people with disabilities in society and emphasizes a shift from welfare to employment.

This chapter has two objectives. The first is to contribute to the development of companies and society by introducing effective management of people with disabilities in the labor market. The second is to contribute to the promotion of attaining independence, social participation, rehabilitation, and right through the employment of people with disabilities. In order to achieve both these objectives simultaneously, research from the field of vocational rehabilitation focusing on employment support for people with disabilities is required. This is because vocational rehabilitation concentrates not only employment for the sake of social contribution by an employer, but is also an accumulation of studies, utilizing many methods, with the goal of constructing a "Win-Win relationship" between an employer and a person with disabilities.

However, there has been little cooperation (interaction) between the field of vocational rehabilitation research and the field of industrial/organizational research. Therefore, reporting the findings from vocational rehabilitation research in this chapter may also contribute to the promotion of industrial/organizational research. Based on this background, in this chapter, we report findings and examples of effective practices for organizations and industries hiring individuals with disabilities, from the field of vocational rehabilitation research. This chapter's objective is to clarify effective employment management for people with disabilities in the workplace, from both the USA and Japan; therefore, we identified the following research questions and keywords:

1. What is effective employment management for people with disabilities from the field of vocational rehabilitation research?
2. What are good examples of employment management of people with disabilities conducted by companies?

Additionally, the following three keywords were common in both USA and Japanese studies:

1. Evidence from vocational rehabilitation
2. Customized employment
3. Universal design

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Regarding the third keyword, "universal design," effective management with consideration of those with cognitive and physical function disabilities, is not only effective for affected individuals, but also for those who have experienced a change in their cognitive or physical abilities due to aging. Therefore, we included the keyword "universal design" to examine the possibility of a general application of employment management of people with disabilities. The content of this chapter not only contributes to increasing the understanding of people with disabilities from the point of view of company executives, human resources, managers, and government personnel, but also provides beneficial knowledge to researchers and students of industrial/organizational psychology.

BACKGROUND

Diversity is defined in the Oxford Advanced Learner's Dictionary as "a range of many people or things that are very different from each other," and "the quality or fact of including a range of many people or things" (p. 443). Although diversity has traditionally been defined as differences in gender, race, and age, the definition has since broadened. According to the United Nations High Commissioner for Refugees (UNHCR), diversity refers to "different values, attitudes, cultural perspectives, beliefs, ethnic background, nationality, sexual orientation, gender identity, ability, health, social status, skill, and other specific personal characteristics" (UNHCR, 2011), and Taniguchi (2008) defines diversity as "any and/or every dimension of attributes one may have" (p. 69).

Biodiversity, a shortened version of the word biological diversity, was created by Walter Rosen, and is defined as "constructed of genetic diversity, human-derived diversity, and ecosystem diversity" (Simon, Reece, & Dickey, p. 476), and is essential to human life. Diversity in the sense of the modern meaning was used in Regents of the University of California v. Bakke, a landmark decision made by the Supreme Court of the United States. Allan Bakke, a white man, sued the University of California after having been rejected for admission to the Davis School of Medicine twice, despite testing higher than some minority students who had been admitted via the racial quotas set by the school. The Supreme Court ruled in favor of Bakke, ruling the quota unconstitutional, and that Bakke be admitted. However, Justice Lewis Powell, Jr. argued that although the racial quota did violate the Civil Rights Act, "the goal of achieving a diverse student body is sufficiently compelling to justify consideration of race in admissions decisions under some circumstances" (Cornell University Law School, n. d.).

Furthermore, in the USA the Genetic Information Nondiscrimination Act was established in 2008, banning discrimination based on genetic information in health insurance and employment fields. Diversity now does not only include the traditional demographical information (such as sex, age, and education) but also psychographic information such as personality traits, life style, and sexual orientation. Diversity drew attention in the USA after the publication of *Workforce 2000: Work and Workers for the 21st Century,* by Johnson and Packer (1987). It estimated the demographics of the workforce in the year 2000, and proposed that the workforce would be older, and have higher participation by women and minorities, resulting in the need for a shift in the employment environment to embrace the change (Figure 1).

The term "Diversity Management" was founded by Roosevelt Thomas (Roosevelt Thomas Consulting & Training, n. d.), who defined diversity as referring to "any collective mixture characterized by differences, similarities, and related tensions and complexities" ("Definitions of Diversity," n. d.) and introduced strategic categories to conduct diversity management:

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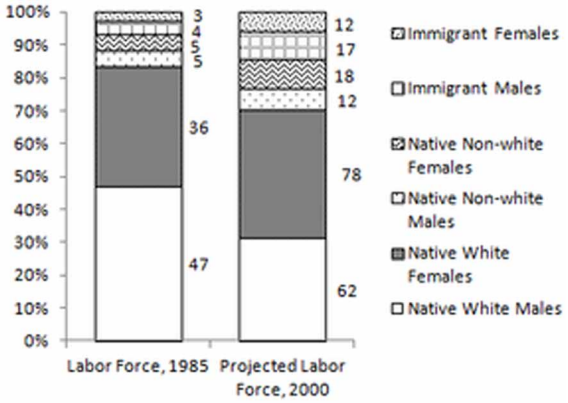
Figure 1. Estimates made in Workforce 2000



1. Managing diverse talent
2. Managing all strategic mixtures
3. Managing relationships
4. Managing representation.

Diversity management in Japan drew attention after 2000 following the establishment of the Equal Employment Opportunity Law of 1986. Diversity management in Japan has focused largely on the employment of women. The Japanese Business Federation's (*Keidanren*, formerly *Nikkeiren*) Diversity Work Rule Collegium defined diversity management as "a strategy to maximize diverse personnel, to take in diverse attributes (such as sex, age, and nationalities), values, and ideas, without being held to previous standards or norms, and meet the changes of the business environment swiftly and flexibly for company growth and personal happiness" (Japanese Ministry of Education, Culture, Science and Technology, 2012).

In recent years, diversity management has finally begun expanding to facilitate the careers of people of all ages, including persons with disabilities (Keidanren, 2016). Negative aspects related to diversity management have also been reported. Ellison and Mullin (2014) compared working environments of men only, women only, and both over a span of eight years, and reported that although diversity enabled 41% more success, individuals were less happy. However, Cox and Blake (1991) supported diversity management's superiority in six fields, specifically, marketing, creativity, problem solving quality, organizational flexibility, cost, and attracting human resources. McMahon (2010) reported that work performance may also be influenced by work environment (i.e., whether or not work the environment is stable), and not just diversity management.

It is important to note that, in some diversity management policies, disability as a dimension of diversity is forgotten. For example, Ball and colleagues (2005) reported that of the top 100 companies on *Fortune Magazine's* 2003 list of the 500 most profitable companies in the nation, a total of 10 companies did not include disability in their diversity policies, despite referencing groups protected by civil rights laws. Numerous state laws in the USA, as well as the Americans with Disabilities Act (ADA) of 1990, as amended have designated persons with disabilities to these protected groups, and therefore should be

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referenced. In reality, even as of 2016, in the diversity section of the Fortune 500 website, there is still only data with regard to gender and race, and persons with disabilities are not mentioned.

Furthermore, we should be aware that the collective group of persons with disabilities is different from other groups related to diversity. There is no "group norm," as they have difficulty having a sense of group membership, and disability in and of itself is very diverse (e.g., physical disability, mental disability, etc.). For example, two people with the same disability may exhibit different symptoms, and their degree of disability will most likely be different as well. Group membership is difficult, not only because disability itself is diverse, but also because some people may feel that the disability is the only element they have in common, and are therefore not members of the same group. In addition, Jones (2002) has pointed out that the desire to be part of a particular group is contingent on the group being viewed as positive. Therefore, group self-identification may be diminished, as discrimination against various disabilities still exit.

On a more fundamental note, the International Classification of Functioning, Disability, and Health (ICF) introduced a basic model of disability, the biopsychosocial model, which synthesizes the medical and social aspects of disability (ICF, 2002). In the medical aspect, the person with the disability requires treatment or intervention to better the individual. The social aspect proposes that society at large is in need of change, and demands environmental accommodation for the individual. Lederer and colleagues (2014) also identified disability in the workplace as "a relational concept resulting from the interaction of multiple dimensions that overlap and influence each other" (p. 259) at the individual, organizational, and societal levels.

Discrimination and prejudices must not be forgotten when discussing persons with disabilities. It may not be difficult to accommodate for a disability that is "visible," but many people have disabilities and/or symptoms that are not "visible" (e.g., mental disabilities). In recent years, the term "neurodiversity" has been created as a dimension of diversity to include individuals with no physical defect or impairment, but do need some accommodation and/or support (in the workplace). This includes individuals with autism and autism spectrum disorder (April 2016). Unfortunately, stereotypes of persons with disabilities not being able to work still exist. Fassinger (2008) stresses that small issues, or micro-inequities (e.g., not being promoted once), lead to bigger problems over time, becoming a cumulative disadvantage (e.g., becoming depressed after not being promoted several times) that needs to be resolved.

The use of a number of interventions, collectively called disability diversity training, is gradually increasin in an effort to reduce such prejudices and improve intergroup relations. However, there is still little empirical data validating the effectiveness of diversity training (Philips, Deiches, Morrison, Chan, & Bezyak, 2016; Horwitz & Horwitz, 2007), and perceptions that people hold prior to training may still persist. Specifically, Rynes and Rosen (1995) reported that only 33% (30% answered quite successful and 3% answered extremely successful) of participants of diversity training believed it would be successful in the long run. These issues will hopefully be addressed in the future.

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EFFECTIVE EMPLOYMENT MANAGEMENT PRACTICES FOR PERSONS WITH DISABILITIES

Disability and Diversity Management in the United States

Attracting and maintaining a diverse workforce is critical in today's competitive labor market. We live in a global and interconnected world in which our workforce is becoming increasingly diverse and that poses both challenges and opportunities for employers. The idea is that having a more diverse workforce helps companies remain competitive. It also helps companies to become more reflective of the diverse communities and the customers they serve. Employers recognize and leverage diversity and inclusion in order to remain competitive and achieve better business results. This is part of building high-performing business organizations. Incorporating disability into companies' diversity and inclusion policies and practices helps employers improve their bottom line (U.S. Business Leadership Network (USBLN), 2012).

Large businesses develop a diversity and inclusion (D&I) strategy and dedicate staff positions to managing the D&I aspect of their business operations. Indeed, the area of "diversity and inclusion" is a relatively new focus for employers, and employers that have D&I personnel are challenged to create clear competencies that individuals in these positions must achieve (Lahiri, 2010). Lahiri discusses the emergence of the D&I practitioners over the last decade and that this has become an important part of companies' strategic global business growth. These practitioners are charged with creating universally designed workplaces that benefit all employees, including people with disabilities, and ultimately the employer.

There is evidence that employers are implementing disability-inclusive practices/policies but more must be done (Erickson, 2013, 2014; Linkow, Barrington, Bruyere, Figueroa, & Wright, 2013; USBLN, 2012; Young & Kan, 2015). Erickson (2013, 2014), for example, based on a survey of 675 HR professionals (23% response rate), identified a range of practices related to recruitment and hiring, accessibility and accommodations, and retention and advancement. More than half of the respondents reported that their organization included people with disabilities in their diversity and inclusion plans (58.8%), required sub-contractors to adhere to non-discrimination requirements (57.2%), and had relationships with community disability organizations (53.9%).

In terms of accessibility and accommodations, nearly three-quarters reported having a designated office or person to address accommodation questions (74.1%). Allowing employees to exceed the maximum medical leave duration as an accommodation (71.2%) and having a grievance procedure to address accommodations issues (65.7%) were the next most often reported practices. Having a return to work or disability management program for employees who are ill/injured or become disabled (76.4%), encouraging flexible work arrangements for all employees (such as flextime, part-time, telecommuting) (56.6%), and encouraging employees to confidentially disclose their disability (in staff surveys for example) (41.0%) were the top three retention and advancement practices reported by Human Resource (HR) professionals.

Erickson concluded that, beyond the most frequently reported practices/policies, a large proportion of employers had not implemented any or only a few of the practices/policies and that more needed to be done (see also Young & Kan, 2015). While the knowledge base on disability-inclusive practices/policies is increasing, little is known about their effectiveness in terms of improving employment outcomes of people with disabilities. Studies have mostly measured effectiveness in terms of perceived effectiveness by HR professionals and others knowledgeable about the practice/policy under investigation (e.g.,

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Erickson, 2013, 2014; Young & Kan, 2015). Erickson, von Schrader, Bruyere, VanLooy, and Matteson (2014), for example, surveyed a total of 339 organizations about 10 disability-specific recruitment and hiring practices/policies. They found that nearly three-quarters had implemented at least one of the ten practices/policies but that there was no large-scale adoption across organizations.

Larger organizations (500+ employees), federal contractors, and non-profit organizations were significantly more likely to implement many of the listed practices/policies than their counterparts. Organizations with a history of hiring people with disabilities were significantly more likely to have each of the listed practices/policies in place compared to organizations without such histories or track records. Conversely, having these practices/policies in place increased the likelihood of organizations hiring people with disabilities. The practices/policies that had the greatest impact on the recruitment and hiring of people with disabilities included (in order): internships for people with disabilities, strong senior management commitment, explicit organizational goals regarding people with disabilities, actively recruiting people with disabilities, including people with disabilities in diversity and inclusion plans, considering people with disabilities' goals in management performance assessment, and relationships with community organizations (see also Young & Kan, 2015).

Measuring effectiveness of disability-inclusive practices/policies is challenging because of voluntary self-identification. The problem with measuring effectiveness is that self-identification is voluntary and that in the absence of disability data on job applicants and employees, employers do not know how they are doing (Young & Kan, 2015). This is particularly challenging for federal contractors. In 2013, the U.S. Department of Labor's Office of Federal Contract Compliance Program passed regulations that, effective March 2014, requires businesses that want to contract with the federal government to fill a total of 7% of their job positions with people with disabilities (U.S. Department of Labor, n. d.). Compliance with this so-called "utilization goal" depends on the self-identification of job applicants/employees and their comfort level.

Despite these challenges, research indicates that some employers are making an effort to track disability data and that they are in a better position to assess effectiveness of their practices/policies compared to their counterparts (e.g., Erickson, von Schrader, Bruyere, & VanLooy, 2014). Erickson et al. (2014), based on a survey of 675 employers about their data collection efforts, found that the majority of employers track general HR data, such as employee performance/productivity (93%), number of work-related injuries (91%) and lost work days (83%). As for disability-specific data, the top three types of data collected by employers were: information on accommodations (32%), number of job applicants hired (29%), and number of job applicants (23%).

Other data points on which employers were less likely to collect disability data included: employment and retention (18%), grievances (17%), compensation equity (14%), and turnover rate (11%). The researchers concluded that "employers are only now beginning to consider inclusion a disability measure among their recruitment, hiring, and retention HR analytics" (p. 12).

Research also indicates that strategies targeted at a particular diverse group of employees may be transferable to other diverse groups (Hall, Boeltzig, Hamner, Timmons, & Fesko, 2006; Timmons, Hall, Fesko, & Migliore, 2011; The National Center on Workforce and Disability/Adult (NCWD/Adult), 2008a, 2008b).

Timmons et al. (2011), for example, studied workplace strategies of U.S. companies seeking to recruit and retain older workers ages 50+. They found that the strategies these companies were using not only benefited older workers but also workers with disabilities. Results were based on interviews with 18 employers (their HR or diversity program representatives) in 13 U.S. states, as well as in-depth case

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studies of 5 of the 18 companies. Transferable recruitment strategies included: employee referral, collaboration with community partners, recruitment from a volunteer pool, formal recruitment programs among businesses, and placement agencies focused on specific populations. Transferable retention strategies included: job flexibility, comprehensive benefits packages that go beyond standard health and pension components, professional growth and development opportunities, and other workplace accommodations, such as physical modifications.

DISCUSSION

Based on this work, the researchers identified characteristics of a universally designed workplace that benefits all employees. Originally developed to promote architectural access for people with disabilities, universal design refers to the "design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialization" (Definition by Roy L. Mace, The Center for Universal Design). Timmons et al. (2011) identified a total of six characteristics of a universally designed workplace: 1) creating an inclusive organizational culture, 2) flexible workplace policies and practices, 3) effective supervision and management, 4) a welcoming and accessible environment, 5) clear and consistent communication, and 6) recruiting, hiring, orienting, and maintaining a diverse workforce that maximizes each employee's performance. There is evidence that companies both in the USA (Linkow et al., 2013) and Japan (Hirano, Matsumoto, & Nose, 2004) are incorporating a focus on universal design into their operations. Future research should investigate these employer efforts and evaluate them in terms of their effectiveness in increasing workplace access for all.

A REVIEW OF EVIDENCE OF VOCATIONAL REHABILITATION IN JAPAN

Introduction and Background

In recent years, the number of individuals with disabilities working in companies in Japan has increased due to systems that assist people with disabilities and improvement of employment support services (Conference on community employment support, 2014). However, many problems have been highlighted regarding community employment support (Conference on the promotion of employment of people with disabilities though the cooperation of welfare, education, 2007). Low competitive employment rates (i.e., employment in companies and not welfare institutions) and low employment transition rates (i.e., ratio of transition from welfare education services to employment) for people with disabilities in welfare and education institutions have been reported (Ministry of Health, Labour, and Welfare, 2014).

Therefore, in order to facilitate the employment of people with disabilities and promote diversity in companies, more effective practices regarding transition from work preparation to employment, and accommodation of a long-term support system after obtaining employment is required from healthcare, welfare, and education related fields. Such a transition to employment from healthcare, welfare, and education fields requires effort from labor field supporters, who specialize in the understanding of labor markets and companies. More specifically, labor field supporters are staff members from the National

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Institute of Vocational Rehabilitation, the Public Employment Security Office, and employment support institutions. However, the effect of "employment support" in such related fields has yet to be organized, except for some Individual Placement and Support (IPS) approaches in mental health fields (Haruna & Tomei, 2012).

Based on the above, this section's objective is to organize known effective approaches of the broadly interpreted "employment support" practiced in Japan, from studies and research, as evidence of vocational rehabilitation, and provide background information of employment management for individuals with disabilities to companies and government organizations.

Method

Related literature in both English and Japanese were gathered and analyzed for this literature review. Specifically, for employment support in Japan, a full-text search was conducted on 17th June 2014 using the NDL-OPAC (National Diet Library) and CiNii (National Institute of Informatics) databases. Search terms are given in Table 1. Literature searches were also conducted using the academic journal "Vocational Rehabilitation" and proceedings of the conference on vocational rehabilitation research (Japan Organization for Employment of the Elderly, Persons with Disabilities and Job Seekers). Literature search was restricted to literature published after 2006. Only quantitative studies were selected after reviewing either abstract or full manuscript.

Table 1. Search terms

Field	Search Term Combination
Healthcare	(employment support or vocational rehabilitation) and (medical care or hospital or health)
Welfare	(employment support or vocational rehabilitation) and (welfare or employment transition or sustained employment)
Education	(disability or disability*) and (employment support or vocational rehabilitation or career education or career counseling) and (education or special needs)

*Although both words here are "disability," we used different characters in Japanese to expand search results.

Next, a hand search of the extracted literature and cited literature was conducted, and the approaches of employment support in each field were analyzed. In this review, we interpreted "employment support" broadly, and extracted approaches based on the hierarchy structure of individual characteristics on employment, proposed by Matsui (2004), that had an effect on employment. The hierarchy structures were "performance of duties," "performance of vocational life," "performance of daily life," and "management of disease/disorder."

Approaches of "Employment Support" in Each Field

The approaches extracted from literature were organized by the type of disability covered and by the level of evidence. Categorization of the level of evidence was based on that of the Agency for Health Care Policy and Research (AHCPR, 1993; see Table 2).

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Table 2. Levels of evidence and content

Ia	Meta-analysis
Ib	Randomized controlled trial
IIa	Well controlled study without randomization
IIb	Well-designed quasi-experimental study
III	Non-experimental descriptive studies (comparative studies, correlation studies)
IV	Expert committee opinion, and/or clinical experience of respected authorities

Furthermore, prospective studies with intervention were categorized as IIb, and cross-sectional studies with no intervention as III. Results are shown in Table 3. Each disability was counted, even when more than one type of disability was covered. With regards to the type of disability covered, mental disorders and higher brain dysfunction was most prevalent in the healthcare field, all disabilities and mental disorders in the welfare field, and all disabilities and intellectual disability was most prevalent in the education field. With regards to the level of evidence, studies of levels IIa, IIb, and III were most prevalent in the healthcare field, studies of levels IIb in the welfare field, and studies of levels III and IV were most prevalent in the education field. In general, many studies of levels IV and below, such as practical studies, were reported.

Table 3. Overview of approach of each field

Literature		**Field**			
		Healthcare	**Welfare**	**Education**	**Other**
Number of Literature		30	50	78	11
Number of approach		30	54	141	11
Disability	All disabilities	0	12	37	3
	Physical	3	2	12	0
	Intellectual	0	4	32	0
	Mental	16	14	0	3
	Higher brain dysfunction	9	2	0	3
	Developmental	2	6	13	1
	Intractable disease	1	1	1	0
	Co-occurring	0	0	2	0
	Unknown	1	14	30	1
	Other	-	-	17	-
Level of evidence	IIa	1	0	0	0
	IIb	2	2	0	0
	III	4	0	1	2
	IV	0	0	12	0
	Other (Practical study, etc.)	23	52	128	9

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Table 4 shows the overview of studies that were categorized as level a or b, with clear intervention methods and effects. In the healthcare field, various approaches were conducted alongside drug treatment. As a result, improvement was seen in more fundamental elements to facilitate employment that were related to "management of disease/disorder," such cognitive functions and symptoms. In the welfare field, a more comprehensive employment support program was implemented. As a result, approach was associated with more practical elements such as "performance of duties" and "performance of work achievements" (specifically employment rates work duties).

Table 4. Summary of high evidence level research

Author	Participants	Study design	Intervention	Results
Sato et al (2014)	109 patients with schizophrenia spectrum disorder	Non-randomized controlled trial	Cognitive Rehabilitation: Training using computers (cognitive rehabilitation and supported employment group; 52 people, supported employment group; 57 people)	Verbal memory, psychiatric symptoms, interpersonal relationships, social functions, and cognitive functions significantly improved. However, the groups did not differ significantly in employment rate and wages earned.
Tashiro et al (2013)	12 patients with depression remission	One group pre-test, post-test	Integrated Return to work Support Program (IRSP): 30 subprograms such as Bright Light Therapy, Exercise Therapy, Cognitive Therapy, Behavioral Therapy, and Social Life Program Therapy was conducted for 6.5 hours every day.	Return to work/Employment rate was 100%, relapse/exacerbation rate was 0% 4-38 months after the program. Significant improvement was seen for depression assessment indexes (HAM-D17, BDI-II).
Tajima et al (2010)	55 people taking a leave of absence due to depression	One group pre-test, post-test	Group Cognitive Behavioral Therapy (GCBT) to return to work: Strengthen return to work readiness by learning the basis of CBT, was conducted 9 times, each time was 100 minutes a week.	Significant improvement was seen for dysphoria symptoms (BDI-II), nonfunctional cognition (DAS24-J), and self-esteem (SE).
Kitagwa et al (2011)	28 patients with depression	One group pre-test, post-test	Return to work Support Program: 12 weeks of Cognitive Rehabilitation, 12-16 weeks of Work Therapy, 12 weeks, 60 minutes a week of GCBT.	Cognitive function tests (such as WCST, TMT-A, and ALVT) significantly improved. Of 29 different patients, 21 returned to work within a year after finishing the program (72.4%), and 5 relapsed/exacerbated within a year after finishing the program (17.2%).
National Institute of Vocational Rehabilitation (2011)	90 patients with intractable diseases	Prospective study	Intractable disease model project: Coherent approach such as job preparation, employment, job adjustment sustaining employment, and career-building. Peer and/or advocate group counseling, employment seminars were also conducted.	Employment using Promotion of Employment of Persons with Disabilities Act was significantly greater. Work-related problems were significantly related to approaches.
	34 people with developmental disorders	Prospective study	Developmental disorder model project: Work support such as accompanying to work, on-the-job training, employment seminars.	General work-related problems were significantly related to various approaches.

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Discussion

Regarding the method of employment support for the employment of people with disabilities, "employment support" in healthcare, welfare, and education fields was related to the expertise of each field. Furthermore, characteristics of disability covered by each field were also implicated. Concerning the level of evidence, some experimental design studies were found in healthcare and welfare fields. However, many studies were individual observations (such as practical/case studies) and were at the "building specialist consensus stage" (i.e., creating definitions). Studies examining the effect of employment support with higher levels of evidence are needed in the future.

As for the implications for employment management of people with disabilities, there were many studies (a total of four studies describing support for people with mental disorders in medical institutions) as evidence of support methods confirmed in this section. Further, the content of the support improved mental symptoms, cognitive functions, and other functions, through individual/group training and numerous other programs. All support in medical institutions was found in training or programs prior to employment/rehabilitation.

From the results of this review, support directly related to employment management of people with disabilities in organizations could not be found. However, many psychiatric diseases are chronic, and even those that are not chronic, still require some ongoing support. Therefore, medical treatment and/or support are still needed after obtaining a job in companies. Hence, organizations employing people with disorders accommodating considerations for hospital visits, and constructing a system so that organizations can ask for help or support when needed, may be considered effective for people with mental disorders to experience stable and long-term employment.

Research from the National Institute of Vocational Rehabilitation implicated ongoing efforts and counseling, from before to after employment, would improve work issues for people with intractable diseases and developmental disorders. It would seem that workers receiving ongoing and comprehensive support from employment support institutions would face fewer problems related to employment. Therefore, it would be effective for companies to actively encourage individuals with disabilities who want employment/rehabilitation to use such services of employment support institutions.

A REVIEW OF EMPLOYMENT PRACTICES FOR PERSONS WITH DEVELOPMENTAL DISABILITIES IN JAPAN

Introduction and Background

As mentioned above, "Universal Design" is an approach for diversity management. For example, creating a cognitive disability-friendly workplace can lead to a workplace that has low cognitive load for all employees. Overall, companies should strive to construct a work environment that "enables every member of the work force to perform to his or her potential" (Arimura, 2009). In this section, we focus on developmental disorder as an example of cognitive disability. By reviewing research on employment management examples in Japan, we wish to provide evidence that cognitive disability-friendly management results in diversity management.

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Method

We searched for studies that focused primarily on employment management procedures for individuals with developmental disorders. To do so, we used the search terms "Developmental Disorders" and "Employment Management" using the database CiNii (http://ci.nii.ac.jp/). Four studies were identified; however, one (Ayukawa, 2011) was excluded from analysis because the study focused on procedures of legal employment management.

Results

Aoki (2008) reported an example of employment management of an employee diagnosed with Asperger's syndrome. The management technique described can be classified into four categories: "Consideration for imagination disorder," "Consideration for cognitive load," "Construction of a support system," and "Management of motivation." It is difficult for individuals with autism spectrum disorders, including Asperger's syndrome, to deal with vagueness and an undecided future. These individuals find it difficult to resolve vagueness with imagination. To address "Consideration for imagination disorder," management carried out at least five interviews, and talked about working conditions repeatedly, to fill the gap between the actual workplace environment and what the employee with Asperger's syndrome thought.

In addition, management visualized information using pictures and documents, as well as oral explanation, when they instructed duties or suggested an improvement of duties, and avoided sudden changes or addition of duties. "Consideration for cognitive load" means controlling the quantity of information handled at one time, and attempting to lower the load of information processed in the brain. Considering cognitive load becomes important because some people with developmental disorders have difficulty processing numerous information sources at one time. Specifically, management assigned one, and only one supervisor to a person with developmental disabilities to instruct any and all duties. They also gradually increased work difficulty, starting with easy tasks, and gradually extending work hours (starting with 5–6 hours), depending on the degree of achievement.

In addition, management facilitated the acquisition of supplemental means to reduce recognition load by instructing employees with disabilities to write down work content, work points, and questions. To address "Construction of a support system," management emphasized enhancing the employee's strengths, explained the characteristics of the employee's disability to neighboring employees, and created a notebook to facilitate communication between the company and employee's home, when needed. The fourth category, "Management of motivation," was the employment management technique that Aoki regarded as most important. There are people with developmental disorders who have a strong unease for work because they did not receive appropriate support in school life, and experienced numerous failures.

Therefore, it is important for the employee him/herself to steadily acquire successful experiences in his/her career, to enhance self-esteem, while also being aware that "he/she is a valuable member of the workforce to both the company and themselves" (Aoki, 2008). Aoki introduced examples such as commending the employee for achievements, promoting awareness as part of the company by giving the employee a business card, comparing the employee's past and present achievements at regular intervals to increase the employee's confidence, and making it easy to experience success by creating aims that he/she can definitely accomplish.

Sano (2011) pointed out that people with autism spectrum disorder were not suitable for customer duties. In addition, he stated that consideration for communication was "key to continue working,"

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because relationships are also necessary in line work found in the manufacturing industry. He insisted on consideration for cognitive load by assigning a job coach and restricting work at the beginning and gradually increasing it. People with autism spectrum disorder tend to have a limited range of interests, so it is comparatively easy to strengthen such areas, while it is difficult to strengthen areas outside of this range, because they feel distress in making such efforts. Sano, as well as Yamada (2014), pointed out that approaches that maximize his/her strengths are more effective than emphasizing the overcoming of weaker characteristics (e.g., communication).

Takezawa (2015) extracted a total of 33 instances of people with developmental disorders from a database that recorded employment examples of people with disabilities. Six categories were found for employment management: "The allotment of duties that maximize the employee's strength," "Consideration for communication," "Consideration for imagination," "Visual support," "Consideration for mental health," and "Construction of a sustainable support system for sharing information." These categories are similar to that from previous studies. "The allotment of duties that maximize the employee's strength" means assigning duties that capitalize on employee strengths.

As Sano (2011) previously pointed out, people with autism spectrum disorder have a limited range of interest. However, their knowledge on the domain of interest tends to be far richer than people without developmental disorders. Maximizing this wealth of knowledge in the workplace would be Yamada's (2014) "approach to maximize strengths." More specifically, Takezawa reports an example of an employee with developmental disorders who had "persistence to follow a certain procedure" be assigned office work, such as confirming monthly attendance records and requests. Such work that requires the employee to follow a certain procedure was performed better, more precisely, and was enjoyed more than other employees who would have found the work too monotonous and/or uninteresting.

With respect to "Consideration for communication," examples included permitting an earlier break time that did not overlap with other employees, for those that were uncomfortable with communicating with other employees. Communication for people with developmental disorders falls under the area Sano (2011) stressed as "weaker characteristics that are hard to strengthen." Rather than expect the employee to resolve issues on communication, it is fundamental to build a workplace environment that prevents such trouble from occurring in the first place. With respect to "Consideration for imagination" and "Visual support," similar considerations were reported as those that Aoki suggested in "Consideration for imagination disorder" and "Consideration for cognitive load." With regard to "Consideration for mental health," similar considerations were reported as those Aoki pointed out in "Management of motivation."

However, some individuals with developmental disorders gain high academic achievement in school life, and they are resistant towards receiving support in their work life. In that case, Takezawa suggests the need to assign duties that give a sense of accomplishment, along with subtle consideration as it becomes necessary. With respect to "Construction of a sustainable support system for sharing information," an example of cooperation with job support organizations was extracted, in addition to the cooperation with home that Aoki highlighted.

In the above-mentioned review, accommodation of nonphysical workplace environment was examined, such as how to assign duties, how to instruct duties, and building a social support network. However, consideration for employees with developmental disorders is also possible by accommodating the physical workplace environment. An example of such physical accommodation is "Job-Related Assistive Technologies." However, assistive technologies for people with developmental disorders are hardly known in Japan. Actually, in the above-mentioned CiNii database, there were no hits when we entered the search terms "Developmental Disorders" and "Job-Related Assistive Technologies."

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Only one study (Enomoto, Ishiwata, & Inoue, 2013) was significant with the search terms "Developmental Disorders" and "Technologies." Enomoto et al. (2013) investigated the use of job-related assistive technologies in 503 business establishments which had received commendation on the employment of people with disabilities. Of the 29 locations that replied, none had implemented the use of job-related assistive technologies. Meanwhile, active development of job-related assistive technologies for people with developmental disorders is happening abroad. For example, Montgomey, Storey, Post, et al. (2011) reported an employee with autism spectrum disorder who had difficulties memorizing job goals, used a system that alerted job goals by sound at regular time intervals (e.g. "Did you finish wiping the table?").

As a result, the employee was less likely to be told by other staff members to work more, and ultimately, work time of the employee increased. Kandalaft et al. (2013) reported that performance of judging emotions from others' facial expressions and voice improved for people with autism spectrum disorders after social skill training, such as practicing a job interview using virtual reality. In recent years, a meta study (Lang et al., 2014) on assistive technologies for people with autism spectrum disorders has appeared. However, in the study group reviewed, research remains at the evidence level of the comparison of pre-to-post assistive technology use. In other words, in the present conditions, accumulation of evidence is not yet adequate.

Discussion

As a result of the review of management procedures for people with developmental disorders in Japan, although examples of effective employment management techniques were found, it is clear that objective inspection of effects has not yet been performed. Additionally, job-related assistive technologies have failed to attract attention as an object of study. However, despite case study-like examination, it is easy to imagine that the introduced employment management techniques may effectively function not only for people with developmental disorders, but also for people without developmental disorders.

For example, techniques of how to instruct duties to an employee with developmental disorders that are easy to recognize (e.g., "Instruct each duty after having prioritized it," "Instruct the next work after one is completed and do not convey vague plans") would also be easy for individuals without developmental disorders to recognize. Therefore, constructing an effective management procedure method for employees with cognitive disorders leads to clarifying a workplace environment where cognitive load is lessened for all employees. It is necessary to clarify the effect of management procedures for people with cognitive disorders, by conducting a high-level research design, which would lead to universally designing the workplace environment and contribute to diversity management.

BEST PRACTICES IN WORKPLACE IMPROVEMENT FOR PERSONS WITH DISABILITIES IN JAPAN

Introduction and Background

In addition to evidence provided by empirical research, case studies of actual work places describing effective management of individuals with disabilities are also informative. The proceedings of workplace improvement case studies, annually issued by the Japan Organization for Employment of the Elderly, Persons with Disabilities and Job Seekers (JEED), provides helpful, effective management strategies for

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use in the workplace. JEED is an organization that facilitates employment of people with disabilities as stipulated by the Promotion of Employment of Persons with Disabilities Act.

JEED is a quasi-official organization that offers free employment support services to people with disabilities, companies, and related organizations. JEED recruits successful workplace case studies of various improvement/efforts, such as employment management and workplace environment accommodation for people with disabilities, to publish, and commends the most outstanding case example, in order to promote employment and job retention. A total of 19 issues have been published from 1992 to 2015, with the best company approaches and useful tools for the employment of people with disabilities awarded the outstanding performance and encouragement awards.

Objective and Method

Based on the above background, this section's objective is to provide background information of effective employment management of people with disabilities by introducing successful case studies of workplace improvement in companies of Japan. Outlines are given of successful workplace improvement case studies from 2004 to 2015 that were awarded the highest award and are posted on the JEED website.

Results

Practice 1: Approaches for People With Disabilities That Experience More Difficulty in Employment: Individuals With Mental Disorders, Developmental Disorders, and Higher Brain Dysfunction

Here we introduce approaches of job retention for people with mental and developmental disorders, conducted by an insurance special subsidiary company (JEED, 2016). A special subsidiary company is defined as a company that has adopted a system of special considerations for people with disorders, and meets certain requirements. Workers employed in the subsidiary company can be ascribed to the parent company, and are calculated in the parent company's employment rate. Duties performed by employees in this subsidiary company were office work for the parent company, such as using computers and organizing paper work. The company's case example of improvement was as follows.

For an employee with mental disorders, the company understood his/her characteristics and made appropriate assignment transfers. His/her superior offered support, after building trust by creating a comfortable environment for him/her to seek guidance, and talking to him/her on a daily basis, enabling him/her to further his/her career. For an employee with higher brain dysfunction, work accuracy improved after understanding his/her characteristics and practicing appropriate accommodation. For an employee with developmental disorders, support from his/her superiors and senior colleagues enabled a system where he/she could perform to his/her full potential.

Efforts made in this company included all employees understanding each other's disabilities to construct support networks inside and outside the company; one-on-one advice from senior colleagues and training workshops/liaison meetings for senior colleagues; strengthening of cooperation between employment support institutions, medical institutions, and families; and strengthening systems by accumulating accommodation techniques into "human care examples" books. As a result of these approaches, 37 employees with mental disorders retained their jobs. They were able to work with confidence, were

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motivated to try new assignments, expanded their work, displayed a decrease in mistakes, and their time management skills improved.

Practice 2: Approaches to Issues People With Disabilities Face: Career Building and Aging

Here we introduce approaches conducted by a department store special subsidiary company that improved selling efficiency and created assignments by constructing an employment management system for people with disabilities (JEED, 2013). Duties performed by people with disorders here were light duties, such as box folding, writing expense sheets, sealing/stamping documents, printing, bookbinding, stocking shelves, and labeling. Approaches conducted here included creating in-house assignments by breaking down and reconstructing existing assignments; practicing duties anchored by employees with disabilities; maintaining training workshops for employees with disabilities; improving communication skills of employees with disabilities; and support from in-house job coaches.

Specifically, in-house personnel were appointed to be in charge of employees with disabilities, and created light assignments by breaking down and reconstructing existing assignments previously conducted by each store between distributions. As a result, the burden for each sales person was reduced and selling efficiency improved. Additionally, a work procedure was determined through discussion within teams, and skill improvement was conducted based on work in which each employee was already excelled. As a result, employee's confidence and motivation improved. On some occasions, "on-the-job training in other companies" was set up for employees with developmental disorders.

As a result, employees were able to rediscover their own issues and goals, which improved their ability to adapt during work. To improve communication, employees took initiative in explaining and instructing work, and using the cafeteria when students from special needs schools and university students came for job training. As a result, employees developed awareness and a sense of responsibility as personnel in charge of job training, as well as natural improvement of communication skills through the accumulation of these experiences. In-house job coaches also supported the independence of employees with disabilities, and helped employees adjust their own assignments themselves. This lead to an improvement in the trust of clientele, because employees were able to perform business transactions single-handedly. Employees also acquired the skills to voluntarily resolve problems on-site, without the support of job coaches.

Practice 3: Approaches for People With Hearing Disabilities

Here we introduce approaches conducted by a department store that increased work by developing job fields for people with disabilities (JEED, 2009). Duties performed by people with hearing disability were checking quality, writing expense sheets, and putting price tags on expensive merchandise, such as clocks and jewelry. Approaches included developing new job fields focused on the strengths of people with hearing disability; using support systems designed for job retention; creating a task manual to increase task efficiency; developing skills; supporting communication; and environmental accommodation and safety management using subsidies.

In further detail, all quality checks of group businesses were assigned to employees with hearing disability, focusing on their superior concentration and accuracy. By matching the strengths of people with hearing disability and task content, task efficiency of group business increased. This led to more new

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job contracts. Additionally, effective assessment of compatibility between the company and the person with the disability became possible by using a trial employment system before official employment. Moreover, all people with hearing disability participated in creating a task manual, that explained all task flow photographically, and all characters had phonetics to make it easier to read.

As a result, tasks were standardized and accuracy increased. Productivity and goal management was conducted through "self-assessment tables" and "performance assessment tables." Based on the data, successful employees were rewarded, while less successful were provided guidance. As a result, employee's skills improved and the working level as a whole improved. In addition, meetings/training workshops took place every Saturday to acquire job knowledge/skill and improve working levels. Furthermore, a sign language dictionary was created for 100 technical terms that previously did not have sign phrases, and a sign language translator was dispatched using subsidies.

The company also spread awareness by having sign language courses for employees with no hearing disability. Efforts focusing on sign language improved sign language skills of employees with no hearing disability, and smooth communication became possible without a translator to mediate. Electronic panels, patlites, and flashlights were also installed using subsidies. By conducting evacuation drills using these, an environment where people with hearing disability could work safely was accommodated.

Discussion

This section introduced three successful case studies of work place improvement in companies. Although we only introduced three examples, many more efforts have been conducted by various types of businesses. In the three examples introduced, a wide range of management efforts, tailored to the company situation, task content, and characteristics and strengths of people with disabilities, were conducted. In addition, two of the examples were special subsidiary companies. A special subsidiary company is a system unique to Japan, which a parent company sets up to accommodate people with disabilities independently from the parent company.

Therefore, the majority of the employees in special subsidiary companies are people with disabilities. From the perspective of aiming toward competitive employment of the USA, employment in special subsidiary companies may be perceived as discriminatory, and this cannot be completely denied. Further examination and discussion is needed after an accurate understanding of working conditions in special subsidiary accompanies. However, as introduced in the case studies, by demonstrating the strengths of special subsidiary companies, such as accommodating people with disabilities and sensitive long-term efforts, implementation has facilitated the employment where people with disabilities were able to work safely.

Many commonalities were found with customized employment in the USA. That is, matching employee characteristics and tasks, creating assignments by breaking down and reconstructing existing assignments, and contributing to companies through productivity and task effectiveness. Although customized employment in the USA is workplace cultivation before job application, the examples in Japan introduced here can be perceived as customized employment within the company with affirmative action (i.e., an employment rate system, special subsidiary company) after employment. This difference may reflect the different culture between Japan and U.S. companies, and the different employment rate system for people with disabilities.

Efforts made in the given case studies included employees with disabilities supporting each other, improving independence and confidence, and creating a manual, with people with disabilities taking

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lead. These efforts could lead to peer-support and empowerment of people with disabilities, and are important efforts for the recovery and rehabilitation of people with disabilities, as well as improving employment management and productivity. In addition, support from superiors and senior colleagues, training workshops and spreading awareness to employees with no disabilities, and support from peers, were also reported. These are all efforts for standardization of natural support in supported employment.

Although there was no verification through research, and levels of evidence were low, many of the efforts of employment management of people with disabilities were confirmed and effectiveness was implicated, in the case studies introduced. Management of people with disabilities in other companies may move forward effectively by using these case studies as a reference. However, limitations include no objective verification, and caution is needed, as the case studies reported were efforts that were awarded, and made by forward-thinking, highly motivated companies, and therefore do not reflect average efforts. Conducting objective research on organizational/individual factors, and the effect of people with disabilities/organization on management is important in the future. As a result, standardization and generalization of employment management, and improvement of the quality of employment management for society as a whole, is expected.

GENERAL DISCUSSION

Clarifying what an effective diversity management for people with disabilities in the workplace was the main issue raised in this study. In order to clarify this issue, we reviewed studies/practice outcomes on employment management of people with disabilities in the USA and Japan. As a result, improvement in productivity, and characteristics of universal design for employment management in U.S. companies was confirmed. In addition, treatment, training, and support services from case studies of employment support and other related organizations in Japan were also reported. Thus, many U.S. studies reported meso-level studies focused on organizations and management, and their efforts were not restricted to people with disabilities, but seem to discuss effective employment management that may be applicable to all employees.

Conversely, many studies in Japan were micro-level studies which were focused on the person with the disability, and almost no studies had a universal perspective akin to the U.S. studies, but discussed employment management, medical care, education, and employment support services for people with disabilities. By integrating information from Japan and the U.S., meso-level and micro-level methods of support and the whole concept of organization/workplace employment management for people with disabilities that may be highly effective, was implicated. Macro-level influences, such as bills and systems of international organizations, as well as country, county, and local government bodies, should also be examined.

Limitations include the review of studies on employment management of people with disabilities in the USA and Japan from a certain perspective, and thus, do not cover all studies. Studies on employment of people with disabilities are conducted in many fields, such as various fields of psychology, welfare, labor policies, and rehabilitation, making it difficult to cover studies from all fields. Many studies in Japan were case studies and few studies had high levels of evidence. In addition, most of the studies reported in Japan focused on support organizations, and very few focused on organization and management of companies. Furthermore, in both Japan and the U.S., there seems to be no consensus yet on whether diversity including people with disabilities is effective for management. However, promoting employ-

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ment of people with disabilities from a macro-level perspective, such as through social and employment policies would be important.

FUTURE RESEARCH DIRECTIONS

For further research, macro-level, micro-level, and meso-level efforts on effective employment management for people with disabilities from an organizational management perspective, and verification using experimental data is important. More specifically, international trends regarding the rights of people with disabilities, and influences of systems and policies of each country, need to be considered in macro-level studies; examination of effects of management policies/systems of company organizations are needed for meso-level studies; and factors of managers, administrators, superiors, peers, and employees with disabilities, and efforts made on-the-spot are needed for micro-level studies.

Hard and soft accommodation for people with disabilities can lead to a safe and efficient work environment for employees without disabilities. Therefore, examining the achievement attained from the employment of people with disabilities studies with the framework of universal design is possible. These universal designs are not only essential knowledge for employees, but also for managers and administrators of the modern labor market, which is inevitably becoming more diverse (gender, age, race, etc.), due to internationalization and a decrease in the labor force.

CONCLUSION

This chapter clarified effective methods of employment of people with disabilities, an attribute of diversity, by reviewing literature of the USA and Japan. As a result of the review, the following emerged as effective employment management practices. That is to say that affirmative action and reasonable accommodation, such as employment quotas and special subsidiary companies for people with disabilities, were confirmed to be effective at the macro-level; mission and systems of organizations/workplaces, soft and hard environmental accommodations, and a cooperation system between support institutions and families were confirmed to be effective at the meso-level; and natural support from superiors and peers in the workplace, and creating task manuals and tools were confirmed to be effective at the micro-level.

The following emerged as successful examples of employment management for persons with disabilities introduced in companies: (1) matching appropriate tasks (with strengths and characteristics, and creating assignments), (2) consideration for a variety of aspects (communication, imagination, mental health, cognitive load, motivation, task efficiency, independence, and developing skills), (3) accumulating knowledge for support, (4) constructing a support system (both inside and outside the workplace, and building trust so it is easy to ask for advice), and (5) well-equipped environment and safety measures.

These efforts had many commonalities with achievements of customized employment of the USA and supported employment in both the USA and Japan. In order to promote such company employment of people with disabilities, and guarantee work quality, efforts of the company alone is not enough. Governments and employment support organizations will need to support companies and contribute to practical management. Furthermore, experimental verification of employment of people with disabilities is hoped for in the future. From a philosophical standpoint, it is clear that promoting employment for people with disabilities is important for the independence and rights of people with disabilities.

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However, in order for companies to employ people with disabilities, employ them long-term, and expand, it is essential for employees with disabilities to contribute to the organization/management, and for it not to be considered a social contribution or paternalistic employment. For that, realizing a society where people with disabilities can perform to their best abilities and strengths is needed. Additionally, it is essential for governments and employment support organizations to support companies and work together with them. A workplace where employees with disabilities can perform to their full potential is also a pleasant workplace for employees without disabilities. Therefore, effective universal employment management will contribute to employees succeeding, regardless of disability, and enhance the development/continuation of companies and career advancement of workers.

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KEY TERMS AND DEFINITIONS

Diversity: Any dimension of attributes one may have.

Employment First: A U.S. movement of employment support for persons with disabilities, where integrated employment is preferred over welfare-based employment.

Natural Support: Providing natural or planned support to persons with disabilities in the workplace.

Special Subsidiary Company: A company that has special accommodations for persons with disabilities using a system unique to Japan. The employment rate of persons with disabilities is calculated in the parent company's employment rate.

Universal Design: Design of an environment that is user-friendly to a diverse population.

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Section 5

Organizational and Social Implications

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Chapter 74
Play-Based Bereavement Centers for Children and Families

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ABSTRACT

This chapter outlines the structure and therapeutic foundation for a play-based bereavement center geared toward children and families experiencing grief. Organizational structure and duties are discussed along with information regarding developing a playful facility including art/expressive writing, music, drama, symbolic play, and emotional regulation and release therapeutic opportunities. The author focuses on the supervision and training of community volunteers and counselors-in-training to increase positive outcomes and drive sustainability.

INTRODUCTION

In recent years, services for bereaved children have increased; however, most communities still lack appropriate resources for this specific population. Bereavement-based play therapy clinics can be a viable and sustainable option for most communities to fill this need. Bereavement-based play therapy clinics differ from non-bereavement counseling clinics in the depth of grief services provided by specialty staff in an environment which supports connection, wonder, and the supportive, playful exploration of grief and the soul's journey.

While the precise number of children impacted by bereavement is unknown, "an estimated 1 out of 15 children in the U.S. will experience the death of a parent or sibling before they reach the age of 18" (Judi's House/JAG Institute, 2018). It is also difficult to identify reliable statistics regarding the number of children who experience the loss of any significant loved one before adulthood; even the term "significant" is nebulous and subject to debate as family structures vary considerably. The pain and impacts

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associated with childhood grief, on the other hand, are evident. Short-term impacts on bereaved children may include increased behavioral and academic issues (Holland, 2001; Worden, 1996), reduced self-esteem, symptoms of depression and anxiety, psychosomatic complaints, and physical illness (Worden, 1996), while long-term impacts may include attachment issues (Field & Filanosky, 2010), substance use and related disorders (Holland, 2001), along with anxiety, depression, and other psychiatric and behavioral disorders (Worden, 1996) which may continue into adulthood. According to Dowdney (2000), the majority of children return to baseline functioning within one year, with only an approximated 20% of children requiring mental health intervention. Fortunately, even brief bereavement support after the loss of a parent is shown to reduce the likelihood of severe long-term issues (Bergman, Axberg, & Hanson, 2017). Bereavement support may occur in many formats to include individual, family, and group therapy.

Grief support groups are the most widely cited form of bereavement support (Bergman et al., 2017) and have been shown to reduce isolation and provide a vital support network (Leick & Davidsen-Nielsen, 1991; Hopmeyer & Werk, 1994; Siddaway, Wood, Schulz, & Trickey, 2015), reduce educational issues and behavioral concerns in youth (Tonkins & Lambert, 1996), improve sense of self, and increase resiliency. The group setting provides a space for children to learn about grief and connect with other bereaved children, thereby normalizing their experiences (Siddaway et al., 2015). From a social learning perspective, observational experiences encourage growth through vicarious learning and processing. For many children, this experience returns the child to a sense of normalcy in peer groups, creating a sense of belonging, a vital aspect of child development. Moreover, peer support groups may serve as additional support for caregivers who are unable to provide children with the support needed due to the weight of their own grief (Dopp & Cain, 2012). Therefore, grief support groups may also provide a sacred and supportive space for children to share emotions and thoughts which may make family members and other non-grievers uncomfortable (Worden, 1996).

This chapter explores various options for the structure and therapeutic foundation of bereavement-based play therapy clinics geared toward children experiencing grief with an emphasis on group play therapy.

Play Therapy and Bereavement

Children experience and process bereavement differently from their adult counterparts (Cohen, Mannarino, & Knudsen, 2004; Webb, 2003); therefore, clinicians must carefully consider a child's developmental level before applying interventions. Based on their developmental level, children may be unable to cognitively understand the process and permanency of death (Crenshaw, 1995) or verbally express their emotions (Landreth, 2012). Moreover, current literature suggests children with trauma histories, such as traumatic bereavement, may have inhibited language capacity and ability to verbally process traumatic events (Porges, 2011; Van der Kolk, 2015). For these reasons, children are more likely to process grief through symbolic representation and metaphor (Creshaw, 1995; Webb, 2003), which naturally occurs during the process of play therapy.

Play therapy is developmentally matched to meet the complex emotional needs of grieving children (Creshaw, 1995; Webb, 2003). Because play is considered the universal language of children (Landreth, 2012), it is a natural medium for problem-solving and self-soothing. Play therapy provides children the opportunity to process and play out their feelings and experiences, including grief, using their natural language (Axline, 1969; Kottman & Meany-Walen, 2015; Landreth, 2012). Through metaphors and stories, children project and explore life, death, abandonment, and grief without directly talking about

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the experience (Green & Connolly, 2009). Webb (2003) suggests play therapy is effective for individuals, groups, and families, and it is the optimal therapy for bereaved children.

Play therapists align with a range of theoretical orientations; however, there is currently no evidence to indicate that any specific theoretical orientations are superior when working with grieving children. Despite a lack of empirical evidence in support of specified theoretical orientations, it appears that non-directive play therapy approaches are favored when working with grieving children (Green & Connolly, 2009; Webb, 2003), particularly during the early phases of the therapeutic process. The literature consistently highlights the importance of establishing a safe, trusting relationship (Green & Connolly, 2009; Landreth, 2012; Webb, 2003) and providing children the opportunity to explore and express feelings associated with grief (Green & Connolly, 2009; Reddy, Files-Hall, & Schaefer, 2005; Webb, 2002). Given the need for theoretical flexibility, throughout this chapter, conceptual frameworks and general insights are provided instead of specific interventions to encourage clinical staff to employ individualized, theoretically-driven play therapy.

Building a Playful Facility

Literature offers scant resources for creating play-based bereavement clinics, and insufficient research exists to support a single standardized model. Clinics will need to adjust services based on available space, funding, the volume of children seeking services, and community needs. For example, in a military-based community, a stronger emphasis on military service loss and suicide best aligns with the community's grief experience (Sories, Maier, Beer, & Thomas, 2015). Structure aside, foundational to a bereavement-based play therapy clinic is creating a space in which children are invited into a world of healing. This goal is achieved by intentionally building a playful facility which includes therapeutic toys and varied opportunities for expressive engagement.

Toy Selection

Appropriately selected materials are essential for clients to navigate their therapeutic work. In general, toy selection should include a range of toys which facilitate symbolic and therapeutic play (Landreth, 2012). Guidelines for toy inclusion vary by theoretical orientation, but it is generally agreed that toys should be durable, simple to use, attractive to children in different developmental stages (Kottman & Meany-Walen, 2015; Landreth, 2012; Ray et al., 2013), and culturally sensitive (Drewes, 2005). However, the literature offers inconsistent information regarding the inclusion and exclusion of specific toys and categories based on theoretical orientation and population. In a study examining the most frequently used toys in Child-Centered Play Therapy, Ray et al. (2013), found the top 11 toys (sandbox, arts/crafts, paint and easel, water, kitchen, puppets, bop bag, hats, and big aggressive animals) were used by 25% or more of children in the sample (p. 52). Despite these results, Ray et al. cautioned play therapists against making uniform decisions regarding toy choice, instead encouraged play therapists to include toys based on the needs of individual children. Therefore, intentional selecting, not collecting, of toys (Landreth, 2012) asks the question, "what does this facilitate?" More specifically, when working with grieving children, "how does this toy facilitate *grief*?" While toys are a fundamental part of the therapeutic play process, it is essential to also consider in what method, or modality, toys will be used and available therapeutic space.

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Therapeutic Modalities

While no therapeutic modality is shown to be more effective than others with grieving children, many therapeutic modalities and interventions are generally accepted. These include (but are not limited to) expressive arts and written expression (Malchiodi, 2011), dramatic play (Weber & Haen, 2005), and traditional symbolic play (Webb, 2002). In addition to these therapeutic modalities, the inclusion of space for physical and emotional self-regulation is suggested as trauma and attachment-related concerns which often accompany grief (Badenoch, 2008). In large clinics, it is reasonable to assume that separate rooms would house each of these therapeutic opportunities. However, in the case of smaller clinics, these therapeutic opportunities may be condensed or scheduled based on weekly topics or emphases. Furthermore, while each modality is supported by empirical research that demonstrates its effectiveness with bereavement populations, it is not critical to offer each modality when funds and space are limited. When these practical constraints limit therapeutic opportunities, this author recommends minimally providing symbolic and dramatic play areas.

Please note that each of the therapeutic opportunities listed above has an associated specialty designation (e.g., Registered Drama Therapist, Registered Art Therapist) which requires significant modality-specific training and supervision. To ensure that modalities are ethically and correctly applied, the clinic director should obtain ongoing training, supervision, and consultation in areas that fall outside of their scope of competency. Details and rationales for each of these rooms/specialties follow.

Art and Creative Writing

Art is a powerful tool for bereavement because the pain of grief is often unspeakable (Malchiodi, 2011; Rozman, 2015). Therapeutic art is an example of a creative intervention that facilitates opportunities for the child to express deep pain without the use of concrete language (Edgar-Bailey & Kress, 2010; Webb, 2002; Webb, 2003). According to Van der Kolk (2015), grief and trauma experiences are encoded in the body as sensory memories and experiences. The practice of creating art enables individuals to connect with this embodied sensory experience as they explore, process, understand and recover from grief (Steele & Malchiodi, 2012). Because children naturally engage in this medium with little prompting or intervention, it is an obvious choice for bereavement-based play therapy clinics.

Visual arts encompass a broad range of expression including collage, painting, drawing, scrapbooking, sculpting, art/craft making, and multi-media creations. Written expression including poetry and story writing, integrate easily into this room and may be utilized as a multi-modal form of therapeutic intervention. Specific art interventions to process grief include scrapbooking (King, Prout, Stuhl, & Nelson, 2016), creating memory books and other memorial creations, doll-making (Feen-Calligan, McIntyre, & Sands-Goldstein, 2009), visual representations of the deceased, and so on. Simple prompts with as few directions as possible, provide children permission to choose, therefore increasing the child's sense of control (Edgar-Bailey & Kress, 2010; Rozman, 2015). For example, the play therapist might say, "we can make a memory book about your mom, or we can make something else out of these supplies. You get to choose." This approach echoed in the literature, provides a safe place for the grief narrative to arise (Stutey, Helm, LoSasso, & Krieder, 2015) when the child is ready to process.

Art supplies in a room designed for this modality may include:

- Finger paints and other washable-style paints for children or acrylics for adolescents;

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- Various materials to serve as a base or canvas (e.g., construction paper, scrapbooking paper, stretched canvas);
- A range of developmentally-appropriate writing and drawing utensils
- Miscellaneous craft supplies (e.g., ribbon, pom-poms, glue, glitter, scissors, art paper, dowels, sequins, beads, yarn, feathers);
- An easel;
- Various types of clay and Play-Doh;
- And magazines and poster board for collages (Kottman & Meany-Walen, 2018).

Consider the age and developmental level of children utilizing this therapeutic modality and select art materials which are attractive to the specified age group. Finally, art rooms need smocks, plastic table covers, durable and easy-to-clean surfaces, and a large assortment of brushes. Additional information regarding art room set-up and therapeutic practices are found in Malchiodi (2011).

Dramatic Playroom

Drama therapy creates an "embodied, experiential process that draws on the patient's capacity for play" (Haen, p.236, 2015) which promotes insight, resolve conflict, and changes cognitive structures (Haen, 2015). Using dramatic play, children create and act out stories about their world in an attempt to make sense of life events using fantasy, metaphor, storytelling, enactment, and dress-up (Cattanach, 2007). Weber & Haen (2005) suggest very young children respond positively to dramatic play as it requires no verbalization; with a mere costume change, children are transported to another time, place, or, version of self through a "double reality. For example, a pair of nursing scrubs and stethoscope allows the child to become a nurse or physician and "cure" the patient's cancer. However, dramatic play is not always so apparent due to the need for emotional distance. In the example provided, the nurse may represent a nurturing or caregiver theme; the same theme is present when the child pretends to be a veterinarian tending to a sick animal. The second example, on the other hand, allows the child to enact nurturing/rescue without directly considering a hospital scene or people, thereby creating emotional distance (Haen, 2015). It is not uncommon, therefore, for bereaved children to use dramatic play to act out illness, death, funerals, and other specific bereavement-related events.

Dramatic playrooms vary based on the size of the bereavement clinic and the number of group participants. Due to a lack of empirical support for bereavement-based dramatic play, the following is based on the author's clinical observation in bereavement-based play clinics. An elaborate center may include a stage with production-quality lights, sound, smoke machine, and so forth; however, most small or start-up centers will operate on a significantly smaller scale and budget. In these settings, a mirror with dress-up items serves as a sufficient base. For purposes of simplicity, dramatic play items are divided into two broad categories: interactive items (e.g., hands-on, dress-up items) and support items. Interactive items serve as the foundation for dramatic play; support items enhance the dramatic process. Bereavement play requires specific interactive items including medical kits/supplies (e.g., stethoscope, band-aids, gauze, surgical masks), judge's gavel, tombstones, scrubs in varying sizes, capes of varying colors and sizes (e.g., superhero, judge's robe), miscellaneous fabric in varying materials (e.g., gauze, silk), magic wands and crowns, rescue worker hats and jackets (e.g., EMS, Police), and military-related items. While this list may be expanded to match the culture and clients of the center, these items will facilitate most bereavement-based play. Support items include a director's clapboard, mirror(s), writing

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supplies, director's chair, seating for audience members, and various props (e.g., clock, puppets, masks). Additional information regarding drama therapy and dramatic play is found in Weber and Haen (2005).

Symbolic Playroom

This room is best viewed as a "traditional" play therapy room. As previously stated, play is the language of children and toys are their words (Landreth, 2012) therefore, including a room which facilitates symbolic play therapy is necessary for young children to process their grief. The recommended toys to facilitate symbolic play vary by theoretical orientation. Both Landreth (2012) and Kottman and Meany-Walen (2018) provide comprehensive lists of toys needed to facilitate symbolic play.

Therapists should ensure that the room includes a balanced selection of toys across each toy category for the optimal choice of expression (Landreth, 2012) while providing ample choices increases the likelihood that the child will have what they need to process their grief (Edgar-Bailey & Kress, 2010). Nurturing toys allow the child to nurture self and others using a) babies and baby items (e.g., cradles, blankets, clothes, baby bottles); b) stuffed animals; c) domestic animal figures (e.g., cow, dog, cat); d) child-sized cozy blankets and pillows. Real-life play items mirror everyday life and include a) dollhouses with dolls and furniture; b) domestic items (e.g., dishes, food, child-sized brooms, dustpans, play kitchens); c) phones and other play electronic devices; d) doctor's kits; and e) transportation toys (e.g., ambulance, fire truck, police car, military vehicles). Scary toys are crucial for bereaved children including a) monsters; b) figures that defy death (e.g., zombies, mummies, vampires); c) sharks and alligators; d) snakes and insects; e) ghosts and demons; and f) mystical items (e.g., ogre, Cerberus, Chimera, dragon). Finally, aggressive toys provide a vital opportunity for energetic release (Oaklander, 2006) and mastery. Aggressive items include a) punching bag or bop bag; b) foam swords and soft bats; c) toys soldiers; and d) weapons (e.g., rubber knives, retractable knives, play gun, dart gun, rope).

The symbolic playroom may also include a sandbox, which is among the most frequently used play therapy toys (Ray et al., 2013). This author has observed bereaved children frequently use the sandbox as a valuable backdrop for burial play. In this form of play, children can bury and resurrect figures (e.g., dolls, zombies) and create tombs and crypts (e.g., graves, Egyptian pyramids) as they gain an understanding of death permanency and process funeral processions.

Self-Regulation: Physical Release

In some children, processing grief increases difficult emotions like abandonment, anxiety, and anger. As children process grief, it is not uncommon for dysregulation to occur (Badenoch, 2008) as the child embodies the grief experience. As a result, it is not uncommon to observe an increase in children's kinesthetic energy and desire to release this energy through movement or physical aggression as they experience hyperarousal (Warner, Cook, Westcott, & Koomar, 2014). Therefore, clinics are encouraged to minimally provide an outlet through which children can release a sympathetic charge. In line with findings by Ray et al. (2013), the bop bag is a popular aggression/emotional release toy utilized by grieving children, especially boys. However, other options achieve the same goal and are more conducive to group interactions. Group activities which involve the movement of the whole body are excellent methods of for regulation for children in a hyperactive state (Warner et al., 2014). Consider installing a basketball hoop (if sufficient outdoor space is available) or including items such as jumping balls, a beach ball, a small trampoline, or other therapeutic movement-based interventions.

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When space allows larger clinics may further consider designing a designated physical release regulation room. For example, a room with padded the walls, foam wedges and bolsters, weighted blankets, foam swords, and physioballs of varied size (Warner et al., 2014). As a safety measure, maintain low ratios of children to facilitators (e.g., 1:3) and post at least one facilitator any time the room is in use. Some children will neither need nor desire participation in a physical release room and may benefit from a calming room, as described below.

Self-Regulation: Relaxation Room

The purpose of a relaxation room is to return the child to the here-and-now, promote integration, and create a felt sense of safety (Badenoch, 2008). This room is useful for a variety of therapeutic interventions. First, children may need a respite from the chaos of everyday life and experience the room as a space for reconnection, grounding, and centering before beginning any depth processing (Green & Myrick, 2014). This room may also serve as a grounding tool for children who have become activated during their bereavement play (Badenoch, 2008; Warner et al., 2014). Features of this room may include comfortable seating, items scented with aromatherapy, sensory toys, cozy blankets, plush pillows, a small play tent, and low lighting. If smaller facilities are unable to designate an entire room for relaxation, facilitators can adjust the curriculum and add relaxation time to the closing group activity. Closing group activities may include deep breathing, grounding activities (e.g., sensing feet on the ground, progressive relaxation), or group connection activities (e.g., singing a song, huddles).

As previously mentioned, the set-up of a bereavement-based play therapy clinic is dictated by the facility's size, funding, and the volume of children receiving services; therefore, the preceding information should serve as a general guide that is open to adaptation. Based on the size of the facility, the rooms described above may exist separately or combined into one or two multi-purpose therapeutic rooms. A topical description of possible organizational structures follows.

Organizational Structure

Many organizational and program options exist for providing bereavement-based play therapy support based on setting and community needs. When a university setting houses the counseling clinic and part of a counselor training program, a clinic director or appointed faculty supervisor is likely responsible, whereas, in a community-based setting, the responsibility falls to either an executive or clinical director. To determine the most sustainable structure, clinical directors must consider 1) funding, 2) clinical staffing, and 3) community needs.

Funding

As one would imagine, building a play-based center has significant upfront costs. While funding is critical to the success of any clinic, it is rarely discussed in the literature. Competing and dissimilar accreditation and licensure paths further complicate determining a clear funding path. Helm, O'Halloran, and Kahlo (2010) encourage pursuing endowments and grant and creating community partnerships. In consideration of community partnerships, clinical staff may provide bereavement training to area agencies, conduct in-service training for school administrators, or offer assessment and screening services to local mental health authorities. This author also recommends creating community partnerships with

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area churches, hospitals, and hospices. It is further recommended to "outsource" services as a method of cost sharing while still meeting community needs (for an elaborated discussion, see Helm et al., 2010).

Clinical Staffing

Equal in importance to funding is an adequately trained clinical staff. The clinical director or whoever is deemed responsible for the treatment aspect of the center, oversees program design, supervision of students, and community outreach. As the most critical member of the clinic, the clinical director must possess a clinical license and have ample experience working with play therapy and bereavement. Moreover, for ethical purposes, this author strongly recommends that the clinical director also hold the Registered Play Therapist-Supervisor designation. Additionally, many bereavement center models operate as non-profits with minimal paid staff and volunteer support. The use of counselors-in-training (discussed later) may reduce financial burdens, fill clinical needs, and provide invaluable clinical training.

Community Needs

Groups should serve the needs of their communities. Therefore, consider administering a community needs assessment to determine the types of services that best meet the unique needs of the grief community. For example, in some communities, individual play-based bereavement services may exist, but not group therapy opportunities. In other communities, group therapy may exist for one group but not for others. Create therapeutic programs which match the strongest needs, and add additional programs as needed. Also, consider the culture in which the clinic is based to determine if individual or family services best meet the community's needs.

Therapeutic Program Groups

Many play therapy experts support the use of play therapy with bereaved children (Green & Connolly, 2009; Reddy et al., 2005; Webb, 2002); however, most literature is anecdotal. Unfortunately, there is scant research regarding models for play-based bereavement clinics, and no data is available regarding the impact of long-term bereavement group effectiveness. Nonetheless, between expert opinion and available research, play-based bereavement therapy groups are supported. One study examined children's response to three intensive group therapy "workshops" using play therapy on consecutive weekends, lasting three to five hours each (Siddaway et al., 2015). This study demonstrated a reduction in psychiatric symptoms (i.e., depression and anxiety); however, that children who had experienced the death of a parent benefitted significantly less from the workshops than those who had experienced the death of an extended family member. Siddaway et al. (2015) suggest that this difference to the degree of secondary losses (i.e., change of schools and financial status) and the intensity of losing an attachment figure. In another study, researchers conducted a meta-analysis analyzing grief camps that used play therapy for periods ranging from two to five days (Clute & Kobayashi, 2013). While the study found an overall increase in coping skills and feelings of connectedness, there was no significant differences in PTSD scales or long-term behavior. It is reasonable to assume that a longer-term evaluation period is needed to yield these changes. Finally, another study analyzed short-term play therapy grief groups (eight-week duration), which were found to significantly reduce grief symptomology in children aged seven through eleven (Tonkins & Lambert, 1996).

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Group Play Therapy

Group play therapy is the primary format of therapy services at most bereavement centers and echoed in the literature (Bergman et al., 2017). In a grief group setting, play therapy is thought to provide a mix of engagement and avoidance, enabling children to better assimilate the processing of grief (Clute & Kobayashi, 2013). According to Ray (2011), the benefits of group play therapy include increased comfort and participation of the child, vicarious and induced catharsis, vicarious and direct learning, therapist observation of social interaction, social reality testing and limit setting, and positive social interactions (for a comprehensive review of group play therapy, see Sweeney, Baggerly, & Ray, 2014). The frequency of each group depends upon participant/facilitator ratios, type of death loss, and community needs. Ideally, bereavement clinics should have multiple programs based on types of loss and participants' age.

Screening and Selection

Group dynamics are driven by the participating members therefore, it is critical to screen potential group members (Corey, Corey, & Corey, 2018). Setting, theoretical orientation, group function and member demographic/population all impact the inclusion or exclusion of potential group members (Corey, et al., 2018; Sweeney, Baggerly, & Ray, 2014). In general, screening for children should include (a) the child's social ability to participate in a group, (b) the child's ability to maintain their safety and the safety of others, (c) recent hospitalizations and self-harming behaviors, and (d) amount of one-on-one attention required. Bereavement specific considerations include the type of death loss and the degree of trauma associated with the loss (Worden, 2009). Because traumatic losses are positively correlated with increased levels of anxiety and elevated symptoms of PTSD, children who have experienced a highly traumatizing loss, such as a loved one's death by homicide or suicide, are more likely to need 1:1 support. However, rather than automatically screening children out of the group process, consider lowering the facilitator to child ratio to support or adding additional facilitators to provide individual support as needed. If a child is screened out of the group process, the child should be referred for individual counseling within the clinic if possible until they are ready for the group process. Ray (2011) and Sweeney, et al., (2014) offer additional guidelines for screening play therapy groups.

Group Type

Because children bereaved by different death loss types have been found to grieve in different ways, the literature supports a division of grief types into separate groups (Worden, 1996; Worden, 2009). In a start-up bereavement clinic or small bereavement clinic in which participant numbers are low, consider dividing participants into two primary groups: sudden death/accident or terminal/chronic illness. The sudden/accidental death group includes car accidents, drowning, heart attacks, suicide, and homicide, while the terminal/chronic illness group includes death due to cancer, advanced age, and so on. This division is not ideal, however, as suicide and homicide grievers are shown to experience different grief trajectories that people grieving other types of sudden death; among these differences, people who have lost a loved one to suicide or homicide are at increased risk for complicated grief (Currier, Neimeyer, & Bergman, 2008). In larger bereavement centers with more funding and clinical support, a more specific division may include:

- Sudden/accidental death,

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- Death from a terminal or chronic illness,
- Death of an extended family member,
- Sibling loss,
- Death by suicide,
- Death by homicide (Wordon, 2009) and
- Military-related loss (Sories et al., 2015).

Age

Children benefit most from the group therapy process when they are placed with children of similar age (Sweeney, et al., 2014). This remains true for grieving children as their developmental understanding of death is dictated in part by their cognitive development (Crenshaw, 1995). According to Ray (2011), it is generally recognized to match children within one year of age. While this suggestion is the optimal choice, given the specialized nature of grief groups, clinics may need to expand the age range slightly. Therefore, it is useful to consider the overall match between the personalities and therapeutic needs of included children more so than chronological age (Ray, 2011).

Group Structure

While ample literature exists regarding adults in group therapy, there is very little research regarding group *play* therapy or clear suggestions for best managing the group process with children. Therapeutic groups with adults generally run for 60 to 90 minutes in length (Corey, et al., 2018), however, based on this author's clinical observations, groups longer than 45 minutes will likely fall outside the threshold of the developmentally appropriate attention span for children. Due to a lack of available literature of bereavement-based play groups, the following is a sample format based on the author's clinical observations, which should be adjusted based on the developmental age of the children, facilitator ratio, and theoretical orientation of the group:

- **30 minutes**: Pre-group with facilitators/clinical staff.
- **15-30 minutes:** Ice breaker and group process (depending on age).
- **15-30 minutes:** Non-directive play (depending on age).
- **15 minutes:** Group closing.
- **45 minutes:** Post-group process.

The described hypothetical structure allows for adequate supervision of counselors-in-training, therapeutic intervention, and group management. *Pre-group* includes facilitators and the clinical director with a discussion regarding known case changes, the theme of the group, and so forth. During the *group process*, children meet together for check-in, centering, and connection with a light discussion or overview of the group topic. *Non-directive play* immediately follows the group process. In non-directive play therapy groups, it is optimal to have a 1:2 or 1:3 ratio (Ray, 2011) of children to group facilitators. During this phase, children may float between rooms/modalities at their discretion. *Group closing* is meant to bring the group together, ground children in reality, and close the group session. Closing rituals are soothing for children; therefore, consider how the group may close in the same way each week. Finally, the *post-group process* is intended for group facilitators and the clinic director (who may or may not take part in the group facilitation process) to come together and process the group session. Not only

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is this helpful for the clinic director to understand group members' progress; it is also a vital part of the supervisory process (discussed later).

Bereavement-Based Play Therapy Training and Supervision

Thus far, this chapter has provided a rationale for bereavement-based play therapy clinics, recommended toys and materials for setting up bereavement-based play therapy groups, and discussed options for therapeutic programs, however, the best-organized clinic is only as effective as its therapeutic staff. Facilitating play therapy groups is considered an advanced skill (Ray, 2011); therefore, facilitators should demonstrate solid play therapy knowledge before facilitating group therapy. Additionally, this author recommends facilitators have a basic understanding of the developmental aspects of grief, loss, and trauma. Finally, facilitators should also explore their personal grief histories, as well as strategies for self-care and burnout prevention.

Grief Training

Because the Council for Accreditation of Counseling and Related Programs (CACREP) does not explicitly require grief training as part of their standards (CACREP, 2016), it is reasonable to assume that not all counselor preparation programs require this material as part of standard coursework. Therefore, this author recommends that clinics address the following topics during training: 1) the history of grief counseling and grief counseling models, 2) circumstances of death, 3) developmental reactions to grief, and 4) personal grief histories. A working knowledge of these areas expands conceptualization capacity. In turn, this capacity may improve empathetic understanding and therapeutic presence, both of which are critical components of play therapy (Ray, 2004).

Grief Models

Although not play therapy specific, facilitators should possess a working knowledge of grief counseling fundamentals to include the evolution of grief through historical and cultural contexts, as well as grief recovery models. Elizabeth Kubler-Ross paved the way for grief therapists with her ground-breaking book, *On Death and Dying* (1969). While this book was seminal to the field of bereavement, linear multi-stage models such as the one described by Kubler-Ross have subsequently received criticism, as grief is generally not linear in its progression. In addition, early authors minimized the grief experience in children. In the last thirty years, clinicians have moved away from stage models of grief and toward task models (Worden, 1996; Worden, 2009), meaning-making models (Neimeyer, Burke, Mackay, & van Dyke Stringer, 2010; Wong, 2008), attachment models, and embodiment models (Turner, 2017). Worden (1996) provides an excellent foundation for understanding the developmental aspects of children's grief and conceptualizing the contextual components of systemic grief.

Circumstances of the Death

Grief reactions vary based on the circumstances surrounding the death; therefore, these circumstances should influence the topics addressed within the group process, as well as interventions applied. Bereavement resulting from a terminal or chronic illness creates contradictory feelings of relief and sad-

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ness, which may create minor levels of guilt. Generally, terminal and chronic illness death increase the opportunity for saying good-bye, whereas sudden deaths (e.g., accident, drowning, heart attack) often have a degree of suddenness and violence (Worden, 1996; Worden, 2009). Violent death losses (e.g., suicide, homicide) are shown to increase a child's risk for substance abuse, mental health problems, and physical health problems (Burke, Hellman, Scott, Weems, & Carrion, 2011; Mersky, Topitzes, & Reynolds, 2013). Children bereaved by suicide and homicide are also more likely to experience symptoms of complicated grief (Currier, Neimeyer, & Bergman, 2008; Kristensen, Weisaeth, & Heir, 2012). Prigerson et al. (1995) describe complicated grief as bereavement that is accompanied by elevated and persistent distress about death separation, impaired functioning, disbelief, and difficulty moving forward with life without the person who died. The bereavement experiences of children whose parents die by violent means (e.g., suicide or homicide) are distinctive in many ways, including increased feelings of rejection/abandonment, shame, and guilt (Worden, 2009); difficulty with attachment; difficulty with continuing bonds (Currier, Irish, Neimeyer, & Foster, 2015; Field & Filanosky, 2010; Hunt & Hertlein, 2015); and difficulty establishing trust in adult relationships.

Developmental Reactions to Grief

To effectively facilitate bereavement play, facilitators need an understanding of expected developmental behaviors associated with grief. While there is no standard trajectory for grief recovery, Piaget's theory of cognitive development (Piaget & Inhelder, 1969) is a useful guide for understanding children's ability to understand and process grief. Children two to seven years of age have a relatively small working concept of death. Cognitively, children at this stage are egocentric with minimal ability to think outside themselves. In a world governed by fantasy, children at this stage may create faulty beliefs regarding their ability to cause death. For example, a five-year-old may conceptualize the death of a loved one as a direct result of the child's negative behavior (Piaget & Inhelder, 1969). Children at this stage need simple, clear, consistent, and honest descriptions of death (Crenshaw, 1995). Children eight to eleven years of age generally have a working concept of death; however, their understanding may be based on television and video games, which inaccurately depict the permanence of death. Due to the concrete nature of cognitive processing among children in this age group, facilitators should expect children to ask specific, fact-driven, and often detailed questions about the process of death and dying. Such questions may create emotional surges for the facilitator; thus, it is critical that facilitators understand and have processed their personal grief histories.

Personal Grief Histories

Therapists who are self-aware are thought to have increased empathetic understanding, unconditional positive regard, and congruence (Ray, 2011). While training facilitators does not require deep emotional processing of grief experiences, which is more in line with personal therapy, facilitators should demonstrate emotional awareness regarding their loss history, as well as an ability to explore their grief without emotional or physical dysregulation. In essence, the more self-aware facilitators are, the more likely they are to effectively support the therapeutic relationship. This author recommends engaging trainees in an experiential grief activity, such as creating a grief timeline, in order to explore their personal grief histories and beliefs about death, dying, and the afterlife. Children notoriously ask questions like, "What happens after you die?" and "is Heaven real?" Self-understanding of personal beliefs increases

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the likelihood student facilitators will remain present and genuine in the therapeutic relationship during these difficult moments (Blanco, Muro, & Stickley, 2014).

Bereavement-Based Play Therapy Training

As previously mentioned, it is recommended that facilitators have basic play therapy training before facilitating bereavement-based play therapy groups. While foundational play therapy skills are critical for practice, this section focuses on advanced play therapy skills as they relate to bereavement-based play therapy: conceptualization, enlarging meaning, identifying play themes, and connecting with children (Ray, 2004).

Conceptualization of the Whole Child

The death of a loved one, particularly a parent, has far-reaching impacts. In addition to bereavement, the child is likely to experience a cascade of losses including potential changes in residence, changes in economic status, separation of parents, change of school, loss of friends, and so forth (Worden, 1996). Focusing solely on the death loss does not meet the needs of the whole child. Supervisors are encouraged to ask supervisees questions which facilitate conceptualization of the whole child. The following questions facilitate the whole child conceptualization.

- "What else has changed in the child's life?"
- "What somatic complaints or behavioral issues have occurred since the death?"
- "Is the child depressed?"
- "What did the child lose when they lost (the person who died)?".

Thorough case conceptualization drives effective treatment strategies and plans; in the context of play therapy, it also facilitates identifying play themes and enlarging meaning.

Enlarging Meaning

Enlarging meaning occurs across theoretical orientations and is intended to facilitate understanding and insight of the child (Landreth 2012; Kottman & Meany-Walen, 2018). Enlarging meaning occurs through identifying and verbalizing patterns in play or verbalizing play themes which are foundational to the presenting issue. Play therapists may enlarge meaning, or increase awareness of emotions, core beliefs, values, meaning, relationships, or other theoretically-based concepts, through well-timed facilitative responses. While enlarging meaning increases a child's insight, poor timing may disrupt the therapeutic relationship (Ray, 2004) or give the child an impression that the therapist is not attuned or "listening" (Badenoch, 2008). Determining what content to bring to the child's awareness can be a challenge, as competing theoretical orientations offer different stances on directive versus non-directive application of play (Yasenik & Gardner, 2012). Since literature does not support a specific theoretical application, the Play Therapy Dimensions Model (PTDM) by Yasenik and Gardner (2012) may serve as a useful guide for facilitators and supervisors. In the PTDM model, there are two dimensions, consciousness and directiveness, that drive degree and type of responding, therapist participation, and open discussion and exploration.

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Identifying Play Themes

Play themes help conceptually identify the child's communication during a play therapy session. According to Ray (2011), very little literature is available regarding identifying play themes; however, they remain central to client conceptualization and tracking play therapy progress. Ray encourages play therapists to demonstrate solid play therapy skills and self-awareness before interpreting play themes to avoid potential disruptions in the therapeutic relationship. Therefore, play theme identification should occur under the context of supervision. This author recommends focusing on this aspect of training during *post-group*.

While numerous play themes exist, the most commonly identified are a) protection, b) relationship, c) mastery, d) nurturing, e) grief/loss/abandonment, f) helpless/inadequate, g) power and control, h) aggressive, and i) safety and security (Ray, 2004). As expected, grief and loss are prominent themes in bereavement play; however, in this author's clinical observations, bereavement play is subject to producing all play themes at various points in the healing process (for an extensive review, see Ray, 2011). Grief is associated with many primary and secondary losses (Worden, 2009) and reducing the child's pain to the experience to death loss, discredits the child's whole experience and may limit their opportunity for growth.

Connecting With Children

Connecting with children means being fully present (Kestly, 2016) and bearing witness to the stories they tell (Weber & Haen, 2005). The use of non-directive play therapy and expressive therapy interventions with bereaved children is underscored in the literature for several reasons. Primarily, demonstrating therapeutic presence or a "be with" attitude (Landreth, 2012) means the connection is valued over performance or therapeutic progress. Despite theoretical orientation, a warm and genuine therapeutic relationship is regarded as central for progress to occur (Blanco et al., 2014; Landreth, 2012; Kottman & Meany-Walen, 2018; Yasenik & Gardner, 2012). In a group setting, "being with" instead of "doing" may mean giving children opportunities to experience joy in a social context again without needing to worry about others. Specifically, for grieving children, the group process may be one of few venues in which the child is viewed independently from their grief. This author does not encourage facilitators to force children to name the deceased loved one. Group experts emphasize 'passing' and silence are a natural part of the initial group stages and necessary to build trust within the therapeutic relationship and the group (Corey et al., 2017); grieving children deserve the same regard. When the therapist is attuned to the needs of the child, rapport and relational connection still occur (Badenoch, 2008).

Supervision of Student Facilitators

Empirical research supporting the effectiveness of play therapy is steadily growing; however, there remains a dearth of literature regarding the process and practice of play therapy supervision. In a review of the literature, Donald, Culbreth, and Carter (2015) found that parallel to the child-therapist relationship, most current approaches to play therapy supervision focus on the relationship as the cornerstone for growth. In addition, exploring the person of the therapist is of equal importance to learning play therapy specific skills to enforce the importance of self and genuineness in the therapeutic relationship, especially in the early phases. Furthermore, VanderGast and Hinkle (2015), found a key aspect of supervisory satisfaction is working with a supervisor who has a clear identity as a play therapist and fosters a play therapy

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identity in others. Therefore, it is crucial for play therapy supervisors to create a safe space for empathy and unconditional positive regard (Donald, et al., 2015; Ray, 2011)

To achieve this goal, a combination of individual, group, and live supervision provide varied opportunities for facilitators to learn through direct mentorship and peer support. Individual supervision is necessary to focus on individual student progress, however, live, and post-group supervision serves multiple purposes. First, observation of the overall group process keeps the clinic director alert to the clinical activity of individual children. Second, post-group supervision that occurs immediately after the group session which allows the student facilitator to reflect on the child's progress, their performance and conceptualize the child at a deeper level. The immediacy of live/post-group supervision drives the effectiveness of the feedback and learning (Thanasiu, Rust, & Walter, 2018). To increase skills and growth, a play therapy skills checklist (for sample checklists, see, Ray, Purswell, Haas, & Aldrete, 2017) and peer-rating feedback (Swank, 2018) are helpful additions to the play therapy supervision process.

Supervision Content Areas

Content areas such as client progress, theoretical application, therapeutic interventions, and ethics are standard components of supervision (for an extensive review, see Bernard & Goodyear, 2018 or Drewes & Mullen 2008). However, supervision in bereavement-based play therapy clinics requires additional focus. The following areas are the most consistent areas of supervision content in the author's clinical observations.

Countertransference

According to Elliot (2016), countertransference with child clients is a larger ethical issue than of confidentiality. Countertransference may be related to maternal or paternal instincts, feelings toward the caregiver, or the supervisees lack of self-awareness. While there is a lack of research regarding countertransference with childhood grief, this author has observed supervisees experience discomfort with death-related content, have emotional reactions to a death story, or attempt to shield their child clients from pain. One way in which it may occur is via redirection or minimization of play themes related to specific death-related content. For example, if a child experiences an emotional reaction during a medical reenactment play (for instance, as the child attempts to perform CPR on a doll), a facilitator may point that child to another play area rather than tracking and reflecting. Indications that a supervisee may be experiencing countertransference during a session include being unable to recall session events (disassociation), feeling emotionally overwhelmed during the retelling of the session events (personalization), over-focusing on one client, avoiding a particular child/situation, or becoming angry at a caregiver. Supervisory questions such as "What about this case is hard?" or pointed observations such as "I notice you do not like to talk about this case" or "It seems your grief is clouding your view" can facilitate self-awareness for the supervisee.

Self-Care

Holding space and maintaining a therapeutic presence for children with grief and trauma has all-encompassing impacts. Burnout impacts emotional, physical, cognitive, relational, and spiritual wellness which in turn impair therapists' empathy and judgment. While all therapists are at risk for developing

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burnout and impairment, the risk increases when a significant portion of client present with trauma and crisis (Iqbal, 2015; MacKay, 2017). For these reasons, recent literature suggests, self-care is vital to trauma training programs (Iqbal, 2015; MacKay, 2017). Working with children may be especially taxing due to the degree of presence, attunement, and attachment required for effective play therapy (Meany-Walen et al., 2018). At the time of this writing, only one research study has explored the self-care of play therapists. Participants in this study overwhelmingly reported that wellness and self-care were not sufficiently addressed in their graduate programs (Meany-Walen et al., 2018). Supervisors can thus assume that student supervisees have a limited understanding of wellness, methods for assessing wellness and burnout, and ways to maintain self-care over the long term. Based on this data, supervisors have an ethical obligation to explore self-care and wellness strategies with their supervisees on an ongoing basis.

Termination

Endings and goodbyes are painful, particularly for children with death or abandonment histories (Worden, 1996). If parents are absent or unavailable due to their grief, children may crave attuned connection. In these cases, it is not uncommon for children to develop deep attachments with facilitators. Given the high degree of attachment that can characterize the therapeutic relationship, ongoing discussions of termination are warranted to prevent the child from perceiving the termination of that relationship as another painful loss (Gil & Crenshaw, 2015). Planned terminations which therapeutically processed may provide a corrective experience for children in need of healthy good-byes (Garcia, 2012). Two parties may terminate the therapeutic relationship: child/family and facilitators. Caregiver psychoeducation regarding attachment and good-byes may reduce the number of premature terminations but avoiding all premature termination is unavoidable. However, regarding facilitators, it is vital that clinical staff set clear expectations of facilitators and plan therapeutic programs that align with the natural ebb and flow of facilitator seasons, such as an academic semester.

CONCLUSION

Grief is an unfortunate experience for many children, which can have significant long-term impacts (Worden, 2009). Fortunately, bereavement-based groups have many demonstrated positive impacts (Bergman et al., 2017; Tonkins & Lambert, 1996). During their time of confusion and sorrow, children positively respond to the support and normalization bereavement groups provide (Siddaway et al., 2015), and because play therapy is empirically supported for children, it is a natural match for the complex emotional needs of grieving children (Creshaw, 1995; Webb, 2003). By developing a play-based bereavement clinic, grieving children receive a place to therapeutically engage in developmentally appropriate methods of healing in connection with other grieving children. However, building a successful bereavement-based play clinic requires more than stocking therapeutic toys. The development of a successful bereavement-based play therapy clinic requires clear vision, funding support, an understanding of the community's needs, and a willingness to engage with community partners. Most importantly, a successful clinic must provide thorough grief and play therapy training and supervision. Building a bereavement-based play therapy clinic can have long-lasting impacts that shape children and families for generations. While this vision may seem daunting, it is entirely possible to realize it with a clearly defined organizational model, well-trained clinical staff, and above all, a shared commitment to the therapeutic effects of play.

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KEY TERMS AND DEFINITIONS

Bereavement: Bereavement is a period of mourning which occurs after any type of death loss, influenced by cultural and religious norms.

Group Play Therapy: Two or more children engaging in therapeutic play therapy.

Play Themes: Patterns of play which aid the therapist in conceptualizing play communication.

Play Therapy Supervision: The process in which a skilled and experienced play therapy practitioner develops, mentors, and monitors a supervisee's play therapy practice.

Self-Care: The intentional practice of supporting emotional, physical, and spiritual health to promote counselor wellness.

Support Groups: A support group is a group of individuals who come together to process their common experiences which may or may not be led by a licensed professional.

Termination: The ending phase of therapy.

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Chapter 75
Pre-Marital Counselling and Sustainability of Marriages in Contemporary Ghanaian Society

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ABSTRACT

Marriages in Ghana are usually preceded by counseling. It is believed that premarital counseling helps to sustain marriages because it gives couples the initial skills needed to enable them to start their marriage and solve minor problems that may be encountered in the relationship. This study was aimed at assessing the significance of premarital counseling to the sustenance of marriage. The study adopted a mixed methodological approach in gathering the data. Data was gathered from 112 individuals from three different suburbs of the capital city of Ghana. The results showed that although pre-marital counseling was observed to be important for would-be couples, it does not help sustain all marriages. Married couples that were given pre-marital counseling were getting separated as well as those who never had pre-marital counseling. It is therefore recommended that although premarital counseling may be necessary, it is not sufficient to sustain marriages. Therefore, counseling should continue even after marriage.

INTRODUCTION

Pre-marital counseling is always aimed at preparing would-be couples to begin a good and healthy relationship that leads to marriage (Stahmann & Hiebert, 1997; Myrick, Green & Crenshaw, 2014). It is a form of training that according to Harway (2005) equips couples with the necessary skills needed by couples to advance in their relationships. Doria, Kennedy, Strathie, & Strathie, (2014) have argued that if family lives and relationships would improve, then institutions must highlight and intensify their coun-

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seling interventions and activities. Although pre-marital counseling is aimed at ensuring that individuals relationship are enhanced, it also help to prevent problems associated with courtship or marriage and any problems that could lead to conflicts in the relationship or divorce, but could also enhance relationship quality (Stanley, Amato, Johnson, & Markman, 2006 as cited in Carlson, Daire, Munyon & Young, 2012). It is however argued that some religious groups and organizations go beyond just organizing marriage ceremonies for would-be couples and organize pre-marital counseling sessions for individuals who desire to marry. Although some critics argue that people consider pre-marital counseling as a preparatory tool that could help reduce the number of cases of divorce there seems to be no empirical evidence to substantiate the argument that it reduces the number of divorce cases (Stahmann & Hiebert, 1997; Carlson et al., 2012). A reasonable number of couples do engage in pre-marital counseling to enable them to have a better understanding and foundation knowledge needed in married life (Goerz & Goerz, 1999). Yet some couples continue to have problems in their marriages while marriages continue to collapse.

THEORETICAL FRAMEWORK

To help counselors provide support for would-be couples, some theoretical models have been developed. In the 1950s, Person-Centred theory was developed in the USA as a counseling theory which roots could be traced from the humanistic psychology, views individuals as being capable and having the potential of solving their own problems (Seligman, 2006). The ability of counselees as individuals who have an understanding of themselves and the problem they face. However, a major contributor of Person-Centred theory Carl Rogers emphasized that a counselor and the quality of the relationship that exists between the counselor and counselee will determine how successful the counseling process will be (Corey, 2005). According to Carl Rogers, there were six conditions for change to occur in the counseling process. They include; psychological contact between two persons; incongruence marked by vulnerability and anxiety on the part of the client; congruence and integration on the part of the therapist; unconditional positive regard on the part of the therapist towards the client; the counsellor's experience of empathy of the client's internal frame of reference and endeavouring this awareness to the client and the achievement even if it is minimal, of both the therapist' unconditional positive regard and empathetic understanding of the client.

Techniques appropriate for this type of therapy include listening, accepting, understanding and sharing. One major technique used by Person-Centred therapists is to create an atmosphere that facilitates the development of self-awareness and self-esteem. Person-centered approach theory assumes that every individual has the tendency to work towards self-actualization (Seligman, 2006). Self-actualization is the tendency for every individual to develop his/her capacities. However, the genuineness on the part of the counselor is key to a successful therapy session (Rogers as cited in Corey, 2005). Allowing counselees to understand themselves and their problems is a way of helping would-be couples to develop the skills that will help them solve their problems in the future.

The solution-focused theory is another counseling theory that has been used over the years to address marital problems. It was introduced in the 1980s by Steve De Shazer and his colleagues at the Brief Family Therapy Center in Milwaukee (O'Conneli, 1998; Friedman & Lipchick, 1999). Solution-Focused theorists argue that every problem is unique and that both counselors and their clients generate ideas for solutions after a careful study of the problems. The theory seeks to guide couples to develop skills that will help solve problems in their marriages.

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Solution-Focused theory indicates that it is practically impossible to know everything about an individual (Corey, 2005). Every individual is unique in its own way. The solution-focus theory focuses on how individuals construct meanings about their experiences, relationships and future plans. The focus is usually on the solution and not the problem. Solution-Focused counselors are interested in finding solutions to problems rather than how and why a problem started. Solution focussed theory helps clients to review how they look at things and review solutions which might not initially be evident (Watson, 2006). Solution-focused theorists believe that emphasis should not be placed on the problem or a full description of it to get a solution. Rather the counselor and the client should move forward to know what the problem will be like when solved. This approach can make counseling sessions brief because the emphasis is on the solution and not how the problem arose. According to Corey (2005), research has shown that this therapy has been successfully applied to dealing with problems associated with drug and alcohol abuse, poor communication in a relationship, and anger management, among others.

Solution-focused theorists argue that little changes can lead to bigger changes; nonetheless, the focus is on any little change that may be observed by the counselor. Change occurs when the client does something different and this change can take place at any time. This assumption can help would-be couples to develop strategies that will help them modify their ways to achieve their goal in marriage. Though it can be a very difficult task, Solution–Focused could be to help clients to redirect their thinking from Problem-Focused to Solution-Focused. Silliman and Schumm (1999) have argued that counselors can adopt Solution-Focused therapy to a wide range of topics that are often discussed during pre-marital counseling sessions such as proper communication in marriage and conflict resolution.

De Shazer et al. (1986) described the process of solution-focused counseling as a session that includes a definition of the problem, stating goals and finding solutions to the problem. In the second and subsequent sessions, there is no focus on the identified problem. Here, the client is helped to identify what he/she ameliorated the solution and what he/she wants to do continue. If there has been no improvement, the client is asked what he/she has been doing which may be working and amplifies them. If things are getting better the interval between sessions are lengthened to reduce the therapy process. At each session, assessment is made to ascertain the level of progress made.

There are several assumptions under solution-focused therapy. They include: beneficial changes take place when the focus is on successes; all problems have identifiable exceptions that are transformable into solutions; small changes cause a ripple effect that grows into larger changes; every client has what it takes to resolve his/her problem; client goals are viewed in positive rather than negative terms (Sklare, 2005). Bannink (2007) explained that during the second visit, the client is assessed on how he/she feels on a scale of say zero to 10 and he/she may have moved from one to four. The question is how he/she managed to reach four so quickly. The first meeting helped him/her to focus on where he/she wants to be. He /she is asked what will move him to five.

MARRIAGE AND PRE-MARITAL COUNSELING: A CONCEPTUAL FRAMEWORK

Marriage is a union between a man and a woman for the purpose of living together harmoniously and often have children. There are many reasons that contribute to individuals who enter into any relationship and such individual also have different beliefs and expectations about relationships and marriage (Johnson, 2011). A lot of people including married couples understand marriage in different ways, and this makes people's understanding of marriage subjective. The Longman Dictionary of Contemporary

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English explains marriage as a union of a man and a woman by a ceremony in law. This legality is in agreement with Oyedepo's (2001) observation of marriage as a legally recognized union between a man and a woman in which they are united sexually, co-operate economically, and may give birth to, adopt or rear children. However, Mbiti (1977) has argued that marriage is not just a union of two individuals alone, but then it brings families, relations, and friends of spouses together. Marriage is when two individuals come together to learn and share power, put their finances together, manage them and share their intimate feelings (Napier, 2000). Therefore, when a man and woman pledge their love to each other and decide to live together as husband and wife legally, then the institution of marriage is said to have been established (Undiyaundeye, 2000). Dzobo (1975) also acknowledges marriage as a legal institution which is an acceptable and respectable mode of ensuring continuity of a family line.

The greatest desire of most adults is to be married (Marano, 2002). In an African society, for instance, women feel respected when they are married, so at a certain stage in life, a reasonable number of African women will do all they can to ensure that they settle down in a marriage and bear children. Johnson (2011, p. 23) has argued that individuals "with a strong sense of commitment will view marriage as a permanent state, be optimistic about the resolution of problems, and remain in the marriage not because they feel trapped, but because they are optimistic about the possibility of relationship renewal". Women who are unable to bear children after years of marriage are often mocked at by family members and friends. Njoroge (1996) asserts that a woman who is not able to bear children for the husband is often tormented by the extended family members and this could lead to stressful feeling or in some cases depression. Often times it ends as a tragedy and in most cases divorce.

Hansson and Laidmäe, (2014) observed in a study conducted in Estonia that although divorce rates continue to increase, many women consider divorce as a failure and as a result try as much as possible to avoid it. Some couples also find alternative ways to sustain their relationship to ensure their marriages do not collapse, however Johnson (2011, p. 28) has argued that some "individuals can enter into intimate relationships with a clearer idea of what they expect, and some awareness that their partner will not always be able to meet". Yet they expect their marriages to survive. Marriage is considered as a very important institution in societies, so there are laid down rules that govern it. Though the concept of marriage differs from society to society and culture to culture (Sarpong, 1974) in most cultures, sex before marriage is prohibited and in some cases, considered a taboo. This reinforces the debate of pre-marital counseling which according to some critics promotes sustainability of marriages.

Pre-marital counseling is a form of counseling used to prepare individuals for marriage. It is used as an aid to strengthen would-be couples' relationship, and also equip them with marriage skills to enable them to face any possible challenges in their marriage, especially in the early years of the relationship. It provides a couple with valuable information as well as ways to address important matters before problems develop. It gives would-be couples the opportunity to discuss issues such as how to communicate well in marriage, sexual intimacy, the role of husbands and wives among others. Pre-marital counseling helps would-be couples to acquire the needed skills that can help them resolve future conflicts in their marriage (Ambakederemo & Ganagan, 2006). It becomes a form of pre-service training skills for marriage.

For instance, Christians believe that pre-marital counseling is a partnership counseling with the Holy Spirit (Goerz & Goerz, 1999). It may involve problem-solving or crisis management counseling because like any other human institutions, no matter the preparation, there would be problems. So, such counseling sessions could help individuals to acquire some basic skills for their relationship. Senediak (1990) argued that pre-marital counseling is knowledge and skills-based training which aims at providing couples with information on ways to improve their relationship.

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Pre-marital counseling is a marriage preparatory session that is made based on the assumption that if it is done it will help strengthen one's relationship and equips the individual to effectively handle future marriage challenges. Pre-marital counseling sessions are typically educational in nature, time-limited and content specific (Friesen & Friesen, 1989). However, some critics argue that it has some importance. According to Messina, Kolbert, Bundick, Crothers & Strano (2018, p. 4) it provides clients the opportunity "to develop self-awareness, exploring their thoughts, feelings, values, and goals, enables clients to make gains" in their relationship. Besides, it enables the clients to look 'beyond present difficulties to possibilities for ongoing growth and fulfillment (Southern & Cade, 2011, p. 252). It is geared towards using an awareness of problems that are likely to occur during marriage. Couples are able to have a better understanding of any potential problems which may occur during the marriage as well as providing couples with information and resources to effectively manage any problems that may arise. According to Stahmann & Hiebert (1997), pre-marital counseling is usually done to achieve specific goals, some of which include:

- **Understanding the different personality traits:** The couples involved are able to learn and understand each other's personality traits;
- **Clarification:** This is, partners realize and understand that each individual is unique;
- **Create better communication channels:** Couples are taught the importance of communication in marriage, ways of communicating with the opposite sex when in a relationship that is; what to communicate, how and when to communicate.

Some religious groups believe that building a strong foundation early in marriage can help avoid many of the problems that married couples face. Jordan, Russell, Afousi, Chemel, McVicker, Robertson and Winek (2014) have argued that, during premarital counseling, couples are encouraged to discuss their fears and expectations about marriage. The discussion with the marriage counselor also helps to eliminate fears and anxieties about marriage and gives them the opportunity to learn skills that will help them effectively deal with challenges in marriage. Doria, Kennedy, Strathie and Strathie (2014) noted that pre-marital counseling helps couples to pause, think and assess their relationship. It also helps them to identify loopholes in the relationships: those that are likely to affect their relationship negatively and address them appropriately before the knot is tied.

Gyekye (2003) observed that in some African societies, marriage is considered so important that as part of puberty rites young people are given some form of training to usher them into adulthood and in a future marriage. These young people are educated on topics such as living a good sexual life, marriage and family life that could make you a responsible adult. Traditionally, in Ghana, before two individuals get married, they are given some form of training which is also a form of counseling session that is given by mostly elderly women in the family to equip them with some basic skills that would enable them to survive in the marriage. Nunkunya (1999) pointed out that the Anglos of the Volta Region of Ghana have a traditional practice in which young ladies due to be married are kept indoors and are given some marriage skills training that will help them they marry. This is done when women are ripe for marriage. Traditionally, every Anglo girl who reaches puberty is made to go through a ceremony known as nudro - in which the girl is paraded through the village to demonstrate to the public that she is matured enough for marriage (Nunkunya, 1999). These girls are kept indoors and are taken through marriage skills training. Young men are also given training on the need to be responsible and industrious because a responsible young man has to send cattle and sheep to the young woman he wants to marry as a demonstration of

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being a responsible man (Abochie, 1997; Nunkunya, 1999). However, Adei (1991) has observed that due to modernization, some families and communities have stopped taking their children through this training exercise.

Although marriage is one of the institutions found in almost every culture or society in the world, it is very disturbing to learn that it is one of the institutions confronted with a lot of challenges. In recent times divorce rates have hit records levels. The Finder (2014) reported that in Accra Metropolitan Assembly (AMA), (a local administration in the capital city, Accra) which has records of only customary marriages, between 2006 and 2013, 4,080 divorced cases were recorded. The paper reported that the data were not complete because while the AMA keeps records of customary marriages and divorce cases, the courts keep records of marriage by ordinance and divorces. Startling statistics from the Greater Accra Head Office of Legal Aid Ghana also indicates that at least 40% of marriages registered annually in the Greater Accra Region break up within fourteen months (Ghanaweb, 2011).

In the year 2010, Legal Aid Ghana received and referred about 125 marital cases to its legal office for amicable resolution. The report further explains that the number of females who apply for separation every week far outweighs that of their male counterparts. So, the questions that remain unanswered, are: is it really important for would-be couples to undergo pre-marital counseling? Does it mean that without pre-marital counseling marriages will not survive? Or do people seek pre-marital counseling with the hope of making their marriages work? Answers to these questions would enable the researchers to achieve the following objectives:

- To identify the contents of pre-marital Counseling;
- To examine the processes involved in pre-marital Counseling;
- To assess the importance of pre-marital Counseling and its relevance to marriages;
- Evaluate whether pre-marital Counseling could help sustain marriages.

A study to ascertain the relevance of pre-marital counseling in contemporary Ghanaian society, therefore, become very important. Whether individuals can sustain couples' marriages through pre-marital counseling remains an issue that this investigation very relevant.

METHODOLOGY

The study adopted two philosophical standpoints – positivists and social constructivists, while the study also followed the descriptive and exploratory research paradigms. The respondents were from different backgrounds and relationships, but most married couples, divorcees and those who had separated from their spouses were selected from three suburbs in the Greater Accra region. Greater Accra Region which is the capital city of Ghana was conveniently selected due to its cosmopolitan nature. The city has migrants from all the regions in the country. This region could, therefore, be said to be representative of Ghana. According to the last Population and Housing Census which took place in 2010, the population of this region is 1,665,086. The region is divided into 26 administrative districts. Three of these districts were randomly selected for the study. These three districts had a total population size of 411,377 (city population, 2019). One hundred and fifty individuals were conveniently sampled for the survey. Out of this number, 112 participated in the study. They were made up of 47 males and 65 females. In addition

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to this, two married persons, two divorcees, one person going through pre-marital counseling, and three counselors from the three locations were interviewed.

The questionnaires were distributed on a Sunday since most people in Ghana do not work on Sundays and those may go to church may not go anywhere after church so would be available to participate in the data collection. Although the questionnaires were given to the respondents at the same time, the respondents were allowed to fill them in at their own convenience and without any researcher influence to ensure its reliability. This was done to enhance the dependability and consistency of the questionnaires (Neuman, 2011; Cohen, Manion & Morrison, 2011). The data obtained from the questionnaires were used in the quantitative analyses.

In addition to the questionnaires, some interviews were conducted for twelve (12) respondents. Two married persons, two divorcees, one person going through pre-marital counseling, and three counselors from the three locations agreed to be interviewed. The respondents were given the opportunity to withdraw if they felt uncomfortable to continue. All the interviews took place at a 'neutral' ground. The interviews were also recorded on an audio recorder in order not to miss any verbal information. Two research instruments namely questionnaire and interview schedule were employed. The questionnaires were distributed to the respondents to be filled by them. The questionnaires were edited, and all inconsistencies cleaned. The data was coded and put into an SPSS for analysis. Cross-tabulations were made and used in the results. The interview data were transcribed, coded and the common themes put together and analyzed.

RESULTS AND DISCUSSIONS

At the commencement of counseling, would-be couples are given a form each to fill individually. Answers to questions that bother on couple's reasons for getting married, ages of the couples, the number of children they desire to have, and parental concern among others are sought. A careful study of the responses to these questions shows that the independent filling of the forms may be informative and revealing enough for the counselees to be advised. The form seeks information on almost all relevant issues that would-be couples may have overlooked in their courtship. An interview with a counselor revealed that sometimes misunderstandings crop up after the filling and submission of the forms. He said:

When I go through the answers given by the counselees, I see that in some cases though they are planning to get married, they have very different objectives and opinions of marriage. For instance in the case of a couple that I handled recently, whiles the lady indicated that she desired to have four children, the man specified he wanted two children. In that instance I had to assist them to synchronise their positions.

A situation like this obviously underscores the importance of pre-marital counseling. Since the aim of pre-marital counseling is to help would-be couples to travel well in their marriage journey, so it is important for them to confront some of those potential challenges of marriage earlier and deal with them before the marriage journey starts.

However, to delve into the contents of pre-marital counseling respondents were asked to provide information on the major topics treated at pre-marital counseling sessions. Out of the numerous topics that are discussed during pre-marital counseling, the most common topics include; financial issues, communications, in-laws, attending different churches, conflict resolution, planning a family, phone

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and internet usage. The topic that featured prominently was communication (87%). Financial issues appear to have prominence as well with 80% of respondents indicating this topic was treated. Issues involving in-laws, conflict resolutions and family planning also received some attention as these topics were mentioned by two out of every three respondents who received pre-marital counseling. Internet users may not have come to the attention of the organizers of pre-marital counseling sessions, as just two percent of the respondents indicated that internet usage was discussed during pre-marital counseling. It appears as though temperament of partners and infidelity as topics are not discussed specifically. This may be part of the broad topic of communication. However, it is important for counseling sessions to include character traits and issues of infidelity as these are one of the major causes of divorce (Fan & Lui, 2004; Zare, 2011).

The respondents indicated that effective communication is key to the resolution of conflicts and other related problems identified in the study. Invariably, the way a person communicates is said to be a behavior cultivated from infancy. Nonetheless, the reaction of an individual in certain situations will determine how that person reacts to issues later on in life. If a person grew up in an environment where the parents argued constantly, then that person might become apprehensive in his/her communication, for fear it will become a heated argument. Individuals who have witnessed hot exchanges between parents may sometimes grow to become an argumentative adult who only knows how to argue, instead of learning how to communicate properly.

Conflicts in marriage could remain unresolved if there is ineffective communication in a relationship. Good communication includes giving each other undivided attention. The advantages of effective communication in marriage are enormous. Effective communication can help build family bonds that result in stress-free relationships and blissful marriages. Counselors must make couples aware that no problem is too small or too big to discuss in a friendlier environment. Would-be couples must be encouraged to keep the line of communication open in their relationship. An interview with a married woman from one of the suburbs confirmed that effective communications have helped sustain her marriage. She explained that:

As for me pre-marital counselling has helped me a lot. I have come to understand the importance of transparency in my marriage. I know everything about my husband and he knows everything about me too. There is no limit to the issues that we can take on in discussions, even sex.

Conflict resolution was listed as one of the topics that were stated as the most talked about topic. Would-be couples are taught how to resolve conflicts amicably during pre-marital counseling sessions. This is important because would-be couples who do not have the requisite knowledge and skills to effectively manage conflicts in marriage may have problems which could lead to bigger conflicts in their relationships. Antunes-Alves and De Stefano (2014) have observed that a very cordial and harmonious environment is a key to a stable relationship and it also reduces a lot of conflicts in the home. The Solution-Focused theory discussed in the theoretical framework section also provides a structure for exploring and utilizing counselees' existing resources like strength, and ideas. Counselors can encourage would-be couples to use their strengths and ideas to find solutions to conflicts that may occur in their marriages. Counselors may have to delve more into the lives of the counselees in order to help them identify and acknowledge their strengths as applied in Solution- Focused, theory to resolve conflicts. In order for this theory to be applicable, it is imperative for counselors to bring to the attention of counselees, the need

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to focus on solutions to problems and not the problems. For instance, rather than complaining that there is no money, the emphasis should be on how to raise enough money for specific purposes.

There was a clear indication that matters concerning in-laws were discussed during pre-marital counseling, as 65% of respondents indicated that the role of in-laws in marriage was discussed during pre-marital counseling sessions. In Ghanaian society, in-laws play a major role in the stability of marriage. They act as watchdogs over the marriage; help in taking care of babies, particularly when couples are working parents (Kondor, 1993). In the past, parents selected spouses of their choice for their children. This may not be bad in itself as parents investigated and scrutinized the backgrounds of the would-be couples. However, there is also the perception that in-laws intermeddle with relationships and their issues can be very thorny.

The limitation to the approach of parents looking for suitable partners for their children is that the two may not be compatible. However, due to westernization, this phenomenon has reduced, so the grown adults rather choose their own partners they feel they can marry. As a result, a partner may not be the ideal choice of the in-laws, but the marriage ceremony would still be honored. This situation often creates conflict between couples and their in-laws. It is therefore important for would-be couples to know the roles of in-laws in marriages. Pre-marital counseling also teaches would-be couples how to maintain good relationships with in-laws. An interview with a married woman revealed that if not for pre-marital counseling she would have had serious problems with her mother-in-law and that would have generated conflict in her marriage. She said:

For me pre-marital counselling has helped me a great deal because I had problems with my in-laws right from the on-set of my marriage. I remember my counsellors told me that I should always remember that I would also be a mother in-law someday, so I should treat mine with all respect no matter what. That statement always rings a bell in my ears, and I can testify to the fact that it has helped me maintain good relationship with my mother in- law in particular.

The topics discussed during the counseling sessions are similar to the contents in other parts of the world. In a cross-sectional survey in Florida in the US on topics treated during premarital counseling for instance, the participants who were clergy from different Christian denominations ranked the topics treated at pre-marital counseling (Murray, 2006). There were 23 topics in all. Murray ranked the top five topics as follows:

1. Commitment to the marriage
2. Communication skills
3. Attitudes/beliefs towards marriage
4. Conflict resolution
5. The importance of spending time with one's partner

It became evident that it is mandatory for would-be couples to go through at least a number of weeks of pre-marital counseling. In some churches, some pre-marital counseling sessions could take up to twelve weeks. If it is a church setting then the counselor is required to report back to the congregation any evidence of the would-be couples' preparedness or otherwise. When the respondents were asked how long counseling sessions should last, 52% recommended twenty-four (24) weeks whiles 34% suggested 16 weeks. In addition, 14% suggested twelve (12) weeks. The duration for counseling, in itself,

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may not essentially be critical, but the content of the counseling and again the ability of the beneficiary to put into practice what they learn at the sessions. Both the married and the divorcees were of the view that pre-marital counseling should go beyond twelve weeks to ensure that all issues about marriage were discussed. Although this is not very likely to happen.

Family planning and intimacy in marriage were also mentioned by respondents as topics discussed during pre-marital counseling. It is therefore pertinent for counselors to invite experts to discuss the different birth control methods with would-be couples. There are several family planning clinics available in health facilities across the nation and counselors may do well to encourage couples to visit these facilities for professional advice and guidance.

Respondents were asked to indicate their views on the importance of pre-marital counselling and the results are presented in Table 1.

Table 1. Importance of pre-marital counselling

Importance of Pre-Marital Counselling	Strongly Agree (%)	Agree (%)	Indifferent (%)	Disagree (%)	Strongly Disagree (%)
Important	63	32	5	0	0
Waste of time	0	8	12	73	15
Sustaining marriage	33	58	4	5	0
Should be mandatory	12	37	11	28	12

Source: Fieldwork Data

None of the respondents disagreed or strongly disagreed to the importance of pre-marital counseling although a few of the respondents (8%) agreed that pre-marital counseling is a waste of time. Eighty-eight (88%) percent of the respondents either strongly disagreed or disagreed that pre-marital counseling is a waste of time. Pre-marital counseling, contributing to marriage sustainability, was either agreed or strongly agreed by 91% of the respondents and four percent of the respondents were indifferent. On the issue of whether or not pre-marital counseling should be mandatory or not, there was very little difference between those who agreed and those who did not agree. This is interesting as the majority asserted to its importance but did not recommend its enforcement.

The relationship between pre-marital counselling and current marital status is explored in Table 2.

Table 2. Pre-marital counselling and current marital status

Pre-Marital Counselling	Marital Status			Total
	Married	Separated	Divorced	
Respondents with pre-marital counselling	67%	44%	45%	54
Respondents without pre-marital counselling	33%	56%	55%	46
Total	100	100	100	100

Source: Fieldwork Data

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The results presented in Table 2 suggest a relationship between marital status and pre-marital counseling. Respondents who were married were more likely to have received pre-marital counseling than their separated or divorced counterparts. Table 2 shows that while 67% of the married respondents had received pre-marital counseling, only 44% and 45% of the separated and divorced respectively had received pre-marital counseling. Consequently, while about a third of the married did not receive pre-marital counseling, more than half of each of the respondents who were separated or divorced did not receive pre-marital counseling. This clearly suggests that pre-marital counseling may have led to marital stability.

Although some respondents stated that they did not undergo formal pre-marital counseling this may not necessarily mean they did not have an informal pre-marital briefing. This is similar to what Nukunya (1999) observed in his study in the Anlo traditional area, in which young women and men are kept in-doors and prepared into adulthood and into marriage. This is another form of pre-marital preparation which is done in some communities in Ghana. The relevance of pre-marital counseling to the sustainability of marriages cannot be overemphasized. Obviously, a good preparation before marriage can be crucial to a successful marriage.

CONCLUSION

Marriage is an institution that is very important in most societies. However, the decision to get married is an individual decision or through the influence of family members in some communities. Day-in and day-out people get married but to what extent are they prepared? Most conflicts in marriages come as a result of inadequate preparation of would-be couples. Would-be couples must know the dos and don'ts in marriage before going into it. Pre-marital counseling serves as a tool that assists would-be couples to have a better understanding of what is expected in marriage. Some people enter into marriage with wrong perceptions and unrealistic expectations but when they are confronted with reality, it becomes difficult to handle the situation and in often times leads to separation or divorce. Couples who receive pre-marital counseling may be able to handle such challenges.

Would-be couples may contract marriage when they are not prepared for family life. In this direction adequate preparation before the marriage could be significant as a mean to sustain the marriage. Pre-marital counseling is a tool used to prepare would-be couples for marriage. It is used to equip would-be couples to have a strong footing in life as a husband and wife. Pre-marital counseling is still relevant although some marriages have not been sustained in spite of going through pre-marital counseling. Although pre-marital counseling seems not to solve all marriage problems, it should not end after individuals get married but rather, it should be an on-going process in marriage. In other words, counseling should not be an event but a process because sometimes issues, as they are perceived, may be different from reality and such issues may be evolved in the relationship.

DECLARATION OF CONFLICT OF INTERESTS

The author(s) declare no potential conflicts of interest with respect to the research, authorship and publication of this article.

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Chapter 76
The Impacts of Reactive Aggression and Friendship Quality on Cyberbullying Behaviour:
An Advancement of Cyclic Process Model

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ABSTRACT

With the advancement of communication tools, the incident of cyberbullying has become a social issue (Edwina, 2014). Anouk et al. (2014) have developed a Cyclic Process Model with the aims to examine the underlying mechanisms of cyberbullying behavior pertaining to the process how victims become cyberbullies. It examines the interplay between peer victimization, anger/frustration, exposure to antisocial media content and cyberbullying behaviour among the adolescents (Anouk et al., 2014). However, this model does not provide sufficient understanding to what extent the reactive aggression and friendship quality affect the transformation of cyberbullying behaviour from the stage of peer victimization. In addition, there are relatively few investigators who have examined the impacts of reactive aggression and friendship quality to cyberbullying behaviour. The purpose of this research would like to investigate the relationships among the peer victimization, anger/frustration, exposure to social media content, reactive aggression, friendship quality and cyberbullying behaviour. A quantitative research was conducted

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among the addressed within the age group of 18 to 22 years old that have experienced certain extent of cyberbullying. A total of 520 questionnaires were distributed via judgmental sampling technique. The finding of this research concluded that peer victimization, anger/frustration, exposure to antisocial media content and reactive aggression are the key determinants of cyberbullying behavior. Two mediation effects were discovered in which exposure to antisocial media content mediates the relationship between anger/frustration and cyberbullying behavior as well as reactive aggression mediates the relationship between peer victimization and cyberbullying behavior. However, the study did not support the role of friendship quality in moderating the relationship between anger/frustration and cyberbullying behavior.

INTRODUCTION

In the 21st century, technology has changed the ways how the adolescents communicate with each other. According to Kowalski et al. (2008), majority of the adolescents view electronic communication tools as essential for their social interactions. With the advancement of technology, some adolescents conveyed their messages through electronic media to harm someone or others and this phenomenon is known as "cyberbullying" (Wang et al., 2012). The incident of cyberbullying has become a social issue because the misunderstanding of the underlying causes of cyberbullying behaviour may lead to the wrong development of prevention method to cope with the cyberbullying problem (Ikuko Aoyama et al., 2011). Furthermore, many college students have committed suicide because they get cyberbullied from other people and it causes individuals feel uncomfortable in the school environment (Edwina, 2014).

Cyberbullying behaviour is defined as an aggressive behaviour that having three characteristics, including repetitive, imbalance of power and intended to harm the targeted individual (Bauman, 2010). Victims of cyberbullying will reflect the feelings of sadness, unhappy, anxiety, worry, fear, and moody which may affect their lifestyle (Beran & Li, 2005). Based on the research done by Edwina (2014), the bullying behaviour normally occurs at the middle, and high school and even in the higher education in which it may lead individuals feel uncomfortable when studying in the school environment.

Anouk et al. (2014) have developed a Cyclic Process Model with the aims to examine the underlying mechanisms of cyberbullying behaviour pertaining to the process how victims become cyberbullies. The Cyclic Process Model examines the interplay between peer victimization, anger/frustration, exposure to antisocial media content and cyberbullying behaviour among the adolescents (Anouk et al., 2014). Anouk et al. (2014) argue that peer victimization has direct impact on both anger/frustration and cyberbullying behaviour among the adolescent victims. The anger/frustration felt by the adolescent victims can directly affect the cyberbullying behaviour and indirectly affect the cyberbullying behaviour via the exposure to the antisocial media content. However, this model does not provide sufficient understanding to what extent the reactive aggression and friendship quality affect the transformation of cyberbullying behaviour from the stage of peer victimization. In addition, there are relatively few investigators who have examined the impacts of reactive aggression and friendship quality to cyberbullying behaviour. Danielle et al. (2012) argue that the face-to-face bullying was related to reactive aggression and at the end led to cyberbullying behaviour. Victims may pursue reactive aggression if they interpret the intentions of a person like to exert aggression through gossip and rumour spreading of another as being hurtful and therefore they fall in anger and retaliate as they reacting to the perceived threat from another (Danielle et al., 2011). The study on the relationship between reactive aggression and cyberbullying behaviour is

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becoming more critical as the adolescents are using the internet as their tools for demonstrating aggression toward others (Hinduja & Patchin, 2008; Pew Internet and American Life Project, 2010; Li, 2007; Ybarra & Mitchell, 2004). The study from Danielle et al. (2011) concludes that peer victimization is related to the reactive aggression and subsequently leads to the cyberbullying behaviour. The adolescents spend a lot of time with their friends or peers and the quality of close friendship has significant influence on their emotional well-being (Flanagan et al., 2008). The anger/frustration felt by the victim adolescents during peer victimization will be released when there have someone listens and cares for them (Kochenderfer-Ladd & Skinner, 2002; Naylor et al., 2001). Therefore, friendship quality in certain extent will moderate the relationship between the anger/frustration and cyberbullying behaviour. In due respect, the purpose of this research would like to investigate the relationships among the peer victimization, anger/frustration, exposure to social media content, reactive aggression, friendship quality and cyberbullying behaviour. The main research question in this research is "what are the factors that determining cyberbullying behaviour?"

LITERATURE REVIEW

Theoretical and Framework Background

Cyclic Processing Model

Anouk et al. (2014) have adopted a cyclic processing model approach to investigate the relationships among peer victimization, anger/frustration, exposure to antisocial media content and cyberbullying behaviour among the adolescents. This model is aimed to examine the underlying mechanisms of cyberbullying behaviour that pertaining to the process of how victims become cyberbullies (Fanti et al., 2012).

Crick & Grotpeter (1996) define peer victimization as the harassment that involving directly from perpetrator, face-to-face physical or intimidation and verbal aggression toward the target that taken places among peers at a school. Peer victimization can also be described as doing an action to harm others and victims suffering from the attacks being performed by bullies through either directly with physically and verbally aggression (Hanish & Guerra, 2000; Hawker & Boulton, 2000) or indirectly through a third party to having manipulative attack toward the victims (Mishna, 2003; Rigby, 1996). Some studies have indicated that the victims who experience from face-to-face bullying will become cyberbullies as they are in the desire for revenge to those who bullied them (Wright & Li, 2012; Varjas et al., 2010; Grigg, 2010; Ko¨nig et al., 2010) or by taking cyberbullying as their compensation in exchange for their feeling of unable to retaliate in the face-to-face bullying (Ybarra & Mitchell, 2004; Smith et al., 2008). Therefore, various studies have shown that there is a relationship between being a victim of peer bullying and being a cyberbully (Ybarra & Mitchell, 2004; Smith et al., 2008).

General Strain Theory

Peer victimization experiences negative emotion that related to the feelings of anger (Ortega et al., 2009; Patchin & Hinduja, 2006; Beran & Li, 2007; Didden et al., 2009). Adolescents who experience the emotion of anger may turn to involve themselves into cyberbullying and this kind of relationship could be explained by the General Strain Theory (Patchin & Hinduja, 2010). According to the General

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Strain Theory, individuals who experience in strain, and as a result of that strain in a situation that make them feel angry or frustrated, they are more likely to engage in criminal or deviant behaviour such as cyberbullying (Agnew & Helena, 1992; Agnew, 2011). Therefore, General Strain Theory provides a solid foundation to elaborate the relationship between victimization and emotion of anger (Agnew & Helena, 1992). In conclusion, those highly victim-sensitive individuals would be particularly motivated to avenge the prior victimization (Gollwitzer & Denzler, 2009; Gollwitzer et al., 2011).

General Aggression Model and Social Cognitive Theory

The relationship between the exposure to antisocial media content and cyberbullying behaviour can be best described by the General Aggression Model and the Social Cognitive Theory (Bandura et al., 1963; Bandura, 2001). For the General Aggression Model, Hill (1960) and Mowrer (1960) claim that the occurrence of vicarious learning phenomena is contingent on the administration to the performing model and therefore reinforcing stimuli which the observer presumably experiences as vicarious reinforcements or imitative behaviour from television (Bandura et al., 1963) as well as social media content (Anouk et al., 2014). Whereas, Social Cognitive Theory argues that the psychosocial functioning will be depended on the triadic reciprocal causation: behavioural determinants, personal determinants and environmental determinants (Bandura, 1963; Bandura, 2001; Bandura, 2001b). According to Bandura (2001, p. 266), these three determinants are influenced by personal factors in the form of cognitive, behavioural patterns, biological events, affective and environmental events; and all these factors will interact with the three determinants reciprocally (Bandura, 2001, p. 266). Therefore, Bandura (2001) claims that media in the social network and community setting will influence individuals by providing natural incentives and continuous personalized guidance for the desired change (Bandura, 2001).

Downward Spiral Model

Downward Spiral Model can be used to illustrate the issue that in related to the violent media content (Slater et al., 2003). Slater et al. (2003) claim that the aggressiveness among adolescents leads to a higher attractiveness to the violent media content. Conversely, the exposure to such violent content will reinforce their aggressiveness and indicating a downward spiral of negativity (Slater et al., 2013). Therefore, the exposure of youth to media violence will lead to the increasing in their aggressiveness (Anderson & Bushman, 2002). By exposing to the antisocial media content (such as rough language, substance abuse, gossiping, and risky behaviour) (Brown & Witherspoon, 2002), it will reinforce the adolescents to perform cyberbullying behaviour (Vandebosch & Van Cleemput, 2009; Walave & Heirman, 2011; Livingston et al., 2011).

Cyberbullying Behaviour

A bullying is an unwanted aggressive behaviour in the real world that will happen repeatedly against a victim. The cyberbullying materials such as e-mail, text, comment, pictures or video can be viewed or observed repeatedly by anyone who can access and that materials can also be published by the perpetrator (Campbell, 2005; Slonje & Smith, 2008). It can be related to "observed or perceived" power imbalance, physical cues such as hitting and kicking, verbal cues such as teasing and threatening and relational cues such as rumour spreading and exclusion (Gladden et al., 2014). Moreover, types of the

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bullying may include negative actions such as physical, verbal, and indirect aggression that which form the traditional bullying (Roberto, 1999). In short, cyberbullied may receive nasty text messages, photos or video of violent scenes, silent or prank phone calls, or nasty or rude e-mails, humiliate on Web pages or web sites, insults in instant messaging, insults in chatrooms, disagreeable pictures or photos on Web sites from the cyberbullying (Dowell et al., 2009).

The problem of cyberbullying is rampant among the young people or adolescents of whom often utilize websites, instant messaging, access video, e-mails, chat rooms, social networking sites, and sending text messaging (Boyd, 2008; Bryant et al., 2006; Palfrey & Gasser, 2008). Majority of the adolescents view electronic communication tools as the essential for their social interactions (Kowalski et al., 2008). According to Willard (2006), seven methods of violent acts in the cyberbullying have been identified, including irritation, harassment, cyberstalking, denigration, masquerading, trickery, and exclusion. Adolescents who experience being bullied online are more likely to skip schools, avoid public places, possess high degree of detentions or suspensions, and carry arms to protect himself (Ybarra et al., 2007). Victims will reflect their feelings of sadness, anxiety, worry, sorrow and fear; and exhibit inability to concentrate in the study that may affect their academic grades (Beran & Li, 2005).

Peer Victimization, Anger/Frustration and Cyberbullying Behaviour

Peer victimization can be defined as victimization occurs repeatedly and aggressively when an adolescent is the targeted person from bullies as an inequality of power such as social, physical or perceived abilities of the victim involved, and there is an intention from bullies to cause any harm to the victim (Hazler et al., 1996). Furthermore, peer victimization is a kind of harassment that involving direct confrontational (i.e. an individual threatens to stop being friends with the victims unless they do what the aggressor wants them to do) (Crick & Grotpeter, 1996) or suffering attacks by bullies either direct with physically attack or verbally attack via name-calling (Hanish & Guerra, 2000; Hawker & Boulton, 2000) or manipulative attack that bullies through a third party to attack indirectly (Mishna, 2003; Rigby, 1996).

Research shows that most of the victims share similar characteristics in the bullying environment. The characteristics include the willingness to give anything that wanted by bullies, to express their outward stress and distress, their unwillingness to retaliate, low self-esteem, low social adjustment, the victims are too soft, and cultural victimization (Jordan & Austin, 2012; Cénat et al., 2014; Garaigordobil et al., 2013; Suresh & Tipandjan, 2012; Cook et al., 2010; Olweus, 1999; Monks et al., 2008).

Rudolph et al. (2009) argue that the victims of violence would become aggressive to cyberbullying as the experiences of peer victimization could undermine the development of effective emotion management. In addition, some of the research discover that most of the cyberbullies were also cyber victims, and there is almost half of the cyberbullies reported that they have been victims of traditional bullying before they have intended to be cyberbullies (Ybarra & Mitchell, 2004). Therefore, Anouk et al. (2014) conclude that there is a positive significant relationship between peer victimization and cyberbullying. Anouk et al. (2014) also assert that there is a positive significant relationship between peer victimization and anger/frustration. In due respect, two hypotheses were developed as follows:

H_4: Peer victimization is positively related to the anger/frustration.
H_5: Peer victimization is positively related to the cyberbullying behaviour.

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Antisocial Media Content and Cyberbullying Behaviour

Media always plays an important role in the adolescent developmental process (Konijn et al., 2007). Most of the adolescents are heavy users of electronic media and social media (Rideout et al., 2010). Antisocial media content will influence the cyberbullying behaviour, belief and attitudes of adolescents in negative way (Konijin et al., 2007). Huesmann and Malamuth (1986), Josephson (1987) and Pearl (1987) also assert that viewing violent television programs will increase the aggressive behaviour among some children. When the adolescents angry, they will use violent media to lower their angriness (Flammer & Schaffner, 2003; Olson et al., 2007; Olson et al., 2008). According to Lee et al. (2004), some research show that increasing the exposure to violent media is related to the face-to-face bullying, while it is amplified by feelings of the anger. In addition, Lee and Kim (2004) as well as Knutsche (2004) also report that increasing the exposure to violent media is related to peer bullying which is amplified by feeling of anger.

In conclusion, most victims of the electronic bullying felt that the bullying negatively affected them, making them feel sad, hopeless and depressed (Raskauskas & Stoltz, 2007). The antisocial media content currently also seems to be highly popular among adolescents (Strasburger, 2009; Strasburger et al., 2010) in which the popularity may coincide with their increased need for deviant behaviour and turn to being cyberbullies due to their developmental stage and search for an independent identity (Arnett, 1992).

H_1: Anger/Frustration is positively related to the cyberbullying behaviour.
H_2: Exposure to antisocial media content is positively related to the cyberbullying behaviour.
H_3: Anger/Frustration is positively related to the exposure to antisocial media content.
H_8: Exposure to antisocial media content mediates the relationship between anger/frustration and cyberbullying behaviour.

Reactive Aggression, Peer Victimization and Cyberbullying Behaviour

The meaning of reactive aggression is a mix of hostile, impulsive, and angry responses that function as retaliation to real or perceived threat, frustration, or provocation (Rebecca et al., 2014). A person who bullies the other person can be viewed as reactive -- it's a defense reaction to perceived threat that come together with anger (Price & Dodge, 1989). Some cyber-perpetration may be reactive in which adolescents "defend" themselves in the face of victimization (Kathryn et al., 2012). Besides, Fite et al. (2008) claim that reactive aggression is a defensive-driven and it is the result of others' behaviour, particularly if those behaviour are perceived as threatening or being recognized as deliberate. In addition, reactive aggression perhaps is a form of physical or verbal retaliation such as pushing or shouting toward an aggressor or bully (Burton et al., 2013). In a typical development, both bullies and victims are known for their high degree level of anger (Kochenderfer-Ladd, 2004; Mahady Wilton, 2000), but this anger may be generated from different underlying factors such as the desire for dominance in bullies and an attempt to defend themselves in victims (Carolien et al., 2012). Moreover, anger in bullies and victims alike may stem from a tendency towards reactive aggression that being reflected in the victim's behaviour with the intention to protect themselves (Camodeca et al., 2002; Salmivalli & Nieminen, 2002).

Anouk et al. (2014) and Carolien (2012) state that adolescents will experience anger or frustration when they get to be bullied face-to-face by other people and they are more at risk of engaging themselves in cyberbullying behaviour. Beside anger, victims are also represented by other negative feelings such

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as distress, worry and sadness (Camodeca & Goossens, 2005; Fleming & Jacobsen, 2009; Hawker & Boulton, 2000). It is important to note that cyber site is the place that allows adolescents to release their anger from physical bullied and hence they release their anger by cyberbullying other people through online (Rebecca et al., 2014). In other words, victims that being involved in the face-to-face bully, they will likely to protect themselves via reactive aggression, and hence they will start bully other people through online so that they can defend themselves in the victimization (Agnes, 2012).

Based on the above arguments, it can be hypothesized that the reactive aggression is a mediator between peer victimization and cyberbullying. As part of the defending behaviour from the victimization process, reactive aggression will accelerate the peer victimization towards a cyberbullying behaviour. Rebecca (2014) concludes that reactive aggression is significantly correlated with cyberbullying. The following hypotheses were developed:

H_6: Peer victimization is positively related to reactive aggression.
H_7: Reactive aggression is positively related to the cyberbullying behaviour.
H_9: Reactive aggression mediates the relationship between peer victimization and cyberbullying behaviour.

Friendship Quality, Peer Victimization and Cyberbullying Behaviour

Flanagan et al. (2008) argue that adolescents spend a lot of time with their peers and the quality of close friendship is associated with emotional well-being. In other words, the emotional well-being or feeling of adolescents will be influenced by the quality of close friendship. The bullying victims use various coping strategies such as getting the social support from their friends (Naylor et al., 2001). The victims will feel more accepted and empowered to overcome the challenges when expressing their painful experiences to someone who listens and cares (Kochenderfer-Ladd & Skinner, 2002; Naylor et al., 2001). This argument is supported by Greca & Harrison (2005, p.58) and they claim that "it is possible that the qualities of best friendships (support, disclosure) may actually reinforce depressive feelings for some adolescents, if the adolescents discuss [...] and focus on negative feelings". Woods et al. (2009) argue that the victims of traditional bullying may turn to a friend who is not a member of bullying network to receive support and help.

According to Ikuko Aoyama et al. (2011), the friendship quality serves as moderator between the negative effects of cyberbullying on the psychological states of students. Although the effect size of the moderating effect is small, friendship quality appears to influence self-esteem among victimized youth (Ikuko Aoyama et al., 2011). Among the victims with low self-esteem, a better friendship quality can work as a buffer to minimize the negative effects on the psychological states of students (Ikuko Aoyama et al., 2011). Therefore, a good friendship quality can moderate the relationship between anger/frustration and cyberbullying behaviour. The following hypothesis is developed:

H_{10}: Friendship quality moderates the relationship between anger/frustration and cyberbullying behaviour.

Based on the above literature review, a proposed conceptual framework was presented in Figure 1

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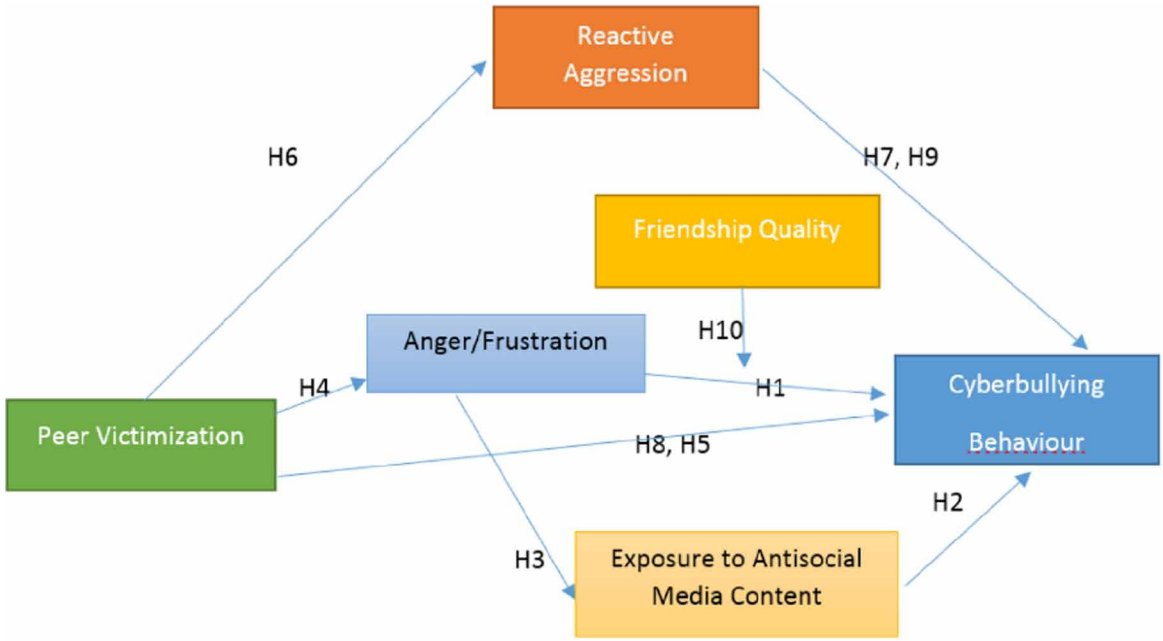
Figure 1. The proposed conceptual framework



METHODOLOGY

Research Design

This research adopted quantitative research design to evaluate the hypothesized relationships because the quantitative research design involved the quantification of data to aid the relationship between the variables (Bryman & Bell, 2011). In this research, primary data would be collected via cross-sectional study.

Measures

The questionnaire was divided into two sections. The first section of the questionnaire was dealing with the measurement scales that used to measure the respective constructs that appeared in the conceptual model. Whereas, the demographic profiles of the respondents were measured in the second section of the questionnaire. Six items were adapted from Anouk et al. (2014) to measure the construct 'Peer Victimization'. The anger/frustration is measured by seven items that adopted from Anouk et al. (2014). The construct 'Exposure to Antisocial Media Content' was measured by eleven items that all sourcing from Anouk et al (2014). Eleven items that measuring the construct cyberbullying behaviour were adopted from Anouk et al. (2014). A total of six items that sourced from Danielle et al (2012) were used to measure the construct reactive aggression. Lastly, the construct friendship quality was measured by six items that sourcing from Ikuko Aoyama et al. (2011). A five-point Likert scale (1 = Never, 5 = Very Often) was used to measure the constructs peer victimization, anger/frustration, exposure to antisocial media content, cyberbullying behaviour and reactive aggression. However, the scale of friendship quality was measured by a five-point Likert scale (1 = Not True, 5 = True).

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Sampling and Data Collection

Based on the research done by Edwina (2014), the bullying behaviour normally occurrs at the middle, and high school and higher education; and it causes individuals feel uncomfortable when studying in the school. Therefore, adolescents within the age group of 18 to 22 years old will be targeted as the possible respondents in this study. This group of adolescents mostly study in the university. Respondents were selected from a private university in Malaysia. Judgemental sampling technique was used in this research to select the potential respondents of the population of interest that must experience certain extent of cyberbullying (Malhotra, 2010, p.379). Pilot test was carried out to ensure all the items in the questionnaire were understandable, readable, and clear so that the researchers have the opportunity to make the amendments (Zikmund et al., 2010). Questionnaire was revised as according to the feedbacks received from the pilot test. Self-administered questionnaire survey was adopted to collect the primary data. A total of 520 questionnaires were distributed and only 471 usable questionnaires were analysed in the study.

Control Variables

The control variable in this research that studying the cyberbullying behavior among the adolescents are age group and gender. Erica (2015, p.19) acknowledges that age has been shown great influence on adolescent' involvement in bullying as a perpetrator and as a victim. Moreover, the study from Şenay Sezgin and Murtaza (2015) indicates that there is a significant difference in terms of gender for the issue of adolescents' problematic internet use; and male adolescents displayed more problematic internet use that led to higher cyberbullying tendencies. On the other hand, there is another finding shows that girls engage more in perpetration behaviour than boys by using indirect and relational forms of bullying such as social exclusion, spreading rumours, peer rejection, through cyberbullying (Ibrahim Tanrikulu & Campbell, 2015). Therefore, it is important to classify the roles of age and gender as possible risk factors for bullying behaviour. Therefore, the age group of adolescent ranging from 18 to 22 years old and both male and female will be the targeted as the potential respondents.

Method of Analysis

A series of statistical tests were performed, including Preliminary Analysis, Descriptive Analysis, Scales Measurement, and Inferential Analysis. For the Preliminary Analysis, Non-response Bias Analysis, Common Method Variances Analysis and Multicollinearity Analysis were conducted to ensure the quality of the research findings (Bryman & Bell, 2011). For the scales measurement, the reliability and validity tests were conducted to ensure the internal consistency and accuracy of the variables that measuring the respective constructs (Zikmund et al., 2010). Internal consistency reliability which is measured by Cronbach's Alpha will be used to assess reliability test. Whereas, construct validity which is measured by Exploratory Factor Analysis will be used to assess validity test. The inferential analysis such as regression analysis, mediated regression analysis and hierarchical regression analysis were used to test the hypothesized relationships. All the statistical analyses were conducted via the Statistical Package for the Social Science (SPSS) version 22.

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DATA ANALYSIS AND FINDING

Preliminary Analysis

Non-Response Bias Analysis

According to Armstrong and Overton (1977), independent sample T-test can be used to evaluate the non-response bias. The rule of thumb for identifying non-response bias can be detected at the $p>0.05$ level (Armstrong & Overton, 1977) in which the result indicates that there is a significant different outcome between response and non-response samples. Based on the gender criteria, the outcome of the non-response bias analysis via independent sample T-test was found to be non-significant as $p=0.001$ ($p< 0.05$). Thus, the sample can be treated as a single data and it can be concluded that "non-response bias was not evident" (Mathews 2011, p. 8).

Common Method Variance Analysis

Podsakoff (2003) claims that response bias can be one of the systematic measurement errors that creating suspicion on validity of the relationship between the constructs being estimated. A solution to avoid response bias on common method variance can be measured by applying a statistical method and it is known as Harman single-factor test to minimize the effect of common method variance on the outcome of the research study (Podsakoff et al., 2003) and to ensure there is "actually does nothing to statistically control for (or partial out) method effects" (Podsakff et al 2003, p. 889). To support this argument, Podsakoff et al. (2003) claim that the existence of problem in common method bias was associated with variance more than 50%. According to the statistical finding in this research, the percentage of variance extracted for factor was 26.71% in which this figure was less than 50% rule of thumb set by Podsakff et al. (2003). Therefore, the data concluded that there was non-existence of the problem in common method bias in this research.

Multicollinearity Analysis

Hair et al. (2010) claim that the multicollinearity issue will not improve the independence assumption of the normality of the distribution because "the existence of problem in calculating the independent regression coefficients for the correlated independent variables due to the high correlation between independent variables". In addition, Hair et al. (2010) argue that the outcome of multicollinearity analysis can be evaluated by Tolerance Value and Variance Inflation Factor. To ensure no problem in the multicollinearity analysis, the value for 'Variance Inflation Factor' (VIF) for all the independent variables were less than 5.0 and the value of 'Tolerance Value' (TV) for the independent variables were more than 0.1 (Hair et al., 2010). According to the statistical findings, the value for VIF was ranging from 1.199 to 1.420 and the value for TV was ranging from 0.704 to .0834. In other words, all the values of VIF & TV were within the guidelines of the rules of thumb. In conclusion, the data indicated that there was non-existence of the problem in the multicollinearity analysis and therefore the independence assumption of the normality test can be identified.

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Descriptive Analysis

According to the statistical findings from the survey, male respondents represented 47.3 percent (223 male respondents) while female respondents represented 57.2 percent (248 female respondents) of the total respondents. In the case of age distribution, the highest number of respondent is 19-year-old (35.5 percent). According to the education level, most of the respondents were mainly come from the diploma programme (64.3 percent). In terms of time spending for the internet surfing per days, majority of the respondents spent more than 6 hours per days (47.6 percent). Lastly, the result showed that majority of the respondents stay at home for internet surfing (85.8 percent).

Reliability and Validity Tests

Reliability

Reliability is the important scale measurement to evaluate the internal consistency of the items for the respective contructs (Yvonne, 2011). The coefficient value of Cronbach Alpha Coefficient 0.7 is used as a rule of thumb to assess the internal consistency of the items (Cavana et al., 2001). The results of Cronbach's alpha in Table 1 showed that all the constructs were well above 0.7. The Cronbach's alpha for all the tested constructs ranging from 0.820 (anger/frustration); 0.872 (peer victimization); 0.873 (reactive aggression); 0.873 (friendship quality); 0.906 (exposure to antisocial media content); and 0.932 (cyberbullying behaviour). It can be concluded that all the items that measure the respective constructs have high internal consistency and stability.

Validity Test

The validity of the scale measurement that reflected by construct validity was tested by using the exploratory factor analysis (Cavana et al., 2001). Based on the output of the factor analysis as indicated in Table 1, the analysis was appropriate because the Kaiser-Meyer-Olkin (KMO) was 0.920 in which the value is between 0.5 and 1.0. The output showed significant result for all the correlations within a correlation matrix by the Bartlett test of sphericity in statistical test with the value of p=0.000 (d.f.=1081; approx. Chi-Square=12982.933). Based on the principal axis factoring and oblique rotation procedures, all the constructs have greater Eigenvalues than 1.0 (lowest of 1.935 to highest of 3.795). All the values of factor loadings were more than 0.5. Construct validity includes convergent validity and discriminant validity According to the Rotated Component Matrix, convergent validity was achieved because the scale correlates positively with other scale that measuring the same construct. In addition, discriminant validity was fulfilled because the "measure does not correlate with other constructs from which it is supposed to differ and "it involves demonstrating a lack of correlation among differing constructs" (Malhotra, 2010, p.321). It can be concluded that the measurement scales are valid because "the extent to which differences in observed scale scores reflect true differences among objects on the characteristic being measured, rather than systematic or random error" (Malhotra, 2015, p.226).

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Table 1. Reliability and validity of the scale measurement

Factor's Name	Variable	Factor Loading	Eigen-Value	Percentage of Variance Explained	Cronbach's Reliability Coefficients
Cyberbullying Behaviour (CB)	How often do you send links with videos or cell phone pictures of classmates performing some kinds of behaviour of a sexual nature?	0.632	12.554	15.570	0.932
	How often do you record a video or take cell phone pictures of classmates performing some kinds of behaviour of a sexual nature?	0.712			
	How often do you broadcast online other people's secrets, compromising information or images?	0.691			
	How often do you send links with videos or cell phone pictures of classmates who is being laughed at by a group and forced to do something humiliating or ridiculous?	0.72			
	How often do you record a video or take cell phone pictures while a group laughs and forces another person to do something humiliating or ridiculous?	0.768			
	How often do you record a video or take cell phone pictures while someone hits or hurts another person?	0.774			
	How often do you hang humiliating images of classmates on the Internet or send links of these images to other people for them to see?	0.757			
	How often do you hack to send messages by e-mail that could make trouble for the other person?	0.745			
	How often do you send links of videos or cell phone pictures while someone hits or hurts another person?	0.775			
	How often do you send threatening or insulting messages by e-mail or mobile phone?	0.764			
Reactive Aggression (RA)	You had posted aggressive messaging or mean things when they annoyed you.	0.743	1.978	7.805	0.873
	You had posted aggressive messaging or mean things to defend yourself or someone else.	0.781			
	You had said or posted aggressive messaging or mean things when you were teased.	0.772			
	You become angry when do not get your way so you take it out online.	0.733			
	You had posted embarrassing photos or mean things to defend yourself or someone else.	0.641			
	You had posted embarrassing photos or mean things when they annoyed you.	0.652			
Friendship Quality (FQ)	I have friend makes me feel good about my ideas.	0.811	3.566	8.087	0.873
	I have friend tells me I am good at things.	0.856			
	I have friend makes each other feel important and special.	0.828			
	I have friend tells me I am pretty smart.	0.715			
	I have friend helps me so I can get done work quicker.	0.745			
	I have friend that helps each other for the school work.	0.685			

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Table 1. Continued

Factor's Name	Variable	Factor Loading	Eigen-Value	Percentage of Variance Explained	Cronbach's Reliability Coefficients
Exposure to Antisocial Media Content (AM)	On television or on the Internet, how many times do you watch people destroying someone else's belonging?	0.727	4.949	12.063	0.906
	On television or on the Internet, how many times do you watch people shooting another person?	0.738			
	On television or on the Internet, how many times do you watch people stealing?	0.752			
	On television or on the Internet, how many times do you watch people who drink (too much) alcohol?	0.784			
	On television or on the Internet, how many times do you watch people fight?	0.756			
	On television or on the Internet, how many times do you watch people using drugs?	0.748			
	On television or on the Internet, how many times do you watch people having sex?	0.629			
	On television or on the Internet, how many times do you watch people talking about sex?	0.634			
	On television or on the Internet, how many times do you watch people performing stunts on their scooter?	0.573			
	On television or on the Internet, how many times do you watch people who are making a fool about someone?	0.638			
	On television or on the Internet, how many times do you watch people street racing?	0.587			
Anger/ Frustration (AF)	How often do you feel like yelling at a parent or teacher?	0.658	1.731	7.525	0.820
	How often do you feel like getting even with someone who has harmed you?	0.654			
	How often do you feel like physically lashing out against a parent or teacher?	0.642			
	How often do you feel like life has given you a raw deal (has been unfair)?	0.656			
	How often do you feel like a powder keg ready to explode?	0.669			
	How often do you feel like other people are always lucky and they get all of the breaks in life?	0.623			
	How often do you lose your temper?	0.630			
Peer Victimization (PV)	How often do other classmates bully or pick on you?	0.724	3.044	7.988	0.872
	How often do other classmates hurt your feelings?	0.755			
	How often do other classmates gossip or say mean thing about you?	0.785			
	How often do other classmates exclude you?	0.772			
	How often do other classmates tease or make fun of you?	0.617			
	How often do other classmates ignore you?	0.722			

Note: KMO Measure of Sampling Adequacy = 0.920; p=0.000 (p<0.05); df = 1081
Cumulative Percentage Rotation Sums of Squared Loadings = 61.423

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Inferential Analysis

Simple Regression Analysis

Simple regression analysis was used to evaluate the relationship between peer victimization and anger/frustration. Based on the model fit analysis, peer victimization accounted for a significant 26.1% of the variability in anger/frustration, $R^2 = .261$, adjusted $R^2 = .259$, $F(1,469) = 165.407$, $p = .000$. The P value for peer victimization is 0.000 and the value of un-standardized Beta coefficient for peer victimization is 0.500 indicated that peer victimization is positively related to anger/frustration. Hence, the fourth hypothesis (H4) is accepted.

Multiple Regression Analysis

Multiple regression analysis was used to evaluate the relationships of reactive aggression, anger/frustration, peer victimization on cyberbullying behaviour. Based on the model fit analysis in combination, reactive aggression, anger/frustration, and peer victimization accounted for a significant 44% of the variability in cyberbullying behaviour, $R^2 = .440$, adjusted $R^2 = .437$, $F(3,466) = 122.111$, $p = .000$. From the statistical findings, the P value for reactive aggression was 0.000 ($p<0.05$) and the associated value of un-standardized Beta coefficient was 0.888. The study concluded that reactive aggression is positively related to cyberbullying behaviour. Hence, the seventh hypothesis (H7) is supported in this research. Besides, the statistical findings also indicated that the p value for anger/frustration was 0.008 ($p<0.05$) and the corresponding value of un-standardized Beta coefficient was 0.177. The study concluded that anger/frustration is positively related to cyberbullying behaviour. Hence, the first hypothesis (H1) is supported in this research. In addition, the statistical findings also indicated that the p value for peer victimization was 0.000 ($p<0.05$) and the corresponding value of un-standardized Beta coefficient was 0.259. The study concluded that peer victimization is positively related to cyberbullying behaviour. Hence, the fifth hypothesis (H5) is supported in this research. In conclusion, the study showed that reactive aggression has strongest relationship (0.888) with cyberbullying behaviour, then following by peer victimization (0.259) and anger/frustration (0.177).

Mediated Regression Analysis

Based on the guidelines of mediated regression analysis proposed by Baron and Kenny (1986), mediating effect will be taken place when four conditions are fulfilled in the statistical analysis. The four conditions are: (1) Peer victimization (independent variable) is significantly related to the cyberbullying behaviour (dependent variable); (2) Peer victimization (independent variable) is significantly related to reactive aggression (mediating variable); (3) When both peer victimization and reactive aggression acting as predictor variables to the cyberbullying behaviour in the regression analysis, the result must indicate that reactive aggression and peer victimization are significantly related to cyberbullying behaviour; (4) The regression coefficient for peer victimization obtained from the third condition as above will be smaller than the regression coefficient for peer victimization that obtained from the first condition.

The result of the mediating regression analysis was presented in Table 2, there is a significant positive relationship between peer victimization and cyberbullying behaviour (p value = 0.000; β value = 0.647). Based on the model fit analysis, peer victimization accounted for a significant 16.6% of the variability

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in cyberbullying behaviour, $R^2 = .166$, adjusted $R^2 = .164$, $F(1,468) = 93.083$, $p = .000$. Therefore, the first condition was fulfilled. In addition, the result from Table 2 also indicated a significant positive relationship between peer victimization and reactive aggression (p value = 0. 000; β value = 0.337). Based on the model fit analysis, peer victimization accounted for a significant 12.6% of the variability in reactive aggression, $R^2 = .126$, adjusted $R^2 = .125$, $F(1,469) = 67.874$, $p = .000$. Therefore, the second condition was fulfilled. When peer victimization and reactive aggression concurrently become the predictor variables for cyberbullying behaviour, the result from Table 2 indicated that both reactive aggression and peer victimization are significant positively related to cyberbullying behaviour (p value = 0.000). Based on the model fit analysis in combination, reactive aggression and peer victimization accounted for a significant 43.2% of the variability in cyberbullying behaviour, $R^2 = .432$, adjusted $R^2 = .429$, $F(2,467) = 177.371$, $p = .000$. Therefore, the third condition was fulfilled. Lastly, the result from Table 2 also indicated that when reactive aggression is added as mediating variable, the regression coefficient of peer victimization has been reduced from 0.647 to 0.335. Therefore, the fourth condition was fulfilled. In conclusion, the study supports the ninth hypothesis (H9) in which peer reactive aggression mediates the relationship between peer victimization and cyberbullying behavior.

Table 2. Result of mediator analysis for Hypothesis 9 (mediated multiple regressions)

Independent Variable	**Reactive Aggression (Mediator)**	**Cyberbullying Behaviour (Dependent Variable)**	
	Model 1	**Model 2**	**Model 3**
Peer Victimization	0.337* (p=0.000) (1st equation)	0.647* (p=0.000) (2nd equation)	0.335* (p=0.000) (3rd equation)
Reactive Aggression			0.924* (p=0.000) (3rd equation)

*p<0.05

Second mediated regression analysis was evaluated based on the four conditions: (1) Anger/frustration (independent variable) is significantly related to the cyberbullying behaviour (dependent variable); (2) Anger/frustration (independent variable) is significantly related to the exposure to antisocial media content (mediating variable); (3) When both anger/frustration and exposure to antisocial media content acting as predictor variables to the cyberbullying behaviour in the regression analysis, the result must indicate that exposure to antisocial media content and anger/frustration are significantly related to the cyberbullying behaviour; (4) The regression coefficient for anger/frustration obtained from the third condition as above will be smaller than the regression coefficient for anger/frustration that obtained from the first condition.

The result of the second mediating regression analysis is presented in Table 3, there is a significant positive relationship between anger/frustration and cyberbullying behaviour (p value = 0.000; β value = 0.615). Based on the model fit analysis, anger/frustration accounted for a significant 14.4% of the variability in cyberbullying behaviour, $R^2 = .144$, adjusted $R^2 = .142$, $F(1,468) = 78.419$, $p = .000$. Therefore, the first condition was fulfilled. In addition, the result from Table 3 also indicated that there is a significant positive relationship between anger/frustration and exposure to antisocial media content

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(p value = 0. 000; β value = 0.535). Based on the model fit analysis, anger/frustration accounted for a significant 10.6% of the variability in the exposure to antisocial media content, $R^2 = .106$, adjusted $R^2 = .104$, $F(1,469) = 55.395$, $p = .000$. Therefore, the second condition was fulfilled. When anger/frustration and exposure to antisocial media content concurrently become the predictor variables for cyberbullying behaviour, the result from Table 3 indicated that exposure to antisocial media content and anger/frustration are significant positively related to cyberbullying behaviour (p value = 0.000). Based on the model fit analysis in combination, exposure to antisocial media content and anger/frustration accounted for a significant 20% of the variability in cyberbullying behaviour, $R^2 = .200$, adjusted $R^2 = .197$, $F(2,467) = 58.387$, $p = .000$. Therefore, the third condition was fulfilled. Lastly, the result from Table 3 also indicated that when exposure to antisocial media content is added as a mediating variable, the regression coefficient of anger/frustration has been reduced from 0.615 to 0.482. Therefore, the fourth condition was fulfilled. In conclusion, the study supports the eight hypothesis (H8) in which exposure to antisocial media content mediates the relationship between anger/frustration and cyberbullying behavior.

Table 3. Result of mediator analysis for Hypothesis 8 (mediated multiple regressions)

Independent Variable	**Exposure to Antisocial Media Content (Mediator)**	**Cyberbullying Behaviour (Dependent Variable)**	
	Model 1	**Model 2**	**Model 3**
Angry/Frustration	0.535* (p=0.000) (1st equation)	0.615* (p=0.000) (2nd equation)	0.482* (p=0.000) (3rd equation)
Exposure to Antisocial Media Content			0.248* (p=0.000) (3rd equation)

*p<0.05

Hierarchical Regression Analysis

The moderating effect was reflected by the significant level of the interactive variable. Based on the model fit analysis in combination, anger/frustration and interactive accounted for a significant 14.6% of the variability in cyberbullying behaviour, $R^2 = .146$, adjusted $R^2 = .142$, $F(2,467) = 39.850$, $p = .000$. The statistical output in Table 4 showed that anger/frustration is significant positively related to cyberbullying behavior (p value = 0. 000; β value = 0.374). However, the statistical output in Table 4 also indicated that the significant level of the interactive variable is 0.266 (p>0.05). This result indicated that the friendship quality does not moderate the relationship between anger/frustration and cyberbullying behaviour. Thus, tenth hypothesis (H10) was failed to be accepted.

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Table 4. Hierarchical regression analysis

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.000	.043		-.011	.991
	Anger/ Frustration	.379	.043	.379	8.855	.000
2	(Constant)	-.007	.043		-.153	.878
	Anger/ Frustration	.374	.043	.375	8.724	.000
	Interactive	-.045	.041	-.048	-1.114	.266

a. Dependent Variable: Cyberbullying Behavior

CONCLUSION

Discussion and Conclusion

The findings of this research conclude that peer victimization, anger/frustration, exposure to antisocial media content and reactive aggression are the key determinants of cyberbullying behaviour. The study also asserts that exposure to antisocial media content does mediate the relationship between anger/ frustration and cyberbullying behaviour. The study also supports the statement that reactive aggression mediates the relationship between peer victimization and cyberbullying behavior. However, the study does not support the role of friendship quality in moderating the relationship between anger/frustration and cyberbullying behaviour.

Theoretical and Managerial Implications

The findings of this research enrich the Cyclic Process Model proposed by Anouk et al. (2014) in understanding the determinants of cyberbullying behaviour. This study advances the Cyclic Process Model by asserting that reactive aggression does mediate the relationship between anger/frustration and cyberbullying behavior. The study also provides empirical evidence to questioning the role of friendship quality in moderating the relationship between anger/frustration and cyberbullying behavior. The role of friendship quality as a moderator is rejected in this study may be due to the Asian culture in which it is not a common practice to share anger/frustration with someone else as well as most of the victims are low self-esteem and introvert (Jordan & Austin, 2012; Cénat et al., 2014; Garaigordobil et al., 2013; Suresh & Tipandjan, 2012; Cook et al., 2010; Olweus, 1999; Monks et al., 2008). By understanding the underlying process of cyberbullying behaviour, the authorities may able to develop effective interventions, resistance and prevention policies to curb the problem of cyberbullying behaviour. Authorities may improve their rules and regulations in controlling the content of the media that spreading out to the community and maintain the endurance of the victims.

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Limitation and Recommendation for Future Research

The development of cyberbullying behaviour is a time bound event. By using cross-sectional study, it may not able to provide a thorough understanding of the cyberbullying behaviour. By using a longitudinal study to evaluate the determinants of cyberbullying behaviour in the Cyclic Process Model, it will provide a clear understanding on how the exposure to antisocial media content, reactive aggression and cyberbullying behaviour amplify on each other. In addition, the issue of friendship quality may be perceived differently in the cross-cultural setting. The impact of friendship quality in moderating the relationship between anger/frustration and cyberbully behaviour is yet to be studied in the cross-cultural environment. Lastly, there is a need to conduct research about how the peer victimization affects the personality of adolescent and changes their behaviour by involving them in the cyberbullying behaviour.

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Chapter 77
Emerging Ethical Issues in Police and Public Safety Psychology:
Reflections on Mandatory vs. Aspirational Ethics

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ABSTRACT

This chapter presents commonly experienced ethical dilemmas among police and public safety psychologists. Real-world, relevant examples are offered with an emphasis on emerging ethical issues. Related American Psychological Association (APA) ethical principles and standards for psychologists and codes of conduct are highlighted. The possibility that ethical dilemmas go unrecognized due to a focus on mandatory rather than aspirational ethics is considered. Solutions for resolving ethical dilemmas are presented.

INTRODUCTION

Ethical issues abound in the specialty of police and public safety psychology. Psychologists working in this specialty encounter ethical dilemmas that are thought-provoking and challenging. These dilemmas are likely among the toughest aspects of police and public safety psychology practice. A paucity of research exists about commonly experienced ethical dilemmas among police and public safety psychologists. Zelig (1988) surveyed police psychologists and found that the three most encountered ethical dilemmas involved multiple relationships, confidentiality concerns, and resolution of conflicts between professional standards and an organization's needs. Multiple studies of psychologists nationally and internationally have resulted in similar findings, with concerns related to confidentiality and multiple relationships cited

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as the most frequently experienced ethical challenges in psychology practice (Colnerud, 1997; Pettifor & Sawchuk, 2006; Pope & Vetter, 1992; Slack & Wassenaar, 1999). Zelig (1988) also found that many police psychologists reported they did not experience any ethical dilemmas. This too was consistent with the results of Pope and Vetter (1992), who reported that 134 of their 679 psychologist respondents did not encounter a single ethically troubling incident in the last year or two prior to the survey.

Several reasons likely exist for a lack of identified ethical dilemmas. Psychologists may fail to recognize ethical challenges. They have busy practices or copious work to complete within an agency and may overlook such issues. Conversely they may think too concretely and miss the complexity of situations. Over time, they may have encountered similar dilemmas and have become immune to them. Alternately, perhaps with experience, they become better at managing dilemmas, such that situations are no longer viewed as anything out of the ordinary. Perhaps some police and public safety psychologists fail to consider potential differences between mandatory and aspirational ethics. Ethical dilemmas may go unrecognized due to a focus on mandatory ethics.

Practicing mandatory ethics involves only acting in compliance with enforceable standards. This approach involves following the letter of the law or the specifics of a code. The focus is on conforming to requirements. Close considerations include risk management, avoidance of harm, adherence to requirements and recognition of "right" action. Mandatory ethics are the "floor" of expectations in resolving any given ethical challenge.

Aspirational ethics involve striving for the best possible ethical outcome. In contrast to the floor example of mandatory ethics, aspirational ethics are the "ceiling" in any given ethical dilemma. Goals include pursuing the best outcome for the involved parties and seeking to "do good." This involves embracing principles, a philosophical stance, or an overarching thinking style to resolve ethical dilemmas. The APA's ethical principles for psychologists—in contrast to the enforceable (mandatory) principles—are aspirational in nature. They call upon psychologists to adopt core beliefs rather than simply following a set of rules, laws, or codes.

In considering aspirational ethics, there are multiple relevant areas of the APA Ethics Code. The General Principles relate to and address the need for psychologists to do good, avoid doing harm, be aware of their influence, have integrity, be conscientious and attuned to their responsibilities, be fair, exercise good decision-making, and recognize their biases and the limits of their competence (APA, 2002).

ETHICAL DILEMMAS OF POLICE AND PUBLIC SAFETY PSYCHOLOGISTS

Police and public safety psychologists experience a multitude of ethical dilemmas in different areas. Concerns about confidentiality, multiple relationships, managing conflicts between ethics and organizational demands, and professional competence are particularly relevant for police psychologists. Each of these key areas is addressed in the next section of this chapter and may be associated with a variety of ethical challenges. Psychologists encounter dilemmas when working in any of the four core functional domains of police and public safety psychology: assessment, intervention, consultation, and operations (Aumiller et al., 2007).

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Confidentiality

Codes regarding confidentiality address the need for police and public safety psychologists to maintain confidences, identify the client or patient and other involved parties, clarify and make explicit these relationships, and acquire informed consent. The APA Ethical Principles of Psychologists and Code of Conduct (2002) Standard 4, Privacy and Confidentiality, that apply are:

Maintaining Confidentiality

Psychologists have a primary obligation and take reasonable precautions to protect confidential information obtained through or stored in any medium, recognizing that the extent and limits of confidentiality may be regulated by law or established by institutional rules or professional or scientific relationship.

Discussing the Limits of Confidentiality

(a) Psychologists discuss with persons (including, to the extent feasible, persons who are legally incapable of giving informed consent and their legal representatives) and organizations with whom they establish a scientific or professional relationship (1) the relevant limits of confidentiality and (2) the foreseeable uses of the information generated through their psychological activities. (b) Unless it is not feasible or is contraindicated, the discussion of confidentiality occurs at the outset of the relationship and thereafter as new circumstances may warrant. (c) Psychologists who offer services, products, or information via electronic transmission inform clients/patients of the risks to privacy and limits of confidentiality.

Minimizing Intrusions on Privacy

(a) Psychologists include in written and oral reports and consultations, only information germane to the purpose for which the communication is made. (b) Psychologists discuss confidential information obtained in their work only for appropriate scientific or professional purposes and only with persons clearly concerned with such matters.

Disclosures

(a) Psychologists may disclose confidential information with the appropriate consent of the organizational client, the individual client/patient, or another legally authorized person on behalf of the client/patient unless prohibited by law. (b) Psychologists disclose confidential information without the consent of the individual only as mandated by law, or where permitted by law for a valid purpose such as to (1) provide needed professional services; (2) obtain appropriate professional consultations; (3) protect the client/patient, psychologist, or others from harm; or (4) obtain payment for services from a client/patient, in which instance disclosure is limited to the minimum that is necessary to achieve the purpose.

Difficulties with confidentiality can be many. Complications may present when the relationship is hazy and fails to be properly identified, defined, or made clear to the involved parties. Consider the example of a psychologist having breakfast with a Chief of Police who asks about an officer the chief regards as reactive and knows is seeing the psychologist. The ethical police psychologist does not nod and stay quiet, or expound on the identified officer's virtues or troubles. Instead, the ethical psychologist clarifies the

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relationships, with a polite reminder of the importance of confidentiality. An ethical psychologist would also realize that multiple relationships exist and would therefore clarify the relationship with the chief. Reminding the chief that the current conversation is confidential, the psychologist might then suggest that the chief speak directly with the officer about the stated concerns.

Other ethical dilemmas about confidentiality may arise in regard to practical and business details of police and public safety psychology practice. Sometimes these concerns are about records. Consider, for example, a firefighter sent to see a psychologist following a child drowning incident. The psychologist provides a confidential therapy session or sessions to this patient and may provide a letter verifying attendance to the agency. Importantly, the details of the session, the disclosures, and certainly the subsequent records remain private and confidential. However, the records may no longer be confidential if this same firefighter decides that, after a third child drowning, he/she is distressed and no longer able to perform the job. If that individual seeks a medical retirement or files a Workers' Compensation claim, the psychological treatment records may be required to be disclosed to the employer's Workers' Compensation company in accordance with a state statute. The ethical psychologist will have covered such potentialities in the first meeting with the patient and will have obtained the patient's expressed written consent to these exceptions to confidentiality.

Other related examples include assessment and evaluation subjects who have misimpressions about their rights and roles in the evaluation processes. This often occurs despite repeated verbal and written informed consent procedures prior to and during the course of the evaluation. These procedures clarify the role of the agency as the client and the role of the subject as participant who is not privy to any of the findings, results, recommendations, or the final report. Consider the pre-employment evaluation subject who demands to know psychological test results, "Especially that Wonderlic score, because I want to know how I compare to the guys in the NFL who get that test, too." Or, the peace officer applicant not recommended for hire who does not understand that the agency is the hiring authority after being told by the department's background investigator, "We can't hire you because you failed your psych." This applicant then repeatedly calls the psychologist's office demanding a sit-down discussion to plea for a change in rating. An ethical police and public safety psychologist politely reiterates the relationship, directs the subject back to the hiring agency, and informs the agency commander of the situation. The psychologist may also discuss with the commander the agency's candor, clarifying the psychologist's role as a consultant in the pre-employment process.

Additional concerns about confidentiality arise in the context of providing assessment services as a police psychologist. Though all of the traditional doctor-patient expectations regarding confidentiality may not apply in such evaluations, only relevant details should end up in the assessment reports. In the case of a fitness-for-duty evaluation, detailed information about the individual may not be included in the report sent to an agency, and the psychologist may arrange with the agency to provide a simple fit or unfit recommendation. In the case of a pre-employment psychological screening evaluation, sensitive and private disclosures may be withheld from the report. As an example, consider the applicant with suicidal ideation with a plan in the past year. Instead of detailing this information in the report, the psychologist might identify "recent and significant concerns about emotional instability" in the relevant psychological and mental health history section of the report. Similarly, instead of reporting that the subject of the pre-employment evaluation had numerous previous mental health contacts consisting of medication to decrease symptoms of depression and therapy to cope with the sudden death of a parent, the now-stable applicant's report may read, "Past treatment, no recent or current concerns, currently emotionally stable." In addition, personal information that is not directly job relevant should often be

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omitted from psychological reports. Examples include an evaluation subject who is cohabitating with a partner and who is not fully out as a lesbian. The report may list the person as "single," and if reference is made to the partner, for example, and a loud verbal argument that led to a welfare check by a local police agency, the report may describe this situation as "a loud verbal altercation with a romantic partner."

In many cases, inquiries about family are limited, if conducted at all, due to consideration of federal laws such as the Genetic Information and Nondisclosure Act (GINA). GINA mandates that genetic information about a job applicant's family members is not queried about or even addressed in a pre-employment psychological evaluation, let alone included in employment-related evaluation reports. This becomes a careful task for the interviewing psychologist, as far as ferreting out appropriate, germane, and job-related details in a pre-employment screening decision and report.

Irrelevant details should not be disclosed in pre-employment psychological screening reports of law enforcement applicants. As an example, consider the psychologist who asks a young applicant about a history of fighting in school, school suspensions, and later mental health treatment. The applicant discloses "having a fairly messed up childhood and dealing with problems with my family." The applicant's father and several uncles were in and out of prison for drug-related charges, and this may be relevant to the screening decisions, since the applicant may have been routinely exposed to illegal behavior. The psychologist may question the applicant's handling of family functions, fraternization with inmates and felons, as well as possible ongoing exposure to illegal drugs due to family members' involvement. What should not be considered or explored, and what may call for a GINA admonishment, would be the content disclosed in a statement such as, "My father was depressed and had a drug problem. I think that is why he used to be so mean, and why I was such an angry kid." An admonishment in this type of scenario might be phrased as follows: "I hear what you are saying, and due to the Genetic Information and Nondisclosure Act, we cannot pursue this area of conversation about your father's health problems. Instead, please tell me about what you do now at the family barbecues, where as you reported, your uncles smoke marijuana in the backyard."

A firm stance on confidentiality in police and public safety psychology practice is needed. This author's recommendation is to become adept at defining all relationships from the first contact, stating these explicitly, identifying other involved parties, and also defining rights and duties inherent with these professional relationships.

Unless otherwise explicitly arranged or as mandated by law, informal contacts and services should be treated entirely as confidential. Examples include a phone call to the psychologist's office inquiring about services, an officer's disclosures made to a psychologist during a ridealong with the officer, a question a dispatcher asks of a psychologist during a sit-in at a call center, a firehouse conversation with a firefighter, or a detention officer's comment in a jail facility's control room about her difficulty coping with her husband's illness. When contacts between a psychologist and public safety personnel occur physically in the field and out of the office, they are confidential, and this often needs to be stated and affirmed.

Confidentiality prevails in formal services as well. When contacts are formal sessions, meetings, or in-office services, these services are defined by written documentation, and expressed written consent is obtained. When services are not confidential, such as pre-employment evaluations, the limits of confidentiality are provided in written form and verbally reviewed, with the expressed written consent of the subject obtained. Finally, in situations where there may be a lack of guaranteed confidentiality and/or privilege, such as with a peer support team's services, these limits are openly discussed with the involved parties.

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Multiple Relationships

Much has been written about multiple relationships in psychology, and for good reason. Multiple relationships are common and may pose challenges or dilemmas that are difficult for police and public safety psychologists to manage. Multiple relationships occur in several ways. First, they happen when the psychologist has more than one role or relationship with a client or patient. They happen when the psychologist has one original role or relationship with a client or patient and the psychologist intentionally or inadvertently enters into a new or different relationship with that client or patient. Multiple relationships may also exist when the psychologist enters a relationship with another person associated with the original client or patient. The relevant APA Ethical Principles of Psychologists and Code of Conduct (2002) Standard 3: Human Relations, that apply are:

Avoiding Harm

Psychologists take reasonable steps to avoid harming their clients/patients, students, supervisees, research participants, organizational clients, and others with whom they work, and to minimize harm where it is foreseeable and unavoidable.

Multiple Relationships

(a) A multiple relationship occurs when a psychologist is in a professional role with a person and (1) at the same time is in another role with the same person, (2) at the same time is in a relationship with a person closely associated with or related to the person with whom the psychologist has the professional relationship, or (3) promises to enter into another relationship in the future with the person or a person closely associated with or related to the person. A psychologist refrains from entering into a multiple relationship if the multiple relationship could reasonably be expected to impair the psychologist's objectivity, competence, or effectiveness in performing his or her functions as a psychologist, or otherwise risks exploitation or harm to the person with whom the professional relationship exists. Multiple relationships that would not reasonably be expected to cause impairment or risk exploitation or harm are not unethical. (b) If a psychologist finds that, due to unforeseen factors, a potentially harmful multiple relationship has arisen, the psychologist takes reasonable steps to resolve it with due regard for the best interests of the affected person and maximal compliance with the Ethics Code. (c) When psychologists are required by law, institutional policy, or extraordinary circumstances to serve in more than one role in judicial or administrative proceedings, at the outset they clarify role expectations and the extent of confidentiality and thereafter as changes occur.

Conflict of Interest

Psychologists refrain from taking on a professional role when personal, scientific, professional, legal, financial, or other interests or relationships could reasonably be expected to (1) impair their objectivity, competence, or effectiveness in performing their functions as psychologists or (2) expose the person or organization with whom the professional relationship exists to harm or exploitation.

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Exploitative Relationships

Psychologists do not exploit persons over whom they have supervisory, evaluative, or other authority such as clients/patients, students, supervisees, research participants, and employees.

Informed Consent

(a) When psychologists conduct research or provide assessment, therapy, counseling, or consulting services in person or via electronic transmission or other forms of communication, they obtain the informed consent of the individual or individuals using language that is reasonably understandable to that person or persons except when conducting such activities without consent is mandated by law or governmental regulation or as otherwise provided in this Ethics Code. (b) For persons who are legally incapable of giving informed consent, psychologists nevertheless (1) provide an appropriate explanation, (2) seek the individual's assent, (3) consider such persons' preferences and best interests, and (4) obtain appropriate permission from a legally authorized person, if such substitute consent is permitted or required by law. When consent by a legally authorized person is not permitted or required by law, psychologists take reasonable steps to protect the individual's rights and welfare. (c) When psychological services are court ordered or otherwise mandated, psychologists inform the individual of the nature of the anticipated services, including whether the services are court ordered or mandated and any limits of confidentiality, before proceeding. (d) Psychologists appropriately document written or oral consent, permission, and assent.

Not all multiple relationships are problematic. Indeed, they are common, navigable occurrences, and with careful attention they can be managed ethically. The main concern is to avoid harm or exploitation to the client or patient, as well as to avoid entering into or maintaining relationships that will impair the psychologist's objectivity, competence, or effectiveness in performing her or his duties. The burden for meeting these requirements, and showing that the requirements have been met if the need arises, is on the psychologist (McCutcheon, 2011; Younggren & Gottlieb, 2004).

Previously, psychologists received a message, whether explicit or implicit, to simply avoid multiple relationships (Younggren & Gottlieb, 2004). This position was espoused in previous ethical codes for psychologists and routinely taught in graduate training programs. This singular client or patient view of maintaining only one relationship or role still exists.

While maintaining only one role or relationship may be a fine, easy, and straightforward choice in an ideal world, this is not necessarily practical, or even representative of the reality that most police and public safety psychologists face. Unless psychologists practice simply in one functional domain (such as assessment) and in only one functional competency (pre-employment evaluations, for example), it is increasingly likely that one will be regularly, if not constantly, bombarded with the task of managing multiple relationships. Fortunately, in both general psychology practice and police and public safety psychology practice, this reality is being recognized. With due regard and to be clear, some relationships, such as those of a sexual nature or in situations involving a conflict of interest, are clearly inappropriate and must always be avoided. With this acknowledgement, the question at hand for most police and public safety psychologists is not, "How does one avoid multiple relationships?" Rather, the quandary becomes how to ethically manage multiple relationships.

The most obvious multiple relationships are those that happen in an unplanned, circumstantial fashion. Police and public safety psychologists, like all psychologists, experience these. They have patients who

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live in the same communities and whom they bump into at the grocery store, at the dentist's office, at the gym, or at the local gas station. They inevitably see patients and professional contacts in their own friendship networks, religious organizations, and community events and associations. They also have children attending the same schools as the children of their patients and other public safety personnel with whom they work. They see their clinical patients in different roles, whether they are working off-duty as police officers at a concert or at a street fair. All of these ordinary situations, occurring in both big and small cities, need to be navigated carefully. The psychologist must have a plan of managing such circumstances confidentially and without doing harm, being exploitive or losing objectivity.

Aside from these real-world occurrences, police psychology differs somewhat from other specialty areas of psychology in that multiple relationships may increase naturally over time. Aside from practicing in a rural community or perhaps within military psychology settings, police and public safety psychology is likely unique in the existence of these growing relationships. There is often a flow of contacts that leads to multiple relationships in police and public safety psychology, and this occurs inevitably over time because of the frequent contact the psychologist has with client agencies and their personnel. Such contact may be particularly pronounced if one is an in-house psychologist or if one is a consulting psychologist with a busy practice, providing services to multiple agencies. Over a span of years, a psychologist will likely see the same person in many different contexts and roles.

Consider the following example of a psychologist's many roles and relationships over time. A psychologist sees a deputy sheriff applicant for a pre-employment interview. The applicant is hired, eventually advancing to a class sergeant position for the agency's law enforcement training academy where the psychologist teaches. The sergeant and the psychologist discuss concerns about underperforming academy recruits, and the sergeant refers recruits for counseling to the in-house Employee Assistance Plan, which the psychologist runs.

Years later, the psychologist, now in a private practice setting, employs a contract psychologist who performs a pre-employment evaluation on the same sergeant as he successfully laterals to another agency. Afterward, this individual attends a local continuing education seminar, sits near the psychologist who conducted the initial pre-employment screening years earlier, and suggests a marital retreat that he attended with his spouse as a helpful resource. In the course of this conversation, the sergeant discloses some details about his marital and financial difficulties to the psychologist.

Ultimately, this sergeant advances to a lieutenant position in charge of pre-employment processes at the same agency where the psychologist has provided pre-employment services for a decade. The lieutenant contacts this psychologist to discuss the battery being used in psychological pre-employment evaluations and to enlist the psychologist's help in reviewing policies and procedures for promotional exams. This example illustrates how the psychologist's familiarity and demonstrated competence and helpfulness over time lends to the psychologist's credibility in the field and therefore, leads clients and agencies purposefully to seek out these relationships.

Even when ongoing professional contacts inevitably lead to multiple relationships, police and public safety psychologists should be mindful of the possibility for exploitation and harm, as well as loss of objectivity. Recall that multiple relationships are unethical when they impair objectivity or exploit one or more parties or expose one or more parties to harm. When contemplating which path to take (or whether to take any path at all) that creates or continues a multiple relationship, five questions are suggested:

- What are the options?
- What is in the best interest of the client and the other involved parties?

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- Are the proposed roles incompatible?
- Would it be best to simply refer out?
- If I engage in these multiple relationships, how do I navigate these different roles so as not to cause harm or lose objectivity?

Managing Conflicts between Ethics and Organizational Demands

Similar to multiple relationships, negotiating conflicts between ethics and organizational demands can be tricky. Such conflicts may arise when there appear to be differences between the standards of practice for the police and public safety psychologist, the APA Ethical Principles of Psychologists and Code of Conduct, and the demands or expectations of the agency. The relevant codes from the APA Ethical Principles of Psychologists and Code of Conduct (2002) Standard 3: Human Relations, that apply include:

Third-Party Requests for Services

When psychologists agree to provide services to a person or entity at the request of a third party, psychologists attempt to clarify at the outset of the service the nature of the relationship with all individuals or organizations involved. This clarification includes the role of the psychologist (e.g., therapist, consultant, diagnostician, or expert witness), an identification of who is the client, the probable uses of the services provided or the information obtained, and the fact that there may be limits to confidentiality.

Cooperation With Other Professionals

When indicated and professionally appropriate, psychologists cooperate with other professionals in order to serve their clients/patients effectively and appropriately.

3.11 Psychological Services Delivered To or Through Organizations

(a) Psychologists delivering services to or through organizations provide information beforehand to clients and when appropriate those directly affected by the services about (1) the nature and objectives of the services, (2) the intended recipients, (3) which of the individuals are clients, (4) the relationship the psychologist will have with each person and the organization, (5) the probable uses of services provided and information obtained, (6) who will have access to the information, and (7) limits of confidentiality. As soon as feasible, they provide information about the results and conclusions of such services to appropriate persons. (b) If psychologists will be precluded by law or by organizational roles from providing such information to particular individuals or groups, they so inform those individuals or groups at the outset of the service.

Managing the conflicts between one's professional ethics and the organizational demands that one encounters can be a difficult aspect of police and public safety psychology practice. Difficulty arises when an agency requests that the psychologist practice in a manner that is outside the standard of practice and that may even be unethical.

Consider this example. A request for proposals for psychological services resulted in bids and a subsequent contract award. Proposal submission review results were published on a website. Here, bidders were privy to their tallied scores and evaluative comments. A recorded weakness of a submitted

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proposal regarding provision of confidential counseling services was that "the psychologist declines to report violations of law to the agency." Points were also deducted because the psychologist declined to provide both confidential counseling services and subsequent fitness-for-duty evaluations, citing a conflict of interest. In this case, that which was perceived as a weakness was actually appropriate ethical action. Appropriate ethical action included maintaining confidentiality based on standards of practice as defined by relevant police psychology guidelines, applicable case law establishing psychotherapist-patient privilege (e.g., *Jaffee v. Redmond*), APA Ethical Principles of Psychologists and Code of Conduct regarding confidentiality, applicable state statutes, and the applicable state's Board of Psychologist Examiners Rules of Professional Conduct.

Such situations point to the need for education about what constitutes competent police and public safety psychology practice. Agencies are likely unaware of relevant guidelines, ethical codes, and laws that apply to psychological services and practice. Even when they are aware, a key point to consider is that agencies may choose to ignore these requirements, though psychologists who aspire to be ethical will not.

Also to consider is that psychologists have responsibilities to multiple parties. Fisher (2009) wrote about how psychologists often have duties to multiple parties:

If we stopped asking "Who is the client?," what should we ask instead? Regardless of the type of case or the number of relationships it involves, the question psychologists should ask might be "Exactly what are my ethical responsibilities to each of the parties in this case?" (p. 5).

Another example of conflict between ethics and organizational demands occurs due to pressure to make a quick hiring recommendation. Eager to fill an upcoming law enforcement academy class, an agency requests a psychological pre-employment evaluation "pass" or "fail" rating. The psychological screening decision for a particular applicant is deferred because relevant mental health records were not yet received from a recent mental health provider. The quandary here is meeting organizational demands while ethically performing the pre-employment evaluation. Ethical action involves declining to render a screening decision until needed information is received and the evaluation can be fully completed, per usual practice.

Consider a psychologist asked to provide an inappropriate fitness-for-duty evaluation on an incumbent officer. The officer does not meet threshold criteria for a fitness-for-duty evaluation, and the psychologist discerns that appropriate supervisory actions, such as discipline, have not been taken. It appears the agency is likely dealing with a difficult employee and expecting the psychologist to resolve the officer's employment status. When a psychologist works in-house for an agency, conducting this evaluation may be a directive, thus placing the psychologist in a difficult situation. Psychologists in any practice setting should explain the reasons for declining the referral, and through consultation, explore with the referring party ways to address the problematic employee's behavior. They may also educate about threshold criteria for a fitness-for-duty evaluation needing to be met.

Another example involves a request for a marketing blurb describing the pre-employment psychological procedures that will be used to attract applicants and demystify psychological pre-employment screening procedures. The psychologist provides a general description, omitting specific test names to maintain the validity of the pre-employment procedures. The agency requests more detailed test information "to be thorough," challenging the psychologist's refusal to provide test names and descriptions.

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How should the psychologist resolve this conflict? In an ideal world, the psychologist explains the concern and make it clear why she/he is taking a particular stand. If needed, the psychologist presents data to the agency's decision makers and involved persons to educate and explain the conflict. Such data may include the relevant APA Ethical Principles of Psychologists and Code of Conduct, applicable guidelines, laws, and the basis for why something is done the way that it is, and the psychologist's experience in providing appropriate services. In an ideal world, this strategy should suffice. However, such matters are not always easy, and sometimes the psychologist is directed to take unethical action. The appropriate response is to decline, but to do so in a professional and respectful manner. To be successful in this process involves presenting information in such a way that the psychologist is perceived as helpful and educative, rather than insubordinate or subversive. This can sometimes be a difficult feat. Strong relationships with key agency personnel are vital. Being perceived as experienced and competent is essential in order to effect change and guide successful resolution of such conflicts.

Competence

Competency is vital for ethical police and public safety psychological practice. Competence involves being current on skills, abilities, and knowledge and is developed through a psychologist's seeking out and participating in relevant continuing education opportunities, reading and reviewing police and public safety literature, and staying up-to-date with evolving practice guidelines. A critical pathway for the development of competence is performing the intervention or other services with appropriate supervision and/or consultation from already competent psychologists. Competence in police and public safety psychology also involves a continuing expansion of knowledge in science, legal, and other areas related to police and public safety psychology. Several areas of the APA Ethical Principles of Psychologists and Code of Conduct (2002) Standard 2, Competence relate to police and public safety psychologists:

Maintaining Competence

Psychologists undertake ongoing efforts to develop and maintain their competence.

Bases for Scientific and Professional Judgments

Psychologists' work is based upon established scientific and professional knowledge of the discipline.

Delegation of Work to Others

Psychologists who delegate work to employees, supervisees, or research or teaching assistants or who use the services of others, such as interpreters, take reasonable steps to (1) avoid delegating such work to persons who have a multiple relationship with those being served that would likely lead to exploitation or loss of objectivity; (2) authorize only those responsibilities that such persons can be expected to perform competently on the basis of their education, training, or experience, either independently or with the level of supervision being provided; and (3) see that such persons perform these services competently.

Codes about competence also point to the need to have supervisees of police and public safety psychologists practice within their competence, and to have the psychologist assume full responsibility for appropriate supervision. Such supervisees may be practicum students, pre-doctoral interns, post-doctoral

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residents, and even other personnel, such as administrative staff who may assist police and public safety psychologists with their practice.

A newer measure of competence, available to police and public safety psychologists since 2011, is board certification through the American Board of Police and Public Safety Psychology (ABPPSP). Board certification is achieved when psychologists are judged as successfully able to demonstrate competence in the specialty area, as rigorously evaluated by peers through a formalized process. Experienced psychologists working with police and public safety personnel may be competent but choose not to seek board certification. As Corey noted:

To be sure, psychologists who choose for any number of reasons not to pursue board certification may still be competent in the specialty of police psychology, but only ABPPSP-certified psychologists have demonstrated that competence to the satisfaction of their peers through a demanding series of examinations overseen by a nationally recognized certifying organization (2011, p. 104).

ABPPSP has identified ten foundational competencies that must be successfully demonstrated to obtain board certification in Police & Public Safety Psychology. These competencies are Professionalism; Reflective Practice/Self-Assessment/Self-Care; Scientific Knowledge and Methods; Relationships; Individual and Cultural Diversity; Ethical/Legal Standards; Practice Standards; Interdisciplinary Systems; Knowledge of Client Milieu; and Evidence-Based Practice. Detailed descriptions and corresponding behavioral anchors can be found in the Examination Manual (American Board of Police and Public Safety Psychology, 2014, pp. 35-39).

Examples of ethical dilemmas related to competence are plentiful. The clearest example is practicing in an area in which one is not competent to practice. This can present in multiple ways. Consider the psychologist who has never performed a pre-employment evaluation of a police officer applicant, yet secures a contract to provide such services and then inquires of colleagues how to perform these evaluations. Ponder the psychologist who uses outdated test measures in evaluations, or uses as primary assessment measures psychological tests that have not been validated for police psychology applications. Consider also psychologists who perform assessments unethically, such as when a psychologist's meeting with a candidate in a pre-employment evaluation consists of only a 10-minute face-to-face meeting rather than a more standard 40-minute meeting. A final example is the psychologist who does not keep abreast of developments in the field, never attends any relevant continuing education opportunities, and is either unaware of or does not follow relevant guidelines for police psychology practice.

While it is of concern when one practices incompetently, it is often likely not intentional. Practicing competently is difficult if one does not know, or does not take steps to know, the standard of practice. As with most ethical transgressions, problems with competence can be seen as errors. Such errors are not typically deliberate departures from a standard of practice or may not reflect malicious intent. Such errors may be committed because of a lack of knowledge or a lack of application of existing knowledge (Knapp, Bennett, & VandeCreek, 2012). Regardless of intent, when such errors are made it is insufficient to simply cite a lack of knowledge as justification. Therefore, psychologists should strive to gain knowledge to gain and maintain competence.

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NEW AND EMERGING ISSUES

Additional and current topics create ethical dilemmas for police and public safety psychologists. While none of the previously covered ethical challenges are necessarily simple to rectify or manage, they seem to pale in comparison to the tough ethical questions and aspirational challenges raised by new and emerging competencies, practices, and issues in police and public safety psychology.

Telehealth is an example of one such emerging practice area that brings with it a multitude of ethical challenges or dilemmas (Drum, 2014; Ragusea, 2012). Many police and public safety psychologists are uncertain of the right way to proceed. Prohibitive licensure laws currently limit interstate practice. For example, currently psychologists may only practice in states where they are licensed, excepting when other states allow for practice on a limited or other basis. Fortunately, an interstate compact is under development (Nordal, 2015). As the rest of the mental health world grapples with determining how telehealth will work, the specialty of police and public safety psychology will do so as well. For example, there is controversy about whether remote pre-employment psychological evaluations are acceptable. The International Association of Chiefs of Police (IACP) has established pre-employment psychological evaluation guidelines that currently call for face-to-face interviews, and while many psychologists view remote video evaluations as acceptable under the guidelines' specifications, some do not. And what about other services? Should law enforcement-related intervention or consultation services be performed via remote technology? Most police and public safety psychologists would likely report that they have at one time, if not routinely, provided executive consultation to command staff via telephone. While there is likely not much difference in providing such consultation services telephonically or through other remote communication means, it is currently unclear how telehealth modalities can be ethically implemented in regard to other functional competencies within police and public safety psychology.

As psychologists embrace telehealth, ethical issues will surface. A need to maintain confidentiality necessitates utilizing secure, private methods of communication. Competence is also an issue. Consider remotely conducted pre-employment evaluations. How will the psychologist assure adequate proctoring of written testing if the testing measures are administered to applicants in another state? Other services will likely expand telehealth delivery methods in police and public safety psychology practice. Perhaps webinars or remote teaching methods will replace in-person classes on mental illness and stress management at law enforcement training academies. A psychologist conceivably could participate as a consultant in crisis negotiations remotely if the technology allows the psychologist to see, hear, and perceive the call-out in real time. Issues of confidentiality and other ethical issues will arise, and will need to be resolved ethically.

Other emerging practice issues present ethical challenges. Maintaining confidentiality in digital or electronic data exchange can lead to ethical and aspirational challenges. As an example, consider the delivery of a pre-employment evaluation or fitness-for-duty report. Fifteen to 20 years ago, psychologists typically printed out and hand-delivered or securely mailed reports to agencies. For in-house psychologists, reports were completed, printed out, and delivered via an interoffice mail system. As time evolved, reports were sent via courier or any variety of secured mail service, with a signature guarantee and to a designated person. And then the Internet was born, accompanied by the expectation for quicker delivery of reports, often to aid in rapid hiring decisions. Many reports are now sent via email or other digital or electronic methods. Attending to ethical guidelines and building in safeguards to maintain confidentiality and privacy of information are important priorities. Safeguards include sending reports to designated personnel only, formatting issues such as converting documents from Word to PDF format, encryption

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of documents, password protection of documents, access to secure data in the cloud, and use of data storage systems to be accessed remotely by agencies when reports are available.

Proper data storage and backup are also important areas of consideration for police and public safety psychologists. Any busy police and public safety psychologist is already familiar with maintaining data and records and the related physical space challenges. Electronic storage of data has been a helpful convenience for many police and public safety psychologists. Some state statutes now allow for electronic storage of data. Once records are scanned and backed up appropriately, the physical record may be destroyed. While many legal issues are at play, the ethical issues of confidentiality and competence are significant (Gamble et al., 2015). Records need to be maintained securely and remain accessible if and as needed.

It is easy to imagine all that can go awry in this electronic/digital age of information sharing. Recently, a well-regarded psychologist colleague mistakenly sent a report meant for one designee to an active psychology listserv. The report was not password-protected, and because of the collegial tone of the accompanying email, several listserv members clicked on the link to the cloud within moments of receiving the email and accessed the report. This was a humbling and concerning incident for the psychologist in question.

A subject's access to evaluation reports is another recent challenge to forensic practice. Traditionally, pre-employment psychological evaluation subjects are not provided access to copies of their reports, given that the agency is the client. Except as mandated by state statutes, specific agency policy, or by appeal rights, applicants in pre-employment evaluations do not receive evaluation results. It is standard procedure in pre-employment evaluations, as in any third-party or forensic evaluation, for the subject to be asked to sign a waiver to waive the right to access the report, as well as evaluation findings and recommendations typically included in such reports. It should be delineated in the informed consent document who will be informing the applicant of any final decision regarding his or her suitability. Typically the agency makes the hiring decision, dependent also on other data learned across multiple pre-employment hiring processes. The psychologist should not disclose findings about suitability to the examinee without the agency's explicit informed consent to do so (Bush et al., 2006). With the advent of the Health Insurance Portability and Accountability Act (HIPAA), questions arise regarding whether applicants will be privy to evaluation results, especially because of HIPAA requirements, which would typically allow individuals access to their medical information. There is now a reasonable question being asked: Is it ethical for evaluators to require evaluation subjects to sign a waiver relinquishing their right to access their records? Some psychologists argue for transparency in sharing evaluation findings with applicants (Arcaya, 2011). Some psychologists believe that any practitioner who falls under HIPAA has an entire practice that falls under HIPAA (Borkosky, Pellett, & Thomas, 2014). In other words, the police and public safety psychologist who conducts psychotherapy services and submits invoices electronically to agencies falls under HIPAA and therefore may not be able to separately parcel out pre-employment evaluations as HIPAA exempt. Finally, a number of authoritative sources have concluded that it is consistent with ethical practice to require applicants sign a waiver relinquishing their right to access their records (e.g., Spilberg & Corey, 2014). This is certainly a complex and currently controversial area with diverse perspectives on appropriate courses of action.

Psychologists are often faced with assisting police agencies with community relations. Considering aspirational ethics may be key here: psychologists committed to the best possible outcomes may see opportunities to use their competencies to help facilitate improved community relations. Concerns include the increasing public scrutiny of and discontent with law enforcement. One example of scrutiny is 21st

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century policing controversies including "Warrior vs. Guardian" mindsets. Recent publications about these mindsets originate from a 2014 White House task force's efforts to examine and make recommendations for 21st century policing (President's Task Force on 21st Century Policing, 2015). This task force was created in the wake of highly visible officer-involved shooting incidents and multiple cities entering into settlements or consent decrees with the Department of Justice for unconstitutional patterns of police practices. Another example of public discontent is the growing influence of social media and technology. As reported in a recent publication, it is currently a tough world in which to be a police officer:

In a Gallup survey in June (2015), just 52% of Americans expressed confidence in the police, down 4 points from a year earlier and tying the lowest level since 1993. The atmosphere then was defined by the beating of Rodney King, recorded by a man on the balcony of his Los Angeles apartment with a Sony Handycam. Cops have always been tribal, keeping to their own in the weary belief that what they do is work only another cop could understand. Now everyone is an expert, and the zeal of bystanders "with their cameras out, 'waiting for something to happen,'" as one Philadelphia officer puts it, has altered the fraught dynamic between the arrested and the arresting (Vick, 2015, p.35).

Another current controversial topic in policing is the interplay between public service agencies and military returnees. Departments are dealing with military returnees, both as new applicants for public safety positions and as returning employees, back from deployment and ready to resume positions in law enforcement. While there is a well-intentioned, often political push and a lay-perception that veterans are seemingly well suited and deserving of public safety positions, according to Aamodt (2004), "There is little empirical support for the notion that officers with military experience are more successful than those without such experience" (p. 72).

Sometimes, military returnees are service-connected through the Department of Veteran's Affairs for medical and mental health disabilities. Such disabilities include cognitive disorders, traumatic brain injuries, depressive disorders, and/or trauma-related disorders such as Posttraumatic Stress Disorder. As of 2013,16% of veterans received disability pay (Congressional Policy Office, 2014). Pre-employment evaluations of applicants with these disabilities are complex. The agency has passed along and would like to hire a veteran or reserve. During the pre-employment evaluation, the subject reports being free of mental health problems and able to perform essential job functions for the high-risk, high-stress public safety position for which he or she has applied. On the other hand, during a Disability and Compensation evaluation, the subject has reported to the Veteran's Affairs evaluator, typically also a psychologist, symptoms and reactions to circumstances that have led to a mental health diagnosis, a disability rating, and subsequent financial compensation. The competent police and public safety psychologist recognizes that in each case, an individualized assessment should be performed. An aspirational emphasis here necessitates consideration of all available information, including information from the current evaluation as well as collateral information, such as the Disability and Compensation evaluation rating form, the interview notes that led to the ratings, and if applicable, other relevant medical and mental health records.

In contrast, the already-hired, incumbent public safety employee returning from deployment and military service is better protected from such scrutiny. The Uniformed Services Employment and Reemployment Rights Act of 1994 (USERRA) defines such an individual's rights. Included in these rights is an allowance to return to a previous job without undue scrutiny. Public service agencies are often unaware of or do not understand the implications of USERRA. Agencies sometimes request evaluations of returning veterans "in order to make sure they are okay to go back to work." The ethical psychologist

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must decline this request and helpfully educate agencies about appropriate reasons to conduct a fitness-for-duty evaluation.

A final area of recent ethical concern in regard to police and public safety psychology relates to the functional domain of operations. Operational and military psychologists, as well as psychology as a whole, have recently come under fire. In 2014, the APA responded, after years of allegations, that they had supported torture and inappropriate "enhanced" torture techniques against prisoners during the war on terror (Risen, 2015). APA hired an independent investigator, David Hoffman, to investigate whether there was proof that the APA covered up activity that would represent collusion with torture. Several psychologists were previously accused of assisting in torture of prisoners during the war on terror. The claim was that leaders within APA turned away or actively colluded with attempts to cover up this information and attempted to manipulate or wordsmith the APA Ethical Principles of Psychologists and Code of Conduct so that they would not be in opposition to the enhanced torture techniques in which psychologists were involved.

The independent review report, known as the Hoffman report, created great controversy in the field of psychology and asserted that allegations were correct, that the APA had acted inappropriately, and that recommendations for change were needed. These recommendations involved scrutiny of APA leadership who had acted unethically (Risen, 2015). Another recommendation that was proposed in the report was to eliminate operational psychology entirely. Operations is one of the core functional domains of police and public safety psychology. Understandably, police and public safety psychologists watched with concern as the APA Council of Representatives convened, discussed, sought input, and ultimately voted on actions based on report recommendations and fallout.

In August 2015, the APA Council of Representatives voted to ban the participation of psychologists in national security interrogations, even non-coercive interviews. This ban, which applies only to national security interrogations, does not apply to psychologists' participation in domestic law enforcement and corrections interviews where detainees are afforded constitutional protections (Risen, 2015).

At the time of publication in 2016, there is a call to revise the relevant code(s) within the APA Ethical Principles of Psychologists and Code of Conduct. Input is sought. Police and public safety psychologists are in a unique position to provide feedback. The importance is two-fold for police psychologists and those psychologists working in public safety settings such as national security and military settings. One concern is that well-intentioned efforts by the greater psychological community to avoid doing harm may not realistically take into account the complexities of operational psychology. Unfortunately, in certain operations, people are sometimes harmed. Similarly, within operational and forensic psychology roles, often psychologists serve several parties. It is important that a revision in the ethics code not marginalize the legitimate practice of operational police and public safety psychology where psychologists are acting ethically.

As an example, consider the functional competency of crisis and hostage negotiation. Police and public safety psychologists routinely serve on crisis negotiation teams. While a goal of crisis and hostage negotiation is de-escalation and a successful outcome for those involved, such incidents are high-stakes situations in which a person has taken hostages. An ethical dilemma and aspirational challenge arises for the psychologist in weighing what "do no harm" means. For instance, if a successful resolution involves hostages being released, unharmed and alive, and the hostage taker surrendering, all is well. However, sometimes tactical action is taken, and quickly, in order to protect the hostages as well as nearby citizens who are at risk. Though ideally the psychologist steps back in those crucial seconds as a situation escalates, and is certainly not a participant in the tactical action, the action may result in the hostage

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taker's loss of life. In this loss of life, the threat to the hostages, officers, and the public is eliminated. In this day and age of public scrutiny, operational psychologists need to be clear of their role in such negotiations and actions. However, a concern is that police and public safety psychologists who perform operational functions are vulnerable to the scrutiny of others, including fellow psychologists who are not savvy about this work and may not agree with and openly criticize psychologists' involvement in this key operations functional competency.

SOLUTIONS AND RECOMMENDATIONS

Psychologists must strive to do good, avoid doing harm, be aware of their influence, be trustworthy and mindful of responsibilities, be honest, truthful, fair, exercise good judgment, recognize their own biases and limitations of competence, and avoid participation in activities that may harm others (APA, 2002). In addition to consulting the APA Ethical Principles of Psychologists and Code of Conduct, psychologists have other ways to resolve ethical dilemmas including relevant guidelines, consultation, ethical decision-making models and adopting a critical thinking style involving a prioritization of aspirational ethics (Gottlieb & Younggren, 2011; Nagy, 2011). Each of these can assist with ethical police and public safety psychology practice.

There are multiple guidelines from IACP. These guidelines, revised typically every five years on a revolving schedule, are created in coordination with law enforcement command staff and personnel by psychologists of the Police Psychological Services Section of the IACP. The guidelines assist law enforcement agencies by offering best practice recommendations in police psychology service provision, and in being responsive to certain types of situations and critical incidents within law enforcement agencies. An example of such an incident is an officer-involved shooting. While these guidelines fall specifically under the IACP, police and public safety psychologists may follow recommended practices, such as those laid out in Pre-employment Psychological Evaluation Guidelines, with other public safety populations and settings, such as when working with corrections, detention, and fire personnel and agencies. The current guidelines include: Guidelines for Consulting Police Psychologists (2011); Pre-employment Psychological Evaluation Guidelines (2014); Fitness-for-duty Evaluation Guidelines (2013); Officer-Involved Shooting Guidelines (2013); and Peer Support Guidelines (2011). Additionally, as some competencies in police psychology are forensic, the recently revised APA Specialty Guidelines for Forensic Psychology (2013) may also serve as a useful source of information.

Consultation is important in thinking through ethical dilemmas. Easy access to consultation opportunities is found in becoming a participating member of one of the three major police and public safety psychology organizations: the International Association of Chiefs of Police, Police Psychological Services Section (IACP PPSS); the APA, Division 18, Police & Public Safety Section; and the Society for Police and Criminal Psychology (SPCP). Membership in these organizations offers benefits such as collegiality, opportunities for consultation, listservs, networking, and continuing education to increase competence. One of these organizations, IACP PPSS, offers confidential consultation to their police psychologist section members via the IACP PPSS Ethics Consultation Committee. Another way to seek consultation is to locate a board-certified specialist in police and public safety psychology; a current list of board-certified specialists can be found on the website of the American Board of Police and Public Safety Psychology. Additionally, attorneys and other professionals (such as physicians) who specialize

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in work with police and public safety psychology may also be valuable resources in resolving ethical dilemmas.

There are many ethical problem-solving models. These all involve a successive and meticulous series of steps to be utilized in considering and resolving ethical dilemmas. Sequential steps often include pinpointing the inherent ethical dilemma(s); identifying pertinent ethical principles and codes, as well as relevant laws, other practice, and professional issues; recognizing and weighing choices with their subsequent pros and cons; identifying and seeking sources for consultation; choosing a prudent course of action; and a thoughtful review and evaluation of the chosen solution. An in-depth discussion of ethical problem-solving models with examples of application in police psychology practice can be found in McCutcheon (2011).

While adherence to the APA Ethical Principles of Psychologists and Code of Conduct is vital, adherence alone is not enough for competent, thoughtful resolution of ethical dilemmas in police and public safety psychology practice. A mindset of thinking aspirationally is encouraged. Instead of thinking about what they must do and must not do, psychologists should first consider what is the very best they are able to do. As one psychologist remarked to me recently, "Each day driving to work I wonder, what are the best things I will do to help today?" Psychologists should not only discern the minimum requirements for action and then complete them, but also strive to consider and opt for the best actions they are able to achieve for the involved parties. Rather than simply finding an applicable code of conduct and applying it to any given ethical dilemma, a psychologist should adopt a mindset of striving for good. This mindset may function as a source of inspiration for best action when a psychologist is faced with difficult ethical decisions. If not already a mindset for the police and public safety psychologist, aspirational ethics need to be encouraged and adopted as a frame of mind in daily police and public safety psychology practice.

Finally, a mindset of thoughtful and patient humility is often called for. Sometimes, no matter how seasoned psychologists are, they do not know the best way to proceed. When a psychologist is uncertain of the best way to proceed, often not acting immediately is the best option, except in emergent situations. When faced with ambiguity, a psychologist may find it helpful to take time to think through the dilemma before acting. An answer or solution may present itself. If a solution does not naturally come to mind for the psychologist, deliberately practicing an aspirational mindset, along with other practical methods to resolve ethical dilemmas, may be beneficial. Such a stance will assist police and public safety psychologists in successfully resolving more traditional ethical dilemmas and dealing effectively with new emerging practice issues.

FUTURE RESEARCH DIRECTIONS

Rich opportunities for research exist regarding ethical dilemmas in police and public safety psychology. An updated survey of psychologists is needed. Areas for investigation include which ethical dilemmas police psychologists most encounter, whether ethical problem solving models are utilized, and what heuristics are employed, such as the distinction presented in this chapter between mandatory and aspirational ethics. Additional research is also needed regarding the resolution of ethical issues involving new and emerging issues in police and public safety psychology. These include ethical issues inherent in telehealth and digital information storage and exchange, as well as the potentially changing views of who is privy to evaluation results.

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CONCLUSION

This chapter covered commonly experienced ethical dilemmas and aspirational challenges among police and public safety psychologists. Examples and commentary on emerging ethical challenges were presented. The possibility that ethical dilemmas go unrecognized due to a focus on mandatory rather than aspirational ethics warrants consideration and future research, especially in regard to new and emerging practice issues.

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Chapter 78
Perspectives on the Historical Evolution of the People Side of Business

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ABSTRACT

Determining the direction of where a field is headed often requires a reflection of its founding principles, the transformations it has endured, and the driving forces that shape its existence. For the past century the world has experienced evolutions in technology, business, and education. This chapter provides a historical review of the practices and professions dedicated to the people side of business. The origins of Personnel Management are discussed where the department formed to meet workforce needs. A transformation to Human Resource Management is explored with an examination of the influence of professional societies on practice. The reflection of the progression of this field of practice ends with a list of challenges facing Industrial Organizational Psychology practitioners of the future. A recommendation to rethink the employer-employee relationship with the workforce of tomorrow closes the chapter and hopefully encourages human resource professionals, I/O professionals, and their professional societies to embrace the next requisite transformation.

INTRODUCTION

Search current literature, blogs, and conferences relevant to people at work and one will find there are numerous reports indicating a time for change in the Human Resource (HR) department and function. Some predict the department will be eliminated from most firms by 2020. The July/August 2015 issue of *Harvard Business Review* headline read, "It's Time to Blow Up HR and Build Something New". Afterwards, panic in the HR professional associations went into full force and the millions of HR professionals in the world are in a fight for self-preservation. For over a decade, HR professionals have been clamoring to have a seat at the proverbial executive table. Once in that position, many did not know how to posi-

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tively contribute to the organization beyond reporting on their 50-year tradition of filling job openings faster, processing payroll and benefits more economically, and striving to ensure all employees should be treated equally by complying with "check-the-box" training and enforcing policies (McDonald, 2001).

HR professionals have made attempts to learn more about business terminology, setting financial goals, and reporting new metrics to the C-level. It has also been noted that in some cases, the HR department has been moved in the organizational structure to report to the Chief Financial Officer (CFO) which may contribute to the unfortunate interpretation of the phrase "People are our most important assets" to literally being something owned versus a philosophy that employees bring the most value to the firm. Transforming the HR department to a metric-driven cost center is obviously not the answer to people or talent management as the war for talent continues to be a major topic of concern around the world (Ulrich, 2015).

The Society for Human Resource Management (SHRM) published a study in 2012 investigating what HR practitioners thought the challenges facing their profession would be over in the upcoming decade. Results reported that retaining and rewarding the best employees was first on the list. Asking what their HR competencies needed to be is reported in this order: Business Acumen, Organizational Navigation, Relationship Management, and Communication Skills (SHRM, 2012). Similarly, Silzer and Cober (2010) conducted a study of Industrial Organizational Psychology practitioners to determine what they perceived to be important for the future of practice in their field. The conclusion was that they would be considered the gurus of talent.

The insinuation that many of the talent management functions now managed by human resource professionals might be moving to another field of practice has created alarm among the millions of HR professionals and has created increasing interest from business leaders. As in other professions, external forces have been the catalyst to begin this transformation of practice in both human resources and industrial organizational psychology. To better understand the current transformative opportunities for those that wish to be the talent experts, a clear understanding of the historical progression and relationship of the people management function over time is investigated beginning with its creation. The purpose of this chapter is to outline a brief historical summary of the people side of business and introduce contemporary challenges facing business leaders as these professions collide.

BACKGROUND

Personnel Administration

Some might argue that the function of human resources dates back to prehistoric days where consistent methods of selecting tribal leaders have been documented (Rotich, 2015). Others prefer to recognize the origins in the Chinese employee screening techniques used between 2000 BC and 1500 BC and still others claim the first human resource function was documented with the Greek practices of developing and implementing an apprentice system (Beagire, 2004). Modern historical reports tend to note the beginnings of this functional department to be related to the growth of large factories during the British Industrial Revolution during the 19th-century. This revolution brought a demand for rapid hiring practices and record keeping for a large employee population (Boudreau & Ramstad, 2009). According to the Trustees of the British Museum (2016), during this time, "Children were sent to work in factories, where they were exploited and ill-treated; women experienced substantial changes in their lifestyle as

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they took jobs in domestic service and the textile industries, leaving the agricultural workforce and spending less time in the family home" (para 16). For some, the social and technological innovations brought new wealth and a better life. However, for others these changes brought poor working conditions which gave way to pressures for government intervention to introduce legislation for human rights and safety.

At the beginning of the 20th century in the United States, Personnel Administration emerged as a business function focused on employee related issues, safety of workers, and compliance with newly introduced laws (Klerck, 2009). In 1900, the B.F. Goodrich Company established the first employee management department and in 1902, National Cash Register established a Personnel Department to handle employee issues (Niles, 2013). Because of the economic improvements in the United States, the U.S. Department of Labor was established in 1913 with the mission to promote the welfare of working people and their work conditions (Department of Labor, 2010). The members of the Personnel Department were then accountable to stay abreast of regulations. They were also responsible for the administrative aspects of hiring, evaluating, training, and compensating employees.

After World War II, the introduction of formal workforce development training programs became a respected unit of the Personnel Department. According to Nankervis (2011), business practices emphasized employee productivity through various motivation techniques, initiated a concern for workforce welfare issues including morale, and activated the emergence of job descriptions which improved recruitment and selection of talent. Additionally, the official recognition of trade unions emerged in various countries, mainly in the United Kingdom and United States. These events were a catalyst for change in the profession as personnel administrators needed knowledge and skills in collective bargaining, employment law, job analysis, recruitment, labor relations, training, and benefits (Nankervis, 2011).

By the 1970s, technology had provided the ability for multinational firms to excel and globalization to become an important directive for the personnel functions. The shift from industrial to service economies also impacted the functions and responsibilities of these professionals. Leadership and succession planning became critical elements to the strategic success of the business (Vani, 2011). Competitive advantages for the business were intended to be realized through these functions of the Personnel Department.

With this acknowledgment that Personnel was gaining importance in the organization, the department name changed to Human Resources and professional associations expanded to assist in the transformation of knowledge and practices as stated by the Society for Human Resources Management (SHRM, 2016). At some point during the mid-1980s, human resource management was recognized as the proper term for those responsible of managing the human assets of the organization. While employee commitment and motivation were at the center of organizational objectives, attaining technological resources were also a priority in business practices. Examining the subsequent thirty years of global business and employee practices we acknowledge that employee experiences with change become more frequent, the need for education and training continues to rise, the inclusion of technologies disrupts the way we work and play, and the war for talent is formalized. Corporate culture becomes more fluid, data is abundant and ubiquitous, connectivity to others is far reaching, and career options are becoming specialized for those both in and outside of personnel administration.

Human Resource Management

In the 21st Century, the conversation regarding the personnel responsibilities has been one laden with much debate. While there is agreement that having the right employees in the right jobs performing at maximum productivity with excellent quality and costing the firm the least amount possible is one

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objective, the details of who, what, where, when and how to do this remain in dispute with a variety of approaches utilized. Human Resources (HR) as a functional department of the business continues to be responsible for the acquisition, assessment, and retention of talent. However, the war for talent brings many organizational challenges resulting in operational responses that range from outsourcing these tasks to unrealistic demands of the internal HR department. Technologies such as applicant tracking systems and employment websites have assisted in reaching job seekers yet they bring additional difficulty in the selection process. This expensive process of building a workforce has led to professional evolutions in the HR functional department. Rotich (2015) reported that through extensive research in the history, evolution and development of human resource management (HRM), there have been several varying definitions of the role but traditionally, HRM is a product of the human relations movement of the 20th century. Additionally, Rotich (2015) reports that HRM, or the predominantly transactional work of HR, has evolved over time due to globalization, consolidation of firms, and technology innovations. The United States Department of Labor (2016) defines the occupation of a Human Resources Manager as those that, "plan, direct, and coordinate the administrative functions of an organization. They oversee the recruiting, interviewing, and hiring of new staff; consult with top executives on strategic planning; and serve as a link between an organization's management and its employees" (para. 1). And while similar positions described on the website are noted to be specialists in labor relations, training and development, and compensation and benefits, the profession requires only a bachelor degree. This US Department of Labor (DOL) description aligns with one of the mainstream definitions of human resources where HRM has administrative and transactional responsibilities in the process of managing people within an organization. However, business leaders are asking for the HR department to perform beyond this education and skill level as the complexities of managing the people side of business continue to multiply.

According to SHRM (2016), another contemporary view of HRM exists where the practice encompasses the management of people in the form of a collective relationship between the management and employees. This approach focuses on the objectives and outcomes of the HRM function and lends itself to be in alignment with the metrics of the business for which they serve. Terms such as *employee engagement* and *people development* are often used. These practices may contribute to productivity, retention, and sustainability but the evidence is not clear. What is clear is the need for the transformation of human resource practitioners to possess the knowledge, skills, abilities and competencies beyond the origins of personnel administration or even 20th-century human resource practices. Of particular importance is the evolution of the practice from being directed to protect the employer from employees to a practice empowered to establish the right relationship between the employer and employee so they both realize their individual vision of success. During this transformation, the need increased for a professional society to strengthen the field, educate the practitioners, and drive recognition of their value to the businesses.

The Professional Societies

It is recognized that professional societies have the potential to develop change for the profession they represent. Typically, these associations and societies are structured as a non-profit organization seeking to further a particular profession, the interests of individuals engaged in that profession, and the public or private sector interest of the profession. The mission of professional societies has been to serve their members primarily through educational and informational services (Clark, 1989). Often the society can gain influence from commonly defined functions: to publish professional journals, to develop profes-

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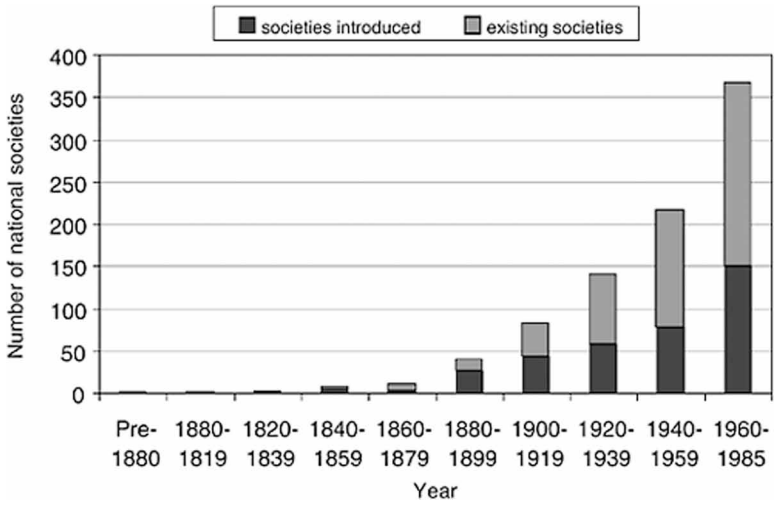
sional excellence, to certify talent, to raise public awareness, host professional conferences, possibly affect legislation, and to create and present professional awards.

Some societies might provide job postings, professional development workshops, and networking events for members. When a professional society is established it is expected the society will keep abreast of the changes that affect the profession they represent. As the workforce has evolved through the centuries, professional societies have been introduced, formalized, and evolved as well. To see this as a visual trend in professional societies, the growth of national societies from 1880 to 1985 is shown in Figure 1. As transformation in the workplace occurred, increases in the introduction of new professional associations occurred with the most dramatic increase in new societies launching in the 1960-1985 timeframe.

Figure 1. Growth of Professional Societies (Clark, 1989)



By 2010, the Internal Revenue Service of the United States recognized 92,331 trade and professional associations (ASAE, 2012). The pattern of coordinated activity in the private sector has shaped and advanced the United States dating back to the first American settlers and their guilds (ASAE, 2012). As seen throughout history, when the community the professional society serves is transforming, the professional society will either need to transform or risk the possibility they will be replaced with a society that better meets their needs. This is evidenced in the human resource and I/O fields with both new professional societies emerging and others transforming. For example, the Association for Talent Development is the result of the 2014 transformation of the American Society for Training & Development (ASTD) after 71 years of existence.

A second example is the creation of the National Association of Organizational Psychology (NAOP) which was legally established in 2014 to support and mentor new I/O Psychology practitioners as they elect a career transition. Even the Society for Human Resource Management (SHRM) organization, which has traditionally been the association of choice for human resource professionals, has experienced transformation in their renowned certifications. Beginning in 2015, a competency-based certification for human resource professionals replaced the industry standard PHR and SPHR certifications. With a multitude of specializations in the I/O psychology field emerging, professional associations continue to

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launch and gain mindshare such as the Association of Corporate Executive Coaches (ACEC), the Association for Professional Executive Coaching and Supervision (APECS), the Association of Executive Recruiters (NAER). This list expands with a simple online search in your area of interest. And with these changes, the clear roles and responsibilities of the human resource professional no longer exist.

This transformation can be seen as a natural reaction to employees being a huge expense in a decade of a declining economy. In the 21st century organization, the HR department is no longer seen as bringing value if their only role is as an administrative cost center to the organization. Professional associations are attempting to promote the value that their members bring to the business community. But both the associations and businesses are struggling with the new demands of a multigenerational workforce. Millennial workers are reported to place less value on formal and traditional means of networking, preferring to establish their own relationships in their own ways (Lucas, 2014). Social networks now provide easy and convenient ways for industry members to find each other and network. The proliferation of online content has led to vast and often free access to the types of information that professionals used to be able to access only through association membership and industry conferences. With these transformations, it is becoming unclear as to not only the role of a human resource professional versus an I/O professional but also the number of these professionals currently in practice.

In an effort to better understand what is trending during our current shift in employment positions that are focused on the people side of business, we might inquire with the social networks, industry forecasters, and the United States Department of Labor for predictions. Each year Randstad, a global HR services company, publishes its predictions of hot jobs based on an analysis of economic projections and market trends. In 2015, Randstad research indicated that most midsize and large companies continue to operate on a lean HR team but with the demand for talent in STEM (science, technology, engineering, and mathematics) on the rise and projected for the future a more savvy HR professional will be required (Maurer, 2015). Some say this means the HR administrator will be replaced with an I/O practitioner. According to Miller-Merrell (2013), there are over 2 million LinkedIn profiles that claim an affiliation to a human resource role, the United States Bureau of Labor Statistics reports over 5.6 million HR professionals in practice, and Bloomberg BNA (2016) reports human resources staffing relative to the workforce tumbled in 2015 but the job duties increased for those remaining in the HR department. As the needs of talent management efforts grow and change, it is hopeful that human resources and I/O practitioners will both be in higher demand. A possible confusion for both business executives and managers is that they won't know the difference between them. It is possible that the I/O job title will continue to be illusive as I/O practitioners begin to redefine the roles and values of employees responsible for addressing issues and objectives focused on the people side of business. It is possible that the job titles of HR professionals will have to be amended and/or new certifications will need to emerge in order to better distinguish the knowledge, skills, abilities and competencies of these professionals around the world. Historically the professional societies have driven these initiatives. The following global professional societies may be key stakeholders in the transformation of the practitioners whose talents are targeted at managing talent in the global workforce.

Asia

The Asia Pacific Federation of Human Resource Management (APFHRM) is one of the major human resource professional associations representing countries in the Asia Pacific region. As a collective, the Federation's purpose is to advance the standing of the human resource and people management profes-

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sion within the region (APFHRM, 2016). Accordingly, the Federation's major focus is in matters relating specifically to HR in the Asia Pacific region, though it is also an active branch of the World Federation of People Management Associations (WFPMA). The countries that form the federation are Australia, Bangladesh, Fiji, Hong Kong, India, Japan, Malaysia, New Zealand, Papua New Guinea, Philippines, Singapore, Sri Lanka, Taiwan, Thailand and Vietnam (APFHRM, 2016). One of the countries in the Federation has developed their own very active HR association, the Australian Human Resource Institute (AHRI), and state they have over 20,000 members (AHRI, 2016). While they do express acknowledgement of the need for some innovative and transformative ideas, their actions remain similar to other associations in education, conferences, legislation, and networking.

In the ever evolving world of human resources, new initiatives and changes to existing practices are constantly coming to light. HR practitioners have often been accused of jumping on the latest fad or idea in the market. It is important for practitioners to assess new HR practices for their appropriateness and the potential to add value in assisting an organisation to achieve goals. (AHRI, 2016, para 1)

Europe

The European Association for People Management (EAPM) was founded in 1962 by the national associations and professional institutions of personnel management in France, Germany, Switzerland and the United Kingdom (EAPM, 2016). EAPM has member associations in 30 different countries across Europe where each of the countries is represented by its own national association or professional institute of personnel management (EAPM, 2016). With the current transformation in the United Kingdom as a result of the vote to leave the European Union, the consequences for human resource professionals may be a catalyst for disruptive change. The professional society of today will be called upon to assist in this transition or it is possible that other associations may emerge.

United States

The Society for Human Resource Management (SHRM), formerly called the American Society for Personnel Administration, was founded in 1948 by a group of 28 individuals and in 1984 with the name changed to the Society for Human Resource Management in 1989 (SHRM, 2016). This professional society claims to be the world's largest human resource professional society with approximately 285,000 members in more than 165 countries with more than 575 affiliated chapters within the United States and subsidiary offices in China, India and United Arab Emirates (SHRM, 2016). Established in 1951, the National Human Resources Association (NHRA) places primacy on advancing the careers of its members by enhancing their planning and leadership skills. The American Council on International Personnel (ACIP) is a leading voice and resource for employers working worldwide to advance employment-based immigration of highly educated professionals. The College and University Professional Association for Human Resources (CUPA-HR) is an HR organization that places primacy on the efficient management of human resources within the university and college setting.

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The Global Initiative

With millions of human resource professionals and strong professional associations and societies around the world championing their relevance to business, change may be especially difficult as a global initiative. However, at the time of this publication businesses and the world's transformations are driving another evolution of the human resource, or people management, function. There is no worldwide agreement regarding exactly what the HR department should do, or be, or what their value contribution must be moving forward. Entrepreneurial and innovative firms have been noted to delete the human resource department from their organizational chart to find later that some aspect of the traditional function is needed. Just as globalization, company consolidations, and technology innovations have been disruptive to the world as we know it, many agree disruptive change to people management is required in some way. Morgan (2016) reflects on the new technologies, new recruitment approaches, new discussions on a multigenerational workforce, and the evolution of organizational structures to comment that out of all of the functions of business, "HR has perhaps remained static for the longest period of time yet it is also the only department inside of our organizations that is focused on touching every single employee" (para. 1). Unfortunately, the professionals in this space have been seemingly slow to respond, possibly resisting these changes by holding on to old business practices, norms, metrics, and concepts that are not relevant to the contemporary needs, much less the future needs, of both the business and the employees. Or possibly the change cannot be seen by those on the inside but rather should be initiated from those outside of the human resource community. The practitioners in the field of Industrial Organizational Psychology are eager to address these contemporary needs of the organization as either an internal or external consultant.

MAIN FOCUS OF THE CHAPTER

Industrial Organizational Psychology

For a field of study that has been in existence for over 100 years, there has been some confusion about its name, its purpose, and its practitioner. The evolution of this field has been consistently filled with disagreements from within the community of professionals and their associated societies. For many, the profession is known to consist of researchers who may publish new findings and consult with large firms or teach at prestigious universities. Moving research to practice and having a psychology practice are very different in nature, skill, and licensure. Current issues in business practices and people management are now driving those in the industrial organizational psychology field to reflect on their purpose and develop innovative approaches to applying their knowledge, skills, and abilities to a fluid, fast-paced, real-time, global business environment.

For some, the field has experienced an identity crisis which remains relevant today. Even the name has been an element of confusion and contention. Gaining perspective of the history of the advancement of the I/O Psychology field begins with the name. The term *industrial psychology* in the United States became popular after World War I and was characterized by ability testing and vocational assessment (Koppes, 2007). Other names such as *economic psychology, business psychology,* and *employment psychology* have also been briefly used. With a number of changes in social, legal and business practices, by 1973 the addition of the word *organizational* was added to *industrial psychology* to reflect the grow-

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ing influence of social psychologists and organizational development consultants (Landy, 1997). Most everyone in the field was dissatisfied with the name of I/O Psychology and in 1976 the first attempt to change the name for the field was made (Campbell, 1997). Complaints and debates remained for almost 30 years yet nothing was changed. By 2010, a vote by the membership of the Society for Industrial and Organizational Psychology (SIOP) to change the name to Organizational Psychology was made yet the existing name prevailed by 15 votes (Benjamin, 1997b). For now, the name remains but so does the deliberation about the I/O Psychology practitioner.

As Campbell (2007) notes, I/O psychologists "have borrowed heavily from social, cognitive, clinical and counseling psychology, personality and individual differences and even behavioral genetics" (p. 454). But I/O research has also been applied, or put into practice, for decades. The US Bureau of Labor Statistics (2012) Occupational Outlook Report stated that while the current number of I/O practitioners in the workforce is small, employment will rise 53 percent nationwide between 2012 and 2022. This profession is described by the BLS (2016, para. 9) as those that:

Apply psychology to the workplace by using psychological principles and research methods to solve problems and improve the quality of work life. They study issues such as workplace productivity, management or employee working styles, and employee morale. They also work with management on matters such as policy planning, employee screening or training, and organizational development.

The professional society for Industrial Organizational Psychology has been investigating what this business job function, or practice, might demand. Silzer and Cober (2010) conducted a study with existing I/O psychology practitioners who were members of the professional society SIOP (Society of Industrial Organizational Psychology) in order to gain a better understanding of how they saw the future of I/O psychology practice. Their report suggests that the field of I/O Psychology is highly likely to go through some significant changes similar to those of the human resource field. A key question now is whether I/O psychologists and SIOP are prepared to proactively shape the future of the field or will they let professional societies such as ATD, SHRM, NAOP, ACEC, APECS, NAER, WFPMA or others attempt to take the lead.

Professional Society for Industrial Organizational Psychology

As expected, the Society of Industrial Organizational Psychology (SIOP) has evolved just as the profession has evolved over the decades. Today, SIOP (2016) states it is "the premier membership organization for those practicing and teaching I/O psychology" (para. 2). The history of SIOP is a long and winding road where it is noted to begin as part of the American Psychological Association whose mission was to advance psychology as a science. With a lack of recognizing applied psychology early on, there was a need to create a division of industrial psychology. "Reluctantly, APA created a Section of Clinical Psychology in 1919 to accommodate the applied psychologists in clinically-related jobs; however, nothing was created for industrial or educational psychologists" (SIOP, 2016, para. 4). For over 50 years, applied psychologists sought other professional organizations to pursue their interests and in 1921, the New York Association of Consulting Psychologists (ACP) was founded (Sokal, 1992). Tension continued to grow within APA and other professional societies were created as local and state interest groups of the applied and professional psychologies. According to Sokal (1992), one of those was the American Association of Applied Psychology (AAAP) which was introduced as a national association to represent the interests

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of applied psychology and this organization grew rapidly throughout the United States. Membership was dominated by university-based psychologists although many psychologists employed full-time in industry were members (Benjamin, 1997b). Strife continued and by 1982, what had been developed as Division 14 of APA incorporated as the Society for Industrial and Organizational Psychology, Inc.- A Division of the American Psychological Association. Hakel (1979, p. 78) stated:

Incorporation as The Society for Industrial and Organizational Psychology was proposed to provide Division 14 with an independent and secure base, to sharpen our public identity, to increase member identification with our organization, to gain flexibility and responsiveness in dealing with legal (EEO) issues, to gain more control over our financial affairs, and to enable us better to pursue opportunities.

According to Weiner (2013) in the most recent publication of the Handbook of Psychology, there remain tensions between the testing and selection focus of the Industrial side of the profession with those of the attitudinal and social factors of the Organizational side. Another tension is whether the I/O psychology practitioner serves the employer or the employee. From the field's research, it is indicated that a better understanding of a potential employee coupled with a strong understanding of the current employee provides a bridge to self-actualization of the individual and the productivity goals of the organization.

Evolutionary Briefs on Practice

It may be that the leaders of businesses, universities, and professional societies in the fields of human resource management and industrial organizational psychology will need to determine a clearly defined synergy moving forward in order to continue bringing value to their shared clients which are both people and organizations. However, the emigration of I/O psychology and I/O training to business schools has been another source of contention for decades. Universities are moving from only offering a research-based I/O doctoral degree program towards including a practitioner-based master degree program. Degree programs are also migrating from the psychology department to the business department. Weiner (2013) states "this may provide some positive benefits to the field by making it more interdisciplinary" (p. 5). However, he continues to state that there is also a danger to the field in that this could lead to I/O psychology becoming synonymous with human resource management or organizational behavior. Organizational Behavior has been described as the study of the way people interact within groups (Boundless, 2016). This has historically been important to the study of business management as well as to the results of business practice in terms of efforts to enhance overall organizational performance, individual employment satisfaction, and to determine delegation of tasks to resources for maximized productivity. Other components include examining organizational culture, leadership, and team building (Boundless, 2016). It is clear that all of these fields of study and practice have a goal to improve performance and satisfaction of individuals, teams, and organizations. While not necessarily strategically outlined in planned organizational movements, historical classifications do emerge as we examine the work of I/O and other practitioners focused on the employer to employee relationship over time. Beginning with the Hawthorne Studies in the 1920s, the theme in practice has been to gain a better understanding of human relations in the workplace as outlined in Table 1. By 2015, the evolution can be depicted in terms of four generations of focus by grouping key.

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Table 1. Evolution of Theory and Practice Sample List of Contributors

First Generation	
1920s thru 1950s - Human Relations Change = Unfreeze and Refreeze	
Gestalt Psychologists	Mind & Behavior as Whole
Frederick W. Taylor	Scientific Management
Elton Mayo Hawthorne Studies	Behavior Change via Attention
Kurt Lewin	Action Research & Change Behaviors (Unfreeze)
Abraham Maslow	Motivation Hierarchy of Needs
Ludwig Von Bertalanffy	Principles of Systems Theory
Second Generation	
1950s thru 1970s - Management Development Change = Planned and Evolving	
Peter Drucker	Practice of Management
Douglas McGregor	Human Side of Enterprise, Theory X and Theory Y
Rensis Likert	Survey Scale
Russell L. Ackoff	Systems Thinking
Blake & Mouton	The Managerial Grid
W. Edwards Deming	Total Quality Management
Frederick Herzberg	Job Enrichment / Motivation
Harry Levinson	Psychoanalytic Approach
Third Generation	
1980s thru 1990s - System-Wide Change Change = Strategic	
Peters & Wasserman	In Search of Excellence
Leonard Nadler	Human Resource Management
Hammer & Champy	Reengineering the Corporation
Patricia McLagan	HRD Competencies
Peter Senge	The Learning Organization
Robert W. Jacobs	Real-time Strategic Change
Harrison Owen	Open Space Technology/ Meetings
Fourth Generation	
2000 thru 2015 - Innovation and Connection Change = Constant and Desirable	
Seely and Duguid	The Social Life of Information
Davenport & Prusak	Knowledge Transmission and Knowledge Transfer
Jacono & Kling	Rise of Internet / Distance Working
Daniel Goleman	Emotional Intelligence
Margaret Wheatly	Chaos / Complexities

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First Generation: Human Relations

It is often noted that the 1920 Hawthorne Experiments were revolutionary in terms of research into workplace behavior (Gillespie, 1991). In reflection, throughout the thirty years that followed there was much inquiry for business practices to gain a better understanding of how to achieve higher production rates from existing employees. This remains a concern in business today albeit the work itself and the environments in which work is performed may be vastly different. What we learned in this period is that people influence the results of productivity by their own human complexities. Employees must feel a need for security of basic life needs. Managers were thought to be the decision maker and must demonstrate their authority. Organizational loyalty was strong and working with their peers or in groups was desired. The consultants of this time were attempting to assist managers and individuals to work more effectively as individuals. At the same time, the historical reports of personnel departments indicate the 1920s was a time of administrative performance and a focus on avoiding labor unions (Massarik & Pei-Carpenter, 2002). Power was heavily weighted in favor of the employer, managers were often abusive, and workers had few rights or protections other than to quit. With the economy beginning to improve, the larger corporations often saw value in providing a few employee benefits as a way of recruiting, retaining and motivating employees. However, there was a worldwide recession that hindered others from adopting new approaches in the employee-employer relationship as they had no difficulty in recruiting labor. During the 1930s, due to collective bargaining tactics and the New Deal, some personnel departments transformed into industrial relations (IR) departments as the need for strong union negotiations and management was prevalent (Zeitlin,1987).

Second Generation: Management Development

By 1945, employment management and welfare work had become integrated under the broad term *personnel management* (Klerk, 2009). Experience of the war had shown that output and productivity could be influenced by employment policies. According to Klerk (2009), the role of the personnel function in wartime had been largely that of implementing the rules demanded by large-scale, state-governed production, and thus the image of an emerging profession was very much a bureaucratic one. Peter Drucker, one of the first management specialists to achieve guru status, was a representative of this era in business (McGrath, 2014). With his response to Alfred P. Sloan's challenge to better understand how to manage a complex organization such as General Motors, Drucker responded with his book *Concept of the Corporation* in 1946. Drucker began to see that value created within the organization was not just from productivity but also created by workers' use of information. As knowledge work grew in demand with the changing business environment of the 1950s into the 1960s, researchers including Ginsberg, Drucker, McGregor, and Likert were presenting methods, theories, and ideas that challenged previous business practices. Motivation and engagement of workers became the center of focus while control and authority transitioned to a more participative coaching role (McGrath, 2014). Topics of research, theories of practice, and consultants focused on increasing performance quality through design or redesign of systems, providing new research and sound theory on how to promote proper conversations and behavior in the workplace, and training managers on the effective use of both informal and formal feedback sessions using communication skills with subordinates such as listening, asking questions, and providing feedback. Team building and conflict management became centers of interest as did implementing surveys, setting goals, and introducing problem solving processes.

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Third Generation: System-Wide Strategic Change

The economic upheaval of the 1970s led to a new era of economic changes. According to Conte and Karr (2001), the new president of the United States, Ronald Reagan (1981-1989), based his economic program on the theory of supply-side economics, which advocated reducing tax rates so people could keep more of what they earned. The theory was that lower tax rates would induce people to work harder and longer, and that this in turn would lead to more saving and investment, resulting in more production, and stimulating overall economic growth. By 1983, inflation had eased, the economy had rebounded, and the United States began a sustained period of economic growth (Conte & Karr, 2001). With a positive outlook came hope, innovation, and investments in the future rooted in strategic change.

Toffler (1980) in *The Third Wave* characterized this shift to relentless change as the defining feature of the third phase of civilization which followed a first wave being agriculture and the second as being the industrial wave. This work further claimed that the dawn of this new phase will cause great anxiety for those that grew up in the previous phases, and will cause much conflict and opportunity in the business world. Bradford and Burke (2005) revisited the transitions of organizational development and reported that during the 1980s organizational development became a more established field with courses and programs being offered in business, education, and administration curricula. In the 1990s and 2000s organizational development continued to grow and evolve and its influences could be seen in theories and strategies such as total quality management (TQM), team building, job enrichment, and reengineering (Bradford and Burke, 2005). Many authors and pundits have attempted to explain what all of this means for business strategy. In 1988, Henry Mintzberg examined the strategic process and concluded it was much more fluid and unpredictable than people had thought. In 1990, Richard Pascale wrote that relentless change requires that businesses continuously reinvent themselves. In his works, he suggested that people generally tend to depend on what has worked before and they often resist change.

Successful strategic businesses in this era were implementing technology solutions or products and services at a rapid pace, the workplace was becoming 24 hours by 7 days by 365 days per year operations with automated interactive voice response (IVR) systems, the phone network was integrating with the data network, the employees assumed more accountability, and greater competencies for the workforce were required. Planning, implementing, and managing change was at the center of activity. Topics of research, theories of practice, and consultants focused on facilitating change through self-managed teams, cross-functional teams, developing learning organizations, introducing 360° feedback systems, and assisting organizational leaders in any way possible to facilitate organizational change and innovation.

Fourth Generation: Innovation and Connection

Leaving the era of systematic, planned change we enter the era of constant and disruptive change. Businesses relied on organizational development, human resources, and I/O psychology educators, consultants and practitioners to bring businesses through a dynamic age of progress. Human resource professionals were also undergoing changes in their function as the people in the organization were now being considered an important asset. The process of attracting talent was changing with the influence of technology applications, the Internet, and applicant tracking software. Social media became a common way for people to connect with others. A new generation of future employees emerged with differences that are now complicating the practices of business and talent management. Additionally, in the early years of the 21st century, personnel research departments have largely disappeared from organizations,

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outsourced to research consulting firms, and I/O psychologists have broadened their roles and responsibilities inside organizations (Koppes, 2007). Practitioners in I/O psychology have expressed professional interests and needs that are noticeably different from those I/O psychologists focused on conducting research. Silzer, Cober, Erickson and Robinson (2008a) describe three subgroups of the profession: research, education and practice.

While the fields of human resources, organizational development, and industrial organizational psychology continue to overlap, merge, diverge, compliment, and contradict each other business leaders are searching for information from all of these professions or any of these professions to assist them in problem solving and strategic planning efforts similar to what they have experienced in the past. Moving into the uncertain future we take with us virtual teams, online communities, social media platforms, global or boundaryless business environments, mergers and acquisitions, a decade of distress in the workforce, and a promise of even more changes in the future.

Theories and methods of industrial and organizational psychology are those of all psychology, only slightly constrained by characteristics of employment settings and assumptions about those who populate them (Katzell & Austin, 1992). In review of these theories of human behavior in organizations we can see they are consistent with a classic model that views behavior as a function of ability, motivation, and situational opportunities. Differences among theories within the field are primarily differences of emphasis. Some look within the individual and others focus on tasks, interpersonal factors, or organizational structures to explain behavior. The issue at hand today is to determine what the fifth generation of theory and practice should target and how we might align human resources, organizational behavior, and industrial organizational psychology disciplines in order to address the needs of the workforce of the future.

SOLUTIONS AND RECOMMENDATIONS

Rethinking the People Side of Business

From a review of the perspectives of the historical evolution of the people side of business, there are no indications that understanding and managing people in the workplace is going to slow down, stabilize, or get simpler in the future. On the contrary, all indicators point to a time of transformation for all professions dedicated to the study and practice regarding people at work. The war for talent continues on a global stage. Technology continues to evolve and bring more automation and self-service applications. The digital revolution has contributed to increasing the value of people in the organization with specialized knowledge and skills. The shift in power has occurred where people desire more control over their careers and loyalty is often not the priority. Pensions are rarely offered. Millennials are bringing new perspectives to the terms *work* and *leadership*. The transparency and accessibility of new job opportunities indicate that whoever emerges as the talent gurus for this next era need to change the goals and metrics of what defines successful talent management.

A few of the possibilities might be such ideas as to consider that a firm might only need to retain all necessary talent for while the talent is truly utilized and should consider opportunities to trade talent when business needs change. Or maybe to recognize that passion for one's work is becoming increasingly important to individuals and replaces the desire to simply get a job. We must understand matching work tasks to passion could be a competitive advantage when the labor market grows tighter with improved

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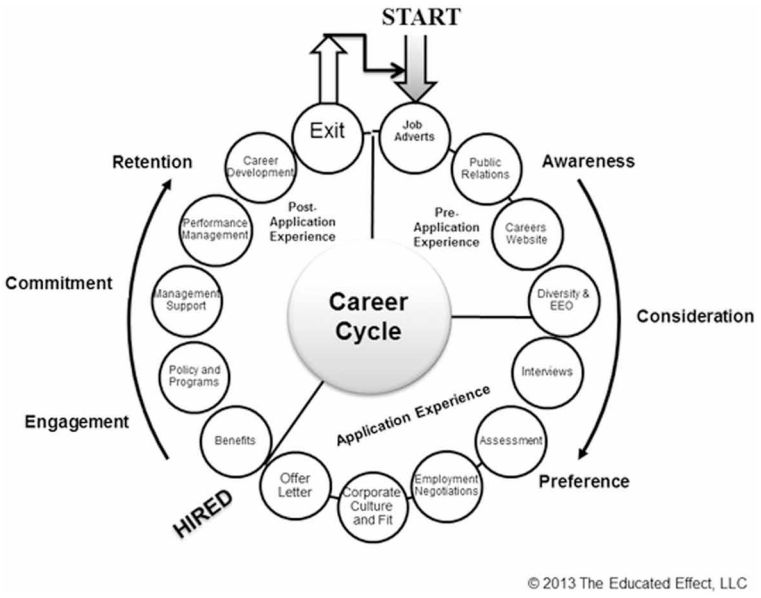
economic conditions. Whatever we determine to be the solution, the Fifth Generation of people practices will have to evolve from where we are today in the employer-employee relationship.

The employer-employee relationship has typically had an obvious entry and exit point represented in the hiring and termination processes. All of the relationship considerations in between these events are developed by the leadership and people within the organization, guided by competitive pressures and legislation, and not always appreciated as a contributor to organizational goals. Figure 2 represents the cycle of an individual career with typical relationship elements, called touchpoints, shown as bubbles around the circle.

Figure 2. Cycle of Career Touchpoints



At the top, there is a Start indicator representing when someone becomes familiar with the organization and begins their relationship with it. Moving clockwise, the first few touchpoints are not necessarily sequential but represent the idea that as soon as someone learns of your organization, they have entered the cycle and begin their relationship even though they are not an employee. This could be a customer, a referral, or a potential talent anywhere in the world that happens to know of the organization. During this Awareness period, there is no clear assignment as to what professional is the expert in this space. Often, it has been a mixture of human resources, marketing, or an outsourced recruitment agency. The talent winners of the future will need to develop expertise in activities of employment awareness. Continuing clockwise around the touchpoints, the Consideration and Preference mindset of talent must be mastered. Being this is a behavioral and psychological experience, it would behoove us to realize that only paying attention to the process is a weakness of HR historical practices. The relationship the organization builds during the application experience with talent participating in interviews, assessments and negotiations is crucial to the success of the organization. I/O practitioners are noted to be the experts in this particular set of functions. Once the talent is officially hired, a new set of talent management activities begin which will need to be revolutionized for the predicted future workforce. Engagement, Commitment and

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Retention phases have been the focus of business practices in recent years with many of the talent issues and programs being focused after the Hire.

All professionals focused on the people side of business play a role in the success of each of the touchpoints. Historically, the organization has believed that they control the touchpoints and make the decisions about the employee at each stage of the relationship. However, it is becoming more apparent that as an individual is contemplating their career, they may or may not decide to move forward with the organization based on the pre-application experiences or a reflection and understanding of their passion as it relates to the practices of the firm under consideration. When the individual decides to move forward around the diagram, they next enter the Application experience touchpoints. Once they have applied to the organization, the individual is attentive to additional experiences encountered with the organization through the entire application process. Again, the individual will make decisions whether to move forward to the post application experience touchpoints just as the organization determines if they would like to move them forward. While represented as a few bubbles on the diagram, the employment experiences and touchpoints on the left of the diagram grow increasingly more complicated and the employer-employee relationship is intensified, affected on a daily basis, and often misunderstood. At some point in time, the employee either elects to move to the Exit process from the company or may apply for a promotion or other movement within the organization. The organization can also decide to move the employee to the Exit process. If the employee-employer relationship goes well, individuals could exit from their position and be promoted around to the right side of the diagram quickly and into a new position beginning with the onboarding touchpoint with the new job title and responsibilities. This promotion link is represented by the black arrow shown between the Exit arrow and the Start arrow in Figure 2.

To rethink the touchpoints in the future, we can expect that the cycle will move more quickly and individuals will desire more input into their career choices and experiences. This only amplifies the need for I/O psychology practitioners to rise in numbers as employees of businesses working with human resource professionals and business leaders with the joint purpose to work strategically and diligently on each of the touchpoints in order to cost effectively operate the business.

The Millennial Workforce

The workforce of tomorrow is actually here today. The Millennial generation has become the largest group of workers as noted in Figure 3. This Millennial generation has been characterized in a number of different ways but is generally defined to be the generation born after 1982 that have been raised with technology at their fingertips. On the negative side, they have been described as lazy, narcissistic and prone to move from job to job in relatively short amounts of time. It is possible that they will prove to be more civically and politically disengaged as well as more focused on materialistic values. On the positive side, they have been described to generally be more open to new ideas, confident, self-expressive, liberal, and upbeat. In Simpson (2016), the study reported that Millennials place more of an emphasis on extrinsic values such as money, fame, and image, and use social media applications such as Twitter and Instagram to socially identify with people they desire to follow. This study also noted that Millennials do not see leaders of industry to be interesting to follow but rather, they follow leaders for inspirational purposes or those that assist them in their pursuit of money, fame, and image. Implications of this report could include a catalyst to rethink the employee-employer relationship in ways that have never been considered before.

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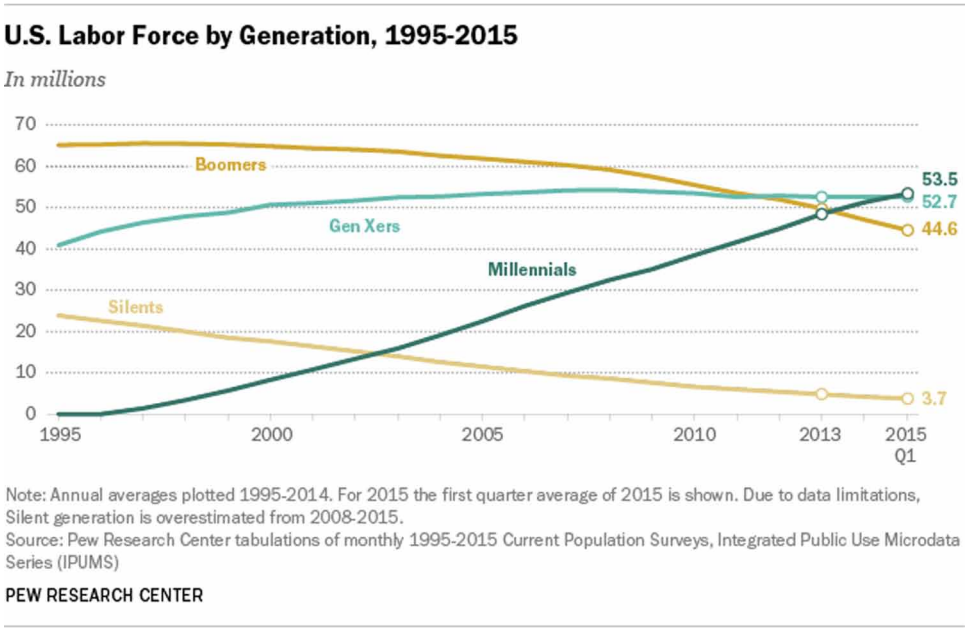
Figure 3. Labor Force Composition (Pew Research, 2015)



With these changes in the workforce upon us disruptive change is eminent for those practitioners of I/O psychology, human resource management, and all other professionals proclaiming to focus on the people side of business.

CONCLUSION

Through this historical review of the evolution of professionals focused on the people side of business it is evident that the lines have blurred and no clear division in responsibilities towards workforce success and talent management can be found. It is understood that HR professionals and I/O Psychology professionals have redefined their duties and attempted to respond to the ever-changing needs of organizations throughout the last century. These professions are currently asking questions about the changes that might be necessary to continue to add value to their field and to the clients in the years to come. In today's global economy with a new generation taking their place in the workforce, it has become apparent that the need to develop innovative workforce strategies is now more important than ever before. Particular to the future of I/O Psychology practice, there continues to be a need for research in the psychology of work in these changing environments. Additionally, there is an increasing need for I/O practitioners to be internal and external consultants to businesses of all sizes. Possibly, I/O practitioners should consider individuals as their focus of practice for career strategies. Then the educational institutions have opportunities to develop relationships with those in I/O research and practice and most likely will be challenged to develop a curriculum that integrates the multiple dimensions of business which includes the people side of business. Of course, human resource professionals will be challenged to implement

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programs, policies, and events that strengthen the touchpoints in the employer-employee relationship which may necessitate a rethinking of their job titles and roles.

Silzer and Cober (2010) conducted a brief survey on the future of I/O practice with members of the I/O Psychology professional society SIOP. In their report, the need for a transformation was acknowledged but a resistance to change was prevailing. A fear of irrelevance, a threat of competition from other fields of practice, a loss of identity for the profession, a challenge to demonstrate their return on investment for contributions, and an academic migration to business schools was the responses to how current practitioners saw their future (Silzer& Cober, 2010). At a minimum, I/O practitioners should develop a strong identity and purpose and then clearly share their message which differentiates them from the historical views of human resource professionals or administrative coordinators or compliance managers. There is opportunity for every field of practice within this genre if lines of demarcation are created. While we cannot definitively say today what tomorrow will bring but what we do know is that the evolutionary process of people at work will continue.

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KEY TERMS AND DEFINITIONS

Career Cycle: The lifecycle of the employee-employer relationship beginning with ones awareness of the organization through their employment at the organization to the exit from the organization.

Human Resource Management: An administrative function in organizations designed to maximize employee performance through the planning, organizing and coordinating of activities such as hiring, firing, performance management and training.

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Industrial Organizational Psychology: The scientific study of human behavior in organizations and the work place focused on deriving principles of individual, group and organizational behavior and applying this knowledge to the solution of problems at work.

Organizational Behavior: The study of the way people interact within groups.

Personnel Administration: An administrative function of an organization that exists to provide the personnel needed for organizational activities and to manage the general employee-employer relationship.

Professional Societies: Usually a nonprofit organization seeking to further a particular profession, the interests of individuals engaged in that profession, and the public interest.

Talent Management: A set of integrated organizational processes designed to attract, develop, motivate, and retain productive, engaged employees.

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Chapter 79
Neurological Disorders, Rehabilitation, and Associated Technologies: An Overview

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ABSTRACT

Patients with neurological disorders are increasing globally due to various factors such as change in lifestyle patterns, professional and personal stress, small nuclear families, etc. Neurological rehabilitation is an area focused by the several research and development organizations and scientists from different disciplines to invent new and advanced rehabilitation devices. This chapter starts with the classification of different neurological disorders and their potential causes. The rehabilitation devices available globally for neurological patients with their underlying associated technologies are explained in the chapter. Towards the end of the chapter, the reader can acquire the fundamental knowledge about the different neurological disorders and the mal-functionality associated with the corresponding organs. The utilization of advanced technologies such as artificial intelligence, machine learning, and deep learning by researchers to fabricate neuro rehabilitation devices to improve patients' quality of life (QOL) are discussed in concluding section of the chapter.

INTRODUCTION

In human's, disease or injury due to nervous system is treated as neurological disorder. The malfunction of either central or peripheral nerves system due to biochemical, electrical or structural abnormalities can cause neurological disorders. The neurological disorders are categorized as movement, sensory and

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mental. Abnormalities in the central nervous system will affect the functionality of brain and spinal-cord. The functionality of hands, legs and other sensory organs are depending on performance of peripheral nervous system. Rehabilitation to neurological patient depends on kind of neurological disorder, age, gender, living atmosphere and life style. Based on situation and purpose the rehabilitation devices are helpful for physiotherapist and nurses to make their task easy and reduces the burden on patient. The rehabilitation device will play the role for neurological patient throughout their life-spam. The advanced technology such as artificial intelligence, machine-learning and deep-learning in the field of computer science and robotics facilitate the bio medical engineer to design multipurpose devices rather than single application oriented devices and size of the devices are tremendously decreased which lead to easy transportation. New physiotherapy techniques are discovered based on the advanced technology. Irrespective of the technology, the purpose of any rehabilitation device is to facilitate the user to do their daily activities by themselves without any risk. However, independent of technology used each device has its own merits and demerits. The objective of this chapter is to provide fundamental knowledge of different neurological disorders and classification. The working principle and associated technology, along with merits and demerits of various rehabilitation devices and therapy techniques are briefly explained. The future scope of the current technology in neuro-rehabilitation engineering is discussed in the concluding section of this chapter.

NEUROLOGICAL DISORDERS AND CLASSIFICATION

Based on the literature survey it can be concluded that humans are suffering from more than 600 types known neurological disorders. According to the Global Burden of Diseases (GBD) Neurological disorders are the leading cause for disability and sometimes lead to death. Feigin et al gave the brief summary on global, regional and national wide burden of neurological disorders for the period from 1996 to 2015 (Headache, dizziness, raised intracranial pressure, unconsciousness, Neurological problems and Neurological disorders). The international classification of functioning, disability and health (ICF) provides the description of health and related states. In order to design best or innovative rehabilitation device/ therapy, the designer must possess the basic knowledge of various neurological disorders, causes and effects on performance of the organs. Any neurological disorder can cause impairment in movement, sensory and mental. The classification of the neurological disorder based on the nature of impairment is shown in table 1.

REHABILITATION FOR NEUROLOGICAL DISORDERS

Rehabilitation services provide help to improve the abilities against the impairment of disabled people and not focus on the disease. The impairment may have related to consciousness, cognition, speech, vision, sensory and physical movement. The level of impairment depends on the neurologic function across multiple domains. The various scales such as Glasgow Coma Scale and American Spinal Injury Association Impairment are used to evaluate patient's condition. The patient's ability to perform their routine tasks are measured in terms of daily living activities and functional independence measure. Rehabilitation will be achieved through learning compensatory techniques and adaptation to promote neurological recovery. Over the past two decades' tremendous growth in neuro rehabilitation technologies

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Table 1. The classification of neurological disorders based on cause of impairment

Movement Related Neurological Disorders	Sensory Related Neurological Disorders	Mental Related Neurological Disorders
Ataxia Cervical dystonia Chorea Dystonia Functional movement disorder Huntington's disease Multiple system atrophy Myoclonus Parkinson's disease Progressive supranuclear palsy Restless legs syndrome Rett Syndrome Spasticity Tardive dyskinesia Tourette syndrome Tremor Wilson's disease	Autism spectrum disorder (ASD) Blindness and low vision Hearing loss and deafness Sensory processing disorder Sensory hypersensitivity	Anger Anxiety and panic attacks Bipolar disorder Body dysmorphic disorder Borderline personality disorder Depression Dissociative disorders Recreational drugs and alcohol Hypomania and mania Loneliness

such as robotic systems, electrical stimulators and wearable sensors to check the actual performance. Since, the rehabilitation is combination of multiple technical expanses, multi-disciplinary professionals are needed to provide effective and efficient rehabilitation for people with long term neurological problems. The different component related to rehabilitation is shown in figure 1.

ADVANCES IN NUERO REHABILITATION DEVICES AND THERAPY TECHNIQUES

The advances in technology offers more practical applications in both engineering and medical field. It allows the doctor to give better treatment for patient and allows an engineer to design a suitable rehabilitation device. From past two decades, tremendous technological advancement and change has taken place in manufacturing the rehabilitation devices. All kind of neurologic patients are benefited with advanced rehabilitation techniques. The role of rehabilitation for various kind of neurological disorders are explained in the section titled "Rehabilitation For Neurological Disorders." Globally available rehabilitation devices and various therapy techniques along with merits and demerits are elaborated in following sections.

Rehabilitation Devices

Movement disorder due to neurological syndrome results an excess of movement or unnatural movement. In the year 2011, Stanley Fahn explained the classification of movement disorders including parkinsonism, Dystonia, and tremor (Fahn, 2011). Irrespective of the movement disorder classification, the main objective of rehabilitation device, or technique/method is to provide balance in movement, gait and posture. Based on the disorder and requirement, the patient can choose the devices like wheelchair, robotic arms, exoskeletons etc. to fulfil their movement related tasks.

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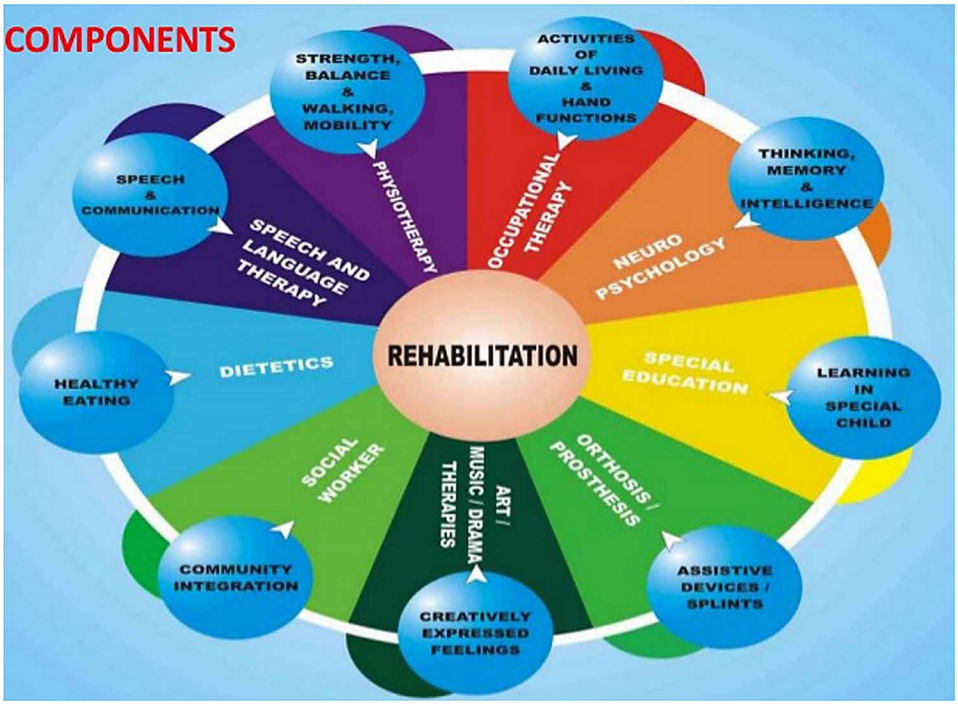
Figure 1. The different components related to rehabilitation
(source: Saans Saksham Rehabilitation and Home Care)



Wheelchair

Wheelchair is an ancient rehabilitation device used to overcome the mobility disorder. The first wheelchair was invented in 1595 and called as invalid's chair. The Bath wheelchair was invented in 19th century. After making so many improvements a wheelchair model was invented with rear push wheels and small front wheels and patented in 1869. The first spoked wheels and motorized wheelchair was invented in 1900 and 1916 respectively. Unfortunately, motorized wheelchairs were not available commercially in 1916. The first folding wheelchair was invented by Harry Jennings, in 1932 which is similar to the traditional manual wheelchair available globally. George Klein, a Canadian scientist put more effort to improve the motorized wheelchair. In 1956, Everest and Jennings started manufacturing electric wheelchair on mass scale. The various wheelchair models from past to present is shown in figure 2.

In 19th century people used wood to make wheelchair frame and parts. In 20th century various materials are used by the manufacturing industry to design a wheelchair without violating the design ethics. The innovation in design of the wheelchair facilitate the user in comfort seating and safety in all- terrains during the ride. But, controlling the wheelchair movement is difficult for neurological disorder patient compared with other patients, these people should depend on either add-on devices or caregivers as per their safety concern. The doctors will prescribe the powered wheelchair to neurological disorder patients in the absence of care givers. Joy stick is common device used to control the wheelchair movement. However, the modern wheelchairs are added with touch panels to control the wheelchair at less physical effort. Operating the touch panel is difficult for people not able to control their finger movements, in such cases external controlling device must be added to wheelchair to help the rider and trained profes-

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sional is mandatary to demonstrate the device. The performance, accuracy and reliability of the device will decide the safety of the rider. The various smart control methods are:

- Brain computer interface (BCI)
- Voice control method
- Various physiological signals

Brain computer interface (BCI) is a direct neural interface that enables the direct communication pathway between the brain and wheelchair and classified as Active BCI, Reactive BCI and Passive BCI. In Passive BCI, the command signal is from spontaneous brain activity instead of voluntary control. Irrespective of classification, BCI is combination of hardware and software and consists of signal acquisition and processing unit to generate the control signal. The signal processing unit made with algorithms to perform the tasks such as feature extraction and data translation (Hassanien & Azar, 2015). In 2005, Tanaka et al proposed the first BCI controlled wheelchair based on Electroencephalogram (EEG). Bi et al did the survey on EEG based brain controlled robots and explored the various kind of algorithms used (Bi, Fan, & Liu, 2013). In 2017, Ramadan et al explained the various controlled signals, types and classification used for BCI. The various electrodes used for data acquisition, its merits and demerits and challenges associated with current technology which restricts the accuracy of BCI are elaborated (Ramadan & Vasilakos, 2017). The accuracy of the whole BCI system depends on user and their re-

Figure 2. The various wheelchair design models from past to present [A] Spain wheelchair [B] Steven Farffler wheelchair [C] Bath chair [D] First wheelchair with spokes [E] Basic manual wheelchair [F] Basic powered wheelchair [G] I-bot wheelchair [H] Direct drive hub motor wheelchair
(Source: https://abilitytools.org)

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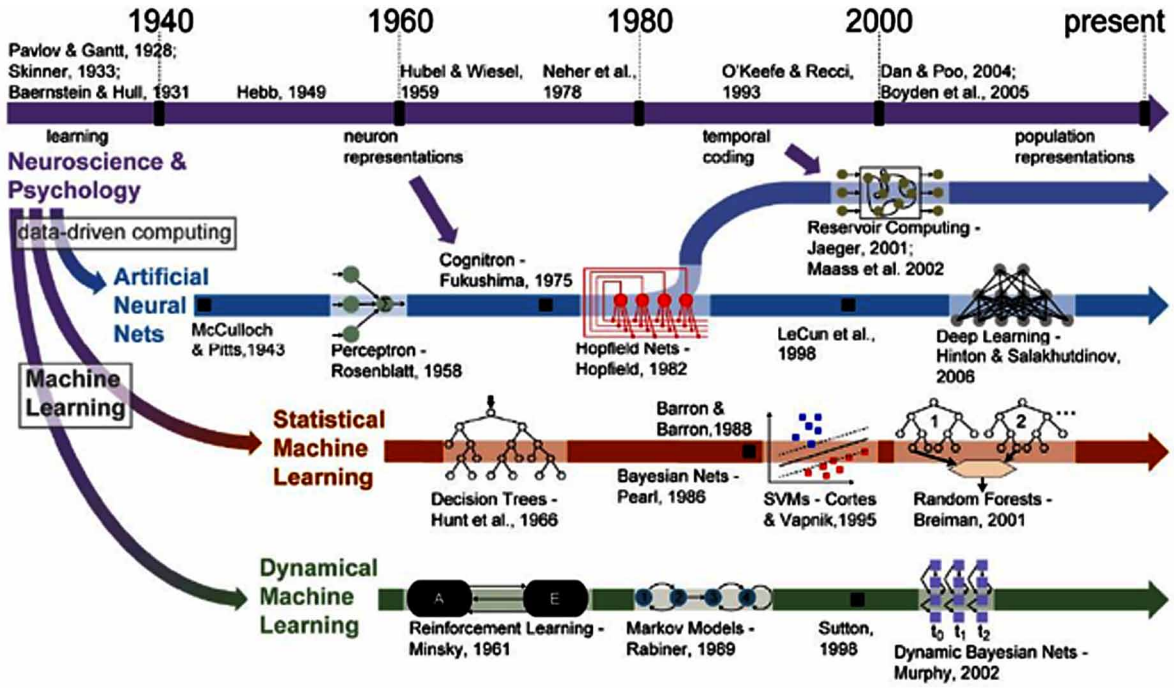
quirements are depending on nature of the disability. Unfortunately, the guidelines have to be followed by the BCI developers are not yet standardized and till fully autonomous BCI controlled wheelchair are not commercialized in global market.

Voice control method is the best remedy to control the wheelchair movement and recommended for wheelchair bounded patients. It is easy to attach a Vo powered wheelchair. The input voice signal can be generated by the wheelchair user or collected from the bio signals. A microphone is used to take the input from the wheelchair rider and electrodes are used to collect the bio signals. Irrespective of input signal the accuracy of the output depends on signal processing algorithms. Separate algorithms are required for voice processing and bio signal processing. The two major disadvantages with voice control are, human voice is not unique and the features of the voice signal is depending on the emotional status of the user.

Hansen et al explained about the problems associated with the speaker recognition (Hansen & Hasan, 2015). Schultz et al (2017) explained the bio signal based speech processing algorithms. Tirumala et al (2017) discussed various speaker recognition algorithms. The development tree for neural-inspired algorithms and hardware architecture is shown in figure 3.

Figure 3. The development tree of neural-inspired algorithms and hardware architecture
(James et al., 2017)



Robotic Arms

The Robotic arm is used as assistive device to fulfil the tasks done by human arm. It may be a complete prosthetic device or augmentation device made with lightweight materials and low power consumption motors. In case of amputee patients, the robotic arm is directly attached to patient hand and movement

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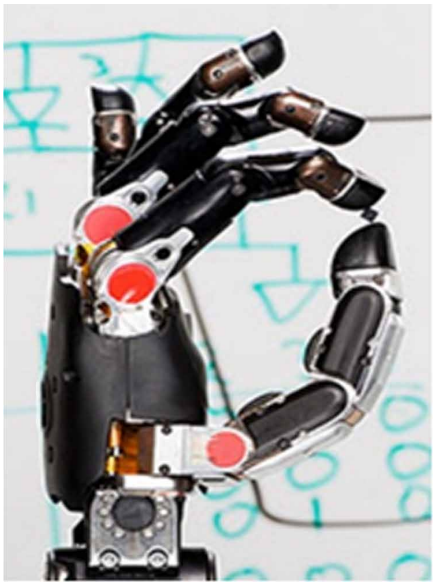
was controlled by electromyogram (EMG) signals. It can be fixed with support of rigid body for patients with neurological disorders. In case of wheelchair or bed redounded patients it can be used to feed the patient. The accuracy and efficiency of robotic arm movement depends on quality of hardware components and algorithms used. The degree of freedom (DOF) define the number of hand or finger movements in different directions. The people with muscle impairment prefer augmentation device for extra support so that they can do the task easily. Saikia et al (2016) explored the recent advancements and history in prosthetic hand design. In year 2016, the defense advanced research projects Agency (DARPA) released food and drug administration (FDA) approved mind – controlled robotic arm as shown in figure 4. It has an ability to bend, rotate, and twist in 27 different ways like a normal human hand.

Figure 4. DARPA'S prosthetic hand
(Source: www.darpa.mil)



Exoskeleton

An external skeleton made with lightweight material and mechatronic devices to support the internal skeleton is treated as exoskeleton and these are classified as full body, upper extremities and lower extremities. The upper extremities are used to support arms and trunk. The lower extremities are used to control the parts below the trunk such as hip, knee and ankle or its combination. Exoskeletons with batteries to run the sensors and actuators is treated as powered exoskeleton otherwise it is treated as passive exoskeletons. The powered exoskeletons are classified as static and dynamic. The passive exoskeletons are used for weight re-distribution, energy capture, dampening and locking. The exoskeletons based on functional electrical simulation (FES) is treated as hybrid-exoskeletons. The exoskeletons can be controlled by biosignals such as EEG or EMG signals. The Berkeley lower extremity exoskeleton (BLEEX), hybrid assistive limb (HAL), XoR, Body Extender, hydraulic lower extremity exoskeleton (HLEE), Institute for machine and cognition mobility assist exoskeleton (IHMC MAE), MIT Exoskeleton

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are the few models developed by the research and development organizations. Ansari et al (2015) gave the brief explanation about performance and mathematical modeling for above models.

The full body exoskeletons can change the life style of wheelchair or bedridden patients due to neurological disorders. However, it is mandatory to check the walking style to avoid the damage of another biological system or organs of the patient. The difference in nature of human walking can estimated by using the gait lab. In BLEEX and HAL they used the EMG and pressure sensors to collect the walking data. Machine learning classification and clustering algorithms are required for off line data mining to predict the movement of lower limb. In 2012, Zhao, Zhang, & Guo (2012) explained the application of the machine-learning algorithms and various lower limb movements for motion analysis. Caldas et al (2017) explained the adaptive algorithms used to analyze the gait cycles based on inertial sensor data.

Rehabilitation for Sensory Related Disorders

Sensory receptors are specialized cells to detect specific stimuli occurring in the human body. These cells are classified as interoceptors and Exteroceptors. The mall function in exteroceptors will result in the impairment in the ability to taste, smell, vision, and hearing. The impairment in the sensory organs such as Eyes, Ears, Nose, Tongue and Skin can cause low vision/blindness, partial/complete loss of ability to hear, smell, taste and touch feel respectively. The low vision/blindness is due to chronic visual deficit which is not compensated by ordinary glasses and lens. The advanced devices such as video magnifiers, sonic cane, mini-guide, victor reader stream, haptic shoes and navigation bracelet are mostly expensive and unfamiliar to common people. The modern smart phones available in the global market allows the patients to do multitasking with the help of some add-on applications. The various electronic gadgets available in the global market to serve the visually impaired people are classified as travelling, path oriented and position locator devices and their performance is depending on following aspects.

- Exchange of information between user and sensors in an indoor and outdoor environment will help to avoid the obstacles
- The sensors should work at any condition of light i.e., day and night
- The range of obstacle detection should be more than five meters as safety concern
- An ability to differentiate the static and dynamic objects

Elmanni and Elleithy (2017) elaborated the broad classification visual assistive technologies and brief explanation about the sensor based assistive devices along with working principle and future aspects.

The hearing loss can be categorized as sensorineural and conductive hearing loss or combination of both. The damage in the cochlear/vestibulocochlear nerve can cause sensorineural hearing loss. The impairment of physical and mechanical obstruction to air conduction channel of ears can cause the conductive hearing loss. Hearing machines/aids are used to avoid the problems associated with ears impairment and classified as implanted and non-implanted devices. Implanted devices are fixed in ear and non-implanted devices are placed outside of ear. The broad classification of implantable devices is shown in figure 5.

Hearing aid is simple electronic device consisting of microphone, an amplifier and speaker. The power is needed for amplifier to boost up the signal strength and the quality of the device is based on performance of signal processing algorithms. The development in the hardware and software technology leads to reduce the physical size of the hearing aids drastically and current research is ongoing to

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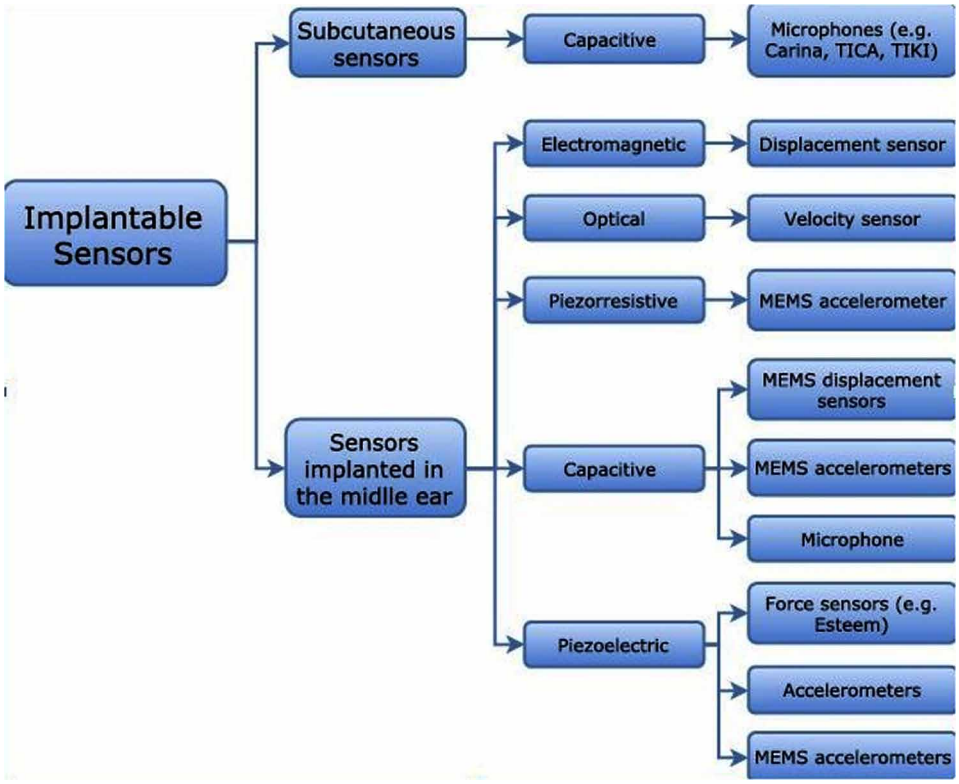
Figure 5. Classification of implantable sensors for hearing devices
(Brody, Smith, & Ray, 2018).



develop a self-rechargeable implantable hearing device. Calero et al described the technical development of implantable sensors (Brodie, Smith, & Ray, 2018). Brodie, Smith, and Ray (2018) did the survey to explain the impact of hearing aids on quality of life of hearing loss patients (Calero, Paul, Gesing, Alves, & Cordioli, 2018).

The inability to smell and taste is treated as olfactory. It is the common problem occurred in adults aged between 65 to 80 years. There are multiple factors such as olfactory epithelium damage, age-related nasal epithelium atrophy, decrease in nasal mucosal metabolizing enzymes that are responsible for olfactory sensation (Wongrakpanich, Petchlorlian, & Rosenzweig, 2016). Patel (2017) reviewed the various therapy techniques to improve the ability of olfactory patients. Tongue is an organ made with muscles and capable to move without any bone support. The restrictions in the tongue movement results in dysfunction of mastication, deglutition and speech. The rehabilitation to this patient depends on the nature of glossectomy. Therapy techniques are mandatory along with prosthetic tongue.

Rehabilitation for Stroke and Trauma Patients

The sudden death of neurons inside the human brain can be treated as stroke. Ischemic stroke and hemorrhagic stroke are the two common types. The rehabilitation for stroke patients depends on several factors such as nature of stroke, age and living atmosphere and class of evidence. The class of evidences are well explained by American heart association (AHA) and American stroke association (ASA). According to

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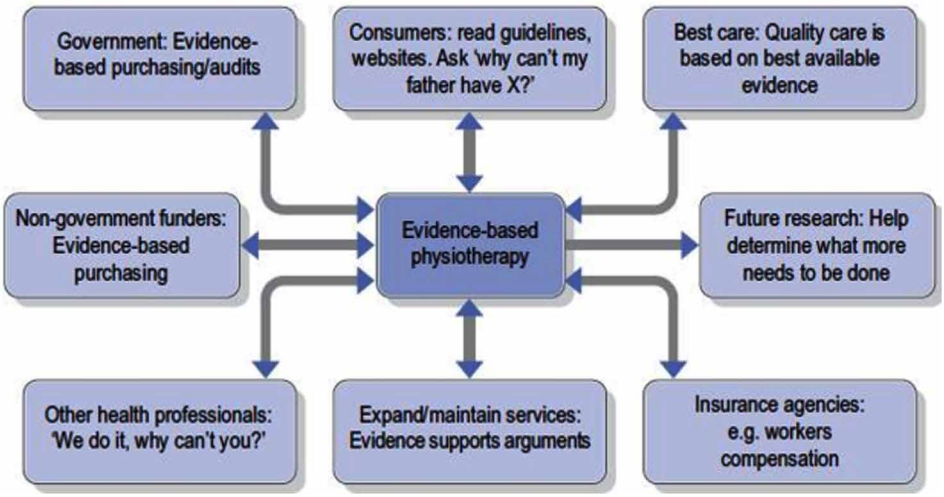
the guide lines given by AHA/ASA (Winstein et al., 2016) large team support is needed for adult stroke rehabilitation. Suarez-Escobar et al briefly explained the technology developments of robotic/mechanical devices for post stroke rehabilitation (Suarez-Escobar & Rendon-Velez, 2018).

Any physical injury which leads to severe wounds, broken bones or internal organ damage can be treated as trauma. The severity of injury is calculated by injury severity score (ISS). The rehabilitation to the trauma patients depends on the severity of the injury or nature of the damaged organ. Long and Koyfman (2018) explained the advances in neuro-trauma management.

ADVANCES IN THERAPY TECHNIQUES

Psychotherapy is kind of treatment used to cure the mental related disorders. According to American psychiatric association (APA) the therapy techniques are classified as cognitive behavioral therapy, interpersonal therapy, psychodynamic therapy and psychoanalysis. Based on the patient's disorder and circumstances the doctor will suggest the suitable therapy technique (American Psychiatric Association, 2011). Evidence based practice (EBP) is the common technique used by many psychotherapists. The drivers of EBP is shown in the figure 6.

Figure 6. The drivers of EBP
(Lennon & Stokes, 2009)



Akyuz et al explained about the physical therapy modalities to cure the neuropathic pain (Akyuz & Kenis, 2014). Sullivan, briefly explained the various manual therapy techniques for chronic and low back pain disorders (O'Sullivan, 2005).

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CONCLUSION

We have classified Neurological disorders as Movement, Sensory and Cerebral. Movement disorders are those where the Neurological injury restricts the movement of the patient. Sensory disorders are those where the some or most of the senses (sight, sound, touch, smell) are disturbed and the patient is unable to function normally. Mental disorders are those where the patient has lost the balance of his mind. However, with some technological help such patients can be normal or near normal and carry on their daily activities. The main difficulties in the movement and sensory disorder patients are:

- Movement from one place to another
- Performing daily tasks (such as closing doors, crossing roads, climbing stairs)
- Performing tasks involving effort such as lifting weights.

The principal utilities to help such patients are:

- **Automated Wheelchairs:** These are wheel chairs which are battery operated and can be controlled with available controls (movement, speed, breaks) on the arm rests or foot pedals, as desired by the patient These chairs require no further assistance making the patient fully independent. More advanced versions have additional features such as step climbing and therapeutic abilities.
- **Robotic Arms:** Robotic arms are extensions of human arms. These arms are either controlled via a BCI (Brain Computer Interface) or are attached to the arms themselves and controlled via mouse/keyboard. Typically, these Robotic arms can lift weights, can perform very precise tasks or tasks which require great skill. For example, robotic arms are used by surgeons to perform intricate surgery with great success.
- **Exoskeletons:** Exoskeletons are for those who cannot move their arms or legs. The exoskeleton allows control/movement of robotic arms and legs. Thus, paraplegic patients can use such a system to both move and perform tasks with ease and control.

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Chapter 80
Individual, Institutional, and Environmental Factors Promoting Patient Retention and Dropout

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ABSTRACT

The primary purpose of this chapter is to determine factors that shape client dropout and adherence to Cardiac Disease Prevention and Rehabilitation Programs. The sample consists of 68 individuals, including those currently in the program (adherents) and those who have dropped out (dropouts). Findings show that clients undergoing rehabilitation are much likely to drop out when they are in the critical zone. This is a point where institutional factors, individual factors and environmentally-related factors are not favorable to clients. The risk of clients dropping out can be drastically reduced through the provision of an enabling environment comprising a set of factors that foster adherence such as financial sponsorship, institutional support, high intrinsic motivation, improved illness perception. In that context, there is the need for program administrators to closely monitor at-risk clients, especially those whose social, economic and psychological profiles predict non-adherence.

INTRODUCTION

The issue of client dropout from Cardiac Disease Prevention and Rehabilitation Programs (CDPRP) is a global problem. Client dropout from CDPRPs has generated concern at the institutional level, prompting the need to determine barriers to adherence as a means to both address the problem and improve institutional planning (Leon et al, 2005). It is in that context that determining barriers to client adherence and retention have been the concern of the Heart and Stroke Foundation of Barbados.

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The following are the objectives of this chapter:

1. To investigate reasons that influence client adherence dropout from the program.
2. To determine the effectiveness of the program.
3. To assess if there are differences in adherents (current participants) and dropouts with respect to client satisfaction, intrinsic motivation, social support, institutional support, family support, illness perception and psychological distress.

BACKGROUND

Barbados is a densely populated island of 431 square kilometers with a population of 284,644 (World Bank, 2013). The Heart and Stroke Foundation of Barbados initiated the Cardiac Disease Prevention and Rehabilitation Program in 1994. It aims at rehabilitating clients through the use of medically monitored exercise, dietary advice, psychological counseling and education to enable participants (clients) become more informed and empowered to adopt a healthy lifestyle and ultimately sustain the benefits of rehabilitation over a lifetime (Heart and Stroke Foundation of Barbados). Unfortunately, client participation and adherence to the CDPRP have been declining over the years.

Despite the evidence of benefits, many patients fail to participate in or adhere to cardiac rehabilitation (Ades as cited in Leon et al., 2005). Adherence rate is operationally defined as 'the number of persons who remained active in a program at a given time compared with the total number of persons who began the program' (American Heart Association, 1994, p. 1605). According to the American Heart Association, adherence rate is highest in the first three months of exercise training programs, typically above 80%, down to 60% -71% in the sixth month, 45% -60% in twelfth month, 30%-50% after the second to fourth years. While factors linked to client drop-out are varied and somewhat interconnected, Aldosary and Garba (1999) stated that these factors could be grouped into two main categories namely (1) individual factors-those factors associated with individual traits and (2) institutional factors-those factors associated with the institutional environment.

Barriers to Participation and Adherence

There are barriers to client participation and adherence to health rehabilitation. Evidence from survey research indicates that there are several obstacles faced by patients who are eligible to participate in outpatient cardiac rehabilitation. In that context, Yohannes, Yalfani, Doherty, and Bundy (2007) studied a group of 189 patients who had been referred to a six-week outpatient cardiac rehabilitation program. The specific focus of their research was to identify the predictors of early drop-out from a cardiac rehabilitation program perceived to contribute to the drop-out problem, and assess the major differences between adherents and drop-outs. Yohannes and colleagues found significant differences between adherents and drop-outs, hence concluded that gender, younger age, Hospital Anxiety Depression Scale score, illness perception consequences, illness perception personal control and illness perception treatment control to be the major predictors of persisting or dropping-out. Similarly, Wittmer, Volpatti, Piazzalonga, and Hoffmann (2012) reported that low exercise capacity, high body mass index, smoking, diabetes, and widowhood were significant factors associated with early withdrawal. Daly et al. (2007) reported that factors associated with adherence included non-referral by physicians, associated illness, specific

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cardiac diagnoses, reimbursement, self-efficacy, perceived benefits of CR, distance and transportation, self-concept, self-motivation, family support, social support, self-esteem, and job. Whereas, factors associated with non-adherence included being elderly, female, having fewer years of formal education, CR perception benefits, having angina, and lower activity level during leisure time.

While views for improving retention are wide reaching, they are reflective of the fact that peoples' non-participation or adherence often draws on a number of contributing factors, rather than just one main issue. A relevant conceptual framework will offer insight into the dynamics of client adherence/ retention and dropout.

CONCEPTUAL FRAMEWORK

The purpose of the conceptual framework is to present a clear picture to help in understanding client dropout and adherence to the program and how it impacts program success.

Figure 1 is a diagram of the conceptual framework which depicts the factors associated with drop-outs and adherence to treatment- individual factors, institutional and environmental related factors. The authors posit that clients do not act in isolation hence conceptualizing that there are certain factors contributing to and or inhibiting the development of long-term adherence to Cardiac Disease Prevention and Rehabilitation Programs. The core problem of low rates of adherence which subsequently inhibits the ability of the program to achieve its shorter, intermediate and long-term outcomes, comprise individual, institutional and environmental factors.

The complexes of dynamic individual factors which are obstacles to adherence include: low intrinsic motivation, psychological distress, illness perception beliefs and financial constraints. Institutional obstacles to adherence include lack of institutional support, service cost, and negative or low client satisfaction. Environmental factors that can also pose a challenge to adherence are lack of family and social support. The above obstacles to adherence may put clients at risk of dropping out of the program.

On the other hand, a number of positive set of factors can foster clients' adherence to the program. There are: high intrinsic motivation; improved illness perception beliefs; improved psychological functioning; financial sponsorship; positive institutional support; adequate equipments; gym environment conducive to do more exercises; positive family support; high level of customer satisfaction.

It is important to note that subjecting (exposing) clients at-risk of dropping out to the above positive factors fostering adherence may change their status from dropout to adherent. This change may ultimately lead to program success. In other words, obstacles to client motivation can be removed through the provision of an enabling environment of set factors that foster adherence such as high intrinsic motivation, improved illness perception, financial sponsorship, institutional support, etc. Using reverse logic, it means that where factors fostering adherence are absent, an environment may be created which predispose clients to the risk of dropping out.

MEASUREMENT OF VARIABLES

The main variables measured are as follows.

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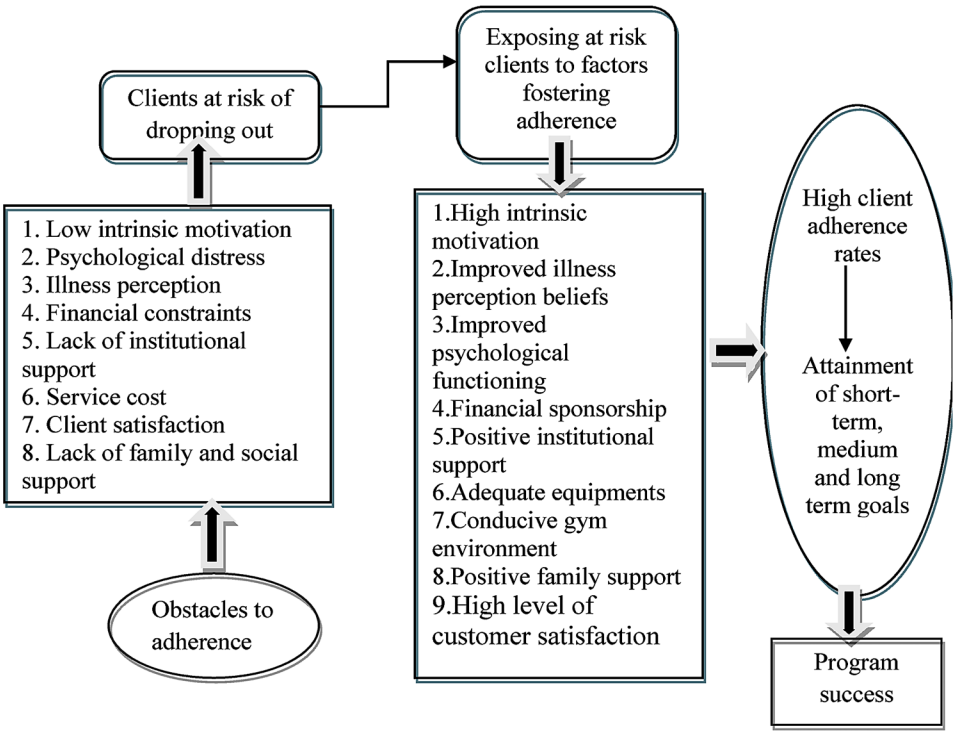
Figure 1. Conceptual framework



Institutional Support

The institutional support that is provided by a program tends to influence client retention (Wittmer et al, 2012). In that regard, respondents were asked to indicate their level of agreement regarding six questions measuring institutional support, with strongly disagree (1) to strongly agree (5). These were: I believe the CDPRP staff care about me; My personal difficulties are understood by the CDPRP staff; It is important to the CDPRP staff that my health improves; I look forward to interacting with the CDPRP staff during the week; The CDPRP staff create a gym environment conducive to do more exercises; I can always find a CDPRP staff to explain things to me about the program.

Client Satisfaction

It was measured by asking respondents the following questions: I believe my overall wellbeing has improved as a result of joining this program; if necessary, I will recommend this program to other friends and family; This program meets my expectations; I like this program. The response options ranged from strongly disagree (1) to strongly agree (5).

Intrinsic Motivation

Ades and Allen as cited in Leon et al. (2005) posited that intrinsic motivation influences adherence to cardiac rehabilitation. Intrinsic motivation was measured by asking respondents the following questions:

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I decide my goals in life by myself; I challenge myself to exercise; I believe I have control over the way my life turns out; I am motivated because I believe this program (CDPRP) will make my health better; I do my best to improve my health; I make a lot of effort to live up to what my friends expect. The response options ranged from strongly disagree (1) to strongly agree (5).

Social Support

Wittmer et al. (2012) stated that social support that is provided by program staff also influences client retention. In order to investigate this, respondents were asked to rate on a scale of 1 to 5, with 1 coded as never, and 4 coded as always, social support system that they have during the period of rehabilitation. Specific questions asked were: There is someone in your life who you can count on to listen to you when you need to talk; There is someone available to give you good advice about a problem; There is someone available to you who shows you love and affection; You can count on someone to provide you with emotional support, such as talking over problems or helping you make difficult decisions.

Family Support

Marzolini, Brooks and Oh (2008) found out that clients were more likely to dropout from cardiac rehabilitation programs if they have no family support systems available. It is in that context that three sets of questions were developed to measure family support, with response options ranging from strongly disagree (1) to strongly agree (5). These were: I have family who encourage me to maintain a healthy lifestyle; my family encouraged me to join this program (CDPRP); it is important to most of my family members that I stay in this program (CDPRP).

Psychological Distress

Available literature shows that individuals' mood may affect whether they drop out of a program or stay in it (Yohannes et al., 2007). Following that, five sets of questions were developed and used to measure the mood/psychological distress of respondents. These were: I feel miserable and sad; I feel life is not worth living; I feel scared or frightened; I feel as if I have slowed down; worrying thoughts constantly go through my mind. The response options were not at all (1) to always (4).

Illness Perception

Similar to psychological distress, the literature has shown that illness people's perception may influence whether they stay in or drop out from health rehabilitation (Broadbent, Petrie, Main, & Weinman, 2006). In that regard, a battery of two questions was used, with response options ranging from 0 to 10: how much control do you feel you have over your illness?; and how well do you feel you understand your illness?

DATA

As indicated earlier, the primary foci of this evaluation research is to determine factors that shape client dropout and adherence to the program. Given the data needs, a mostly quantitative research technique

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was employed by involving the major stakeholders (adherents and dropouts) of the program. This approach was desirable for this study as the underlining evaluation research objectives were to determine the effectiveness of the program, to investigate factors that shape client dropout from the program and assess if there are differences in adherents and dropouts with respect to institutional support, client satisfaction, intrinsic motivation, social support, family support, psychological distress and illness perception.

The study population for this survey consisted of two groups. These are: those who are currently in the program (adherents) and those who had earlier enrolled in the program (CDPRP) and dropped out (dropouts). The total study population is 279.

Availability sampling procedure was used to select the samples from both dropout and adherents. Using this random procedure, a sample of 30 individuals who had dropped out of the program was selected. With respect to those participants currently in the program (adherents), availability sampling procedure was used to select the sample from a population of 142. Availability sample studies cases or units that are readily accessible (Weisberg, 2005; Zikmund, 2003). Using this sampling procedure is consistent with available information from the CDPRP which shows that most of those currently enrolled in the program and dropouts are at least 50 years old, retired or unemployed. They constitute a homogenous population. In that context, there is very little variation in the population which justifies the use of convenience sampling (Saunders, Lewis, & Thornhill, 2009). It must be emphasized that this research is correlational in nature, thus a sample size of about 30 participants is considered appropriate (Daniel, 2012).

Using a structured questionnaire, data was collected from adherents within a four-week span. Program staff approached all eligible participants and provided an explanation of the study. Interested persons were given a questionnaire upon verbal agreement to fill-out. Similarly, data was collected from dropouts within a four-week timeframe. The selected dropouts were first contacted by the researcher via telephone to ascertain their willingness to participate. Then they were later contacted at an agreed scheduled time. Administering the telephone questionnaire took approximately 15-25 minutes each to complete.

There were ethical considerations in the conduct of this research. The dignity and welfare of all respondents were ensured by protecting them from any harm, unnecessary risks, or mental and physical discomfort that might be inherent in the research procedure. The respondent's participation in the survey was not obligatory and they were informed that they had the right not answer any question, or withdraw from the study at any point. Additionally, they were assured that all information would be treated in a confidential manner and that no individual would be identifiable in the study findings to ensure confidentiality and anonymity.

EVIDENCE/FINDINGS

The research findings are presented with respect to individual, institutional and environmentally-related factors.

Individual Factors

Three main factors are discussed under this section. These are: intrinsic motivation, psychological distress and illness perception.

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Intrinsic Motivation

A six item summated scale of intrinsic motivation (Cronbach's alpha reliability=0.6 for each group) was created. The above Cronbach's alpha reliability value means that the internal consistency of the intrinsic motivation scale is quite good. The results are presented in Table 1 below. An independent-sample t-test was conducted to compare intrinsic motivation scale scores for adherents and dropouts. There was a significant difference in scores for adherents (M=25, SD=3.36) and dropouts, M=22.7, SD=2.8; t (60) = 2.92, p=.005 (two tailed). This finding is consistent with Evenson and Fluery (2000) study which revealed that patients are more likely to drop out of outpatient Cardiac Disease Prevention and Rehabilitation due to lack of motivation. This finding is consistent with Ades and Allen as cited in Lean et al. (2005) which noted that a contributing factor to dropout is low client intrinsic motivation. In this regard, the services of a psychologist might help in motivating clients to have a more positive attitude to life in general and their health in particular.

Table 1. Intrinsic motivation

	Adherents				Dropouts			
	Mean	**Min**	**Max**	**SD**	**Mean**	**Min**	**Max**	**SD**
I decide my goals in life by myself	4.3	2	5	.8	4.1	2	5	.74
I challenge myself to exercise	4.3	1	5	.96	3.8	2	5	.91
I believe I have control over the way my life turns out	4.2	1	5	1	3.9	2	5	.91
I am motivated because I believe this program (CDP & RP) will make my health better	4.7	3	5	.48	3.9	3	5	.55
I do my best to improve my health	4.6	4	5	.50	4.1	2	5	.66
I make a lot of effort to live up to what my friends expect	2.6	1	5	1.5	2.7	1	5	1.14
Intrinsic Motivation Scale (Cronbach's alpha reliability): Adherents=0.6 Dropouts=0.6	25	18	30	3.3	22.7	15	27	2.8

Psychological Distress

Individuals' mood/psychological distress may affect whether they stay or drop out of a program. In that regard, a five item summated psychological distress scale (Cronbach's alpha reliability of 0.6 for adherents and 0.6 for dropouts) was created. This suggests that the internal consistency of the psychological distress scale is quite good. The scale ranged from 5 to 15 for adherents and 5 to 19 for dropouts. The results are shown in Table 2.

An independent-sample t-test was conducted to compare psychological distress scale scores for adherents and dropouts. There was no significant difference in scores for adherents (M=8.8, SD=2.6) and dropouts, M=10.3, SD=3.7; t (64) = -1.885, p=.073 (two tailed). However, a closer look at the mean psychological distress scores shows that dropouts had a higher score of 10.3 compared with 8.8 for adherents. This supports Yohannes et al. (2007) study which revealed that dropouts had higher psychological distress scores than adherents. Hence psychological distress scores can be considered as predictors of early dropout from Cardiac Disease Prevention and Rehabilitation programs.

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Table 2. Psychological distress

	Adherents				Dropouts			
	Mean	**Min**	**Max**	**SD**	**Mean**	**Min**	**Max**	**SD**
I feel miserable and sad	1.9	1	3	.94	2.1	1	4	.91
I feel life is not worth living	2.1	1	4	.91	1.6	1	4	1.9
I feel scared or frightened	1.4	1	3	.71	1.7	1	4	.92
I feel as if I have slowed down	2.2	1	3	.76	2.7	1	4	.83
Worrying thoughts constantly go through my mind	2.18	1	4	.98	2.17	1	4	1.02
Psychological Distress Scale (Cronbach's alpha reliability): Adherents=0.6 Dropouts=0.6	8.8	5	15	2.6	10.3	5	19	3.7

Illness Perception

The literature has shown that people's illness perception may influence whether they stay in or drop out from health rehabilitation (French, Cooper & Weinman, 2006). Two main questions were used to assess the illness perception of adherents and dropouts. In terms of control over the illness, adherents have a mean value of 6.03 compared with 7.4 for dropouts (on a 10-point scale). Similarly, for understanding of illness, adherents have a mean value of 8.14 compared with 9.17 for dropouts. When an independent t-test was conducted to compare adherents' understanding of illness; and feelings of control over illness, the tests were statistically significant. The mean scores for dropouts were higher than those for adherents. These suggest that dropouts feel they have much control over their lives; and also have better understanding of their health status compared with adherents.

Institutional Factors

Institutional factors deal with influences (issues) relating to the Cardiac Disease Prevention and Rehabilitation Program. These factors may foster clients' retention or dropout from the program. For analytical purposes, institutional factors are subdivided into client satisfaction and institutional support.

Institutional Support

The institutional support that is provided by a program tends to influence client retention. An institutional support scale (Cronbach's alpha reliability of 0.84 for adherents and 0.92 for dropouts) was created using a battery of six questions. This suggests that the scale has good internal consistency (Pallant, 2007). In general, the responses ranged from 13-29. Table 3 shows the distribution of the responses from both adherents and dropouts.

An independent-sample t-test was conducted to compare the institutional support scale scores for adherents and dropouts. There was a significant difference in scores for adherents (M=27.3, SD=2.4) and dropouts, M=23.6, SD=3.4; t (61) = 5.037, p=.000 (two tailed).

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Table 3. Respondents' views on institutional support

	Adherents				Dropouts			
	Mean	**Min**	**Max**	**SD**	**Mean**	**Min**	**Max**	**SD**
I believe the CDP &RP staff care about me	4.6	4	5	.49	4.2	2	5	.73
My personal difficulties are understood by the CDP &RP staff	4.3	3	5	.68	3.9	2	5	.73
It is important to the CDP &RP staff that my health improves	4.6	3	5	.55	4.1	2	5	.52
I look forward to interacting with the CDP &RP staff during the week	4.6	3	5	.56	3.9	2	5	.64
The CDP &RP staff create a conducive gym environment for clients	4.5	4	5	.50	3.7	2	5	.67
I can always find a CDP &RP staff to explain things to me about the program	4.5	3	5	.60	3.7	2	5	.64
Institutional Support Scale (Cronbach's alpha reliability): Adherents=0.84 Dropouts=0.92	27.3	23	30	2.4	23.6	13	29	3.4

There is a significant difference in scores for adherents compared with dropouts. The magnitude of this difference in terms of eta squared statistic is large. This strongly suggests that unlike dropouts, adherents have a better perception of program support with respect to caring about them; creating conducive atmosphere, understanding of their personal difficulties, etc. This finding is consistent with Pack et al. (2013) and Zarani, Besharat, Sadeghian, and Sarami (2010) in their studies which concluded that providing institutional support improved patient adherence. Their findings showed a significant increase in attendance and completion of Cardiac Rehabilitation when purposeful encouragement and reinforcement strategies are employed.

Examining the reasons given by respondents for dropping out of the program, about half of them stated that they dropped out due to financial constraints or lack of sponsorship. Given the fact that about 50% of the respondents are retirees, it means that they may not have enough income to afford paying for the program services.

Apart from financial constraints leading to client dropouts, some clients dropped out because they felt they did not have enough assistance on equipment use; and others did so due to lack of sufficient monitoring during exercise; inflexible time schedules; and bad experience with program staff. Thus in general, client dropout is shaped by lack of sufficient sponsorship, staff attitudes to clients and equipment. These may become obstacles to client adherence and ultimately the effectiveness of the program.

It is worthy of note that when dropouts were asked about their willingness to rejoin the program, about 62% answered in the affirmative. This suggests that they may have been impacted by the program. For example, when asked about their improved overall wellbeing as a result of joining the program, the mean score (on a five-point scale) were 4.63 and 4.1 for adherents and dropouts respectively. This further suggests that the program has been quite effective even for dropouts too (though there is also a statistically significant difference between adherents and dropouts in terms of their improved overall wellbeing score). It is in that that regard that it may be understandable why a good number of them are willing to rejoin the program—if given the necessary support and resources.

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Client Satisfaction

A four item summated scale (Cronbach's alpha reliability of 0.76 for adherents and 0.85 for dropouts) was created from a series of questions related to client satisfaction. This means that the internal consistency of the client satisfaction scale is good. The scale ranged from 15 to 20 for adherents and 9 to 20 for dropouts. The results are presented in Table 4 below.

Table 4. Client satisfaction

	Adherents				Dropouts			
	Mean	**Min**	**Max**	**SD**	**Mean**	**Min**	**Max**	**SD**
I believe my overall well-being has improved as a result of joining this program	4.6	3	5	.54	4.1	2	5	.68
If necessary, I will recommend this program to other friends and family	4.7	4	5	.46	4.2	2	5	.81
This program meets my expectations	4.5	3	5	.60	3.9	2	5	.66
I like this program	4.5	4	5	.50	4	2	5	.85
Client Satisfaction Scale (Cronbach's alpha reliability): Adherents=0.76 Dropouts=0.85	18.5	15	20	1.6	16.2	9	20	2.5

An independent-sample t-test was conducted to compare client satisfaction scale scores for adherents and dropouts. There was a significant difference in scores for adherents (M=18.5, SD=1.6) and dropouts, M=16.2, SD=2.5; t (61) = 4.425, p=.000 (two tailed).

The research findings clearly show that the mean scores in all measures of client satisfaction are relatively higher for adherents compared with dropouts. This consistency in higher client satisfaction scores is ultimately reflected in the higher score for the summated scale measuring client satisfaction. Following Cohen (1988), this finding suggests that a high magnitude of the difference in client satisfaction is explained by the client's status (either adherent or dropout). Thus there is compelling evidence from the findings to show that adherents are more satisfied compared with dropouts. In essence, clients who adhere to the CDPRP are more satisfied compared with the dropouts. This is consistent with Wittmer et al. (2012) findings that highly satisfied participants had a low rate of dropout from Cardiac Disease Prevention and Rehabilitation Programs.

Given the above results in the context of respondents' views about strengths of the program, it can be inferred that in order to reduce clients' dropouts and increase adherence, the program has to improve upon the following: provide friendly and supportive environment; provide very good exercising machines; make clients feel they can ultimately achieve an improved overall wellbeing.

Environmentally-Related Factors

The factors that are discussed under this section are: family support, and social support. These factors may foster adherence to the program or facilitate dropout.

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Family Support

Clients were more likely to dropout from CDPRP if they have no family support systems available. It is in that context that a three item summated scale (Cronbach's alpha reliability of 0.64 for adherents and 0.68 for dropouts) was created. These values suggest that the internal consistency of the family support scale is quite good. The results are shown in Table 5 below. An independent-sample t-test was conducted to compare family support scale scores for adherents and dropouts. There was a significant difference in scores for adherents (M=12.64, SD=1.95) and dropouts, M=10.97, SD=2.22; t (61) = 4.936, p=.002 (two tailed). In addition to that, the magnitude of the difference is large according to the eta squared statistic. This supports Marzolini et al. (2008) findings that family issues are linked to premature withdrawal from Cardiac Disease Prevention and Rehabilitation programs.

Table 5. Family support

	Adherents				Dropouts			
	Mean	**Min**	**Max**	**SD**	**Mean**	**Min**	**Max**	**SD**
I have family who encourage me to maintain a healthy lifestyle	4.5	3	5	.56	4.1	2	5	.84
My family encouraged me to join this program (CDP & RP)	3.9	1	5	1.14	3.3	2	5	1.01
It is important to most of my family members that I stay in this program (CDP & RP).	4.2	2	5	.74	3.6	2	5	.96
Family Support Scale (Cronbach's alpha reliability): Adherents=0.64 Dropouts=0.68	12.6	7	15	1.95	10.97	6	15	2.2

Social Support

As discussed in the methodology section, social support that is provided by program staff also influences client retention. In order to investigate this, a four item summated scale (Cronbach's alpha reliability of 0.87 for adherents and 0.86 for dropouts) was created as shown in Table 4 below. This suggests that the social support scale has good internal consistency. The scale ranged from 8 to 16. An independent-sample t-test was conducted to compare the social support scale scores for adherents and dropouts. There was a significant difference in scores for adherents (M=14.2, SD=2.4) and dropouts, M=11.5, SD=2 t (66) = 4.936, p=.000 (two tailed). Findings revealed that there is a statistically significant difference between the social support of adherents and dropouts. This difference according to the eta squared statistic is large. Adherents scored much higher in social support compared with dropouts. This is consistent with Chatham as cited in WHO (1993) finding that the social support provided to a patient is as important as the intervention. This suggests that dropouts do not have the necessary social support to stay in the program.

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LESSONS LEARNED: INTERACTION OF FACTORS AFFECTING PROGRAM EFFECTIVENESS

It can be inferred from the above discussion that three main factors affect the effectiveness of the Cardiac Disease Prevention and Rehabilitation Program. These are: institutional factors; individual factors; and environmentally-related factors. These factors can either be obstacles to adherence or foster adherence depending on the context. For example, institutional factors such as providing financial sponsorship, creating conducive atmosphere, being accessible to clients, etc. may foster adherence. On the other hand, lack of financial sponsorship, inaccessibility of staff to clients, etc. may become obstacles to client adherence, which may ultimately lead to dropout. Similarly, individual factors such as low intrinsic motivation, coupled with high psychological distress may act as obstacles to adherence. However, high intrinsic motivation coupled with low psychological distress may foster adherence. It follows logically that an environment that provides a good family and social support can foster adherence to the program. These interactions between the factors are depicted in Figure 2 below. For analytical purposes, the following typology was developed and used:

1a. Positive institutional factors = high institutional support plus high client satisfaction.
1b. Institutional support is considered negative when either institutional support or client satisfaction or both are negative.
2a. Positive individual factors = high intrinsic motivation plus high illness perception plus low psychological distress.
2b. Individual factors are considered negative when one at least one of the variables has a negative connotation. For example, high psychological distress or low illness perception or low intrinsic motivation.
3a. Positive environmental factors = high family support plus high social support.
3b. Environmental factors are considered negative when either family support or social support or both are negative.

Based on the above typology, the following possible program outcomes (scenarios) are derived:

1. Positive institutional factors plus positive individual factors coupled with positive environmentally-related factors may lead to the most desirable program outcome. On the other hand, when all the afore-mentioned factors are negative, a critical point is reached. At the critical point, obstacles to adherence are at their highest levels and client dropout is guaranteed.
2. Positive institutional factors plus positive environmental factors coupled with negative individual factors may lead to weakened client adherence and hence dropout.
3. Positive institutional factors plus positive individual factors coupled with negative environmentally-related factors may facilitate client dropout.
4. Positive environmentally-related factors plus positive individual factors coupled with negative institutional factors may not foster program adherence.

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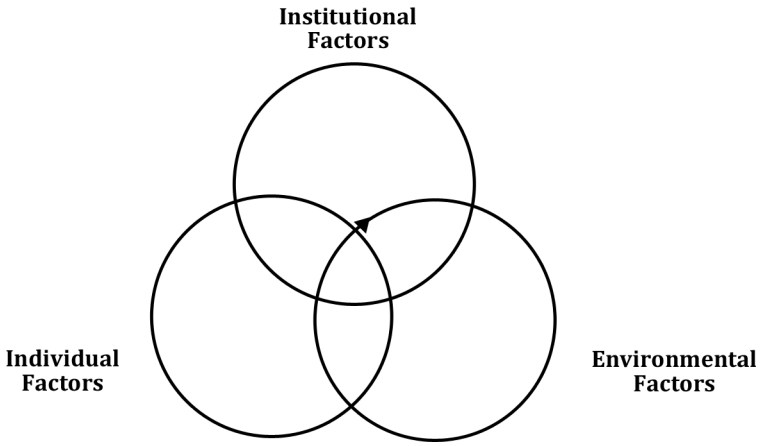
Figure 2. Interactions of factors affecting program effectiveness



CONCLUSION

In view of the findings, it can be concluded that a number of factors put clients of the Cardiac Disease Prevention and Rehabilitation Program (CDPRP) at risk of dropping out. These are: low intrinsic motivation, low illness perception, low client satisfaction, lack of institutional support, lack of family and social support, high psychological distress, and financial constraints/lack of sponsorship. On the other hand, certain factors may foster client adherence/retention. These are: high intrinsic motivation, high level of consumer satisfaction, positive institutional support, positive family support, improved illness perception, improved psychological functioning, financial sponsorship, adequate equipments, and conducive gym environment.

In general, the CDPRP has good client evaluations with respect to institutional support and client satisfaction. However, the fact that there is a significant difference between adherents and dropouts it implies that the program must improve its institutional support mechanisms and also strive better to improve the satisfaction levels of all clients in general, and dropouts in particular. Similar to client satisfaction and institutional support, in general, there is a consistent, significant and high magnitude difference between adherents and dropouts in terms of intrinsic motivation, social and family support, illness perception, and psychological distress. Thus the program facilitators must initiate measures to close these gaps between adherents and dropouts to improve the effectiveness of the program. Davies et al. (2010) alluded that adherence can marginally be improved with some interventions.

RECOMMENDATIONS

These research findings have practical implications for the Cardiac Disease Prevention and Rehabilitation Program. Clients undergoing rehabilitation are guaranteed to drop out when they are in the critical zone. The critical zone is a point where institutional factors, individual factors and environmentally-related factors are not favorable to clients. On the other hand, if all the above factors are favorable, client adherence is ensured. At any point in a client's journey of rehabilitation, when any of the aforementioned factors become unfavorable, client retention is weakened. Consequently, the following are recommended:

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1. There is the need to closely monitor at-risk clients, especially those whose socio-economic, social and psychological profiles predict non-adherence.
2. Longer follow-up period with former clients (dropouts) need to be reinforced to convey a positive and supportive message from the Cardiac Disease Prevention and Rehabilitation Program. Regular telephone calls, emails, mail-in newsletters, etc. can serve as a good way of keeping former clients up to date with new and exciting improvements to the program. In addition to that, communication channels with current clients (adherents) should be maintained through meetings to keep them up to date thus fostering a culture of belonging.
3. Program administrators should continuously evaluate the institutional policies, practices and social environment of the program in order to cater for the evolving needs of their clients. In such evaluations, the concerns of the clients need to be reviewed carefully and incorporated into institutional planning, policies, and practices.

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KEY TERMS AND DEFINITIONS

Adherence Rate: The number of persons who remained as active participants in a program compared with the total number of persons who started the program.

Barriers: An influence that reduces the chances of participation in cardiac rehabilitation program.

Cardiac Rehabilitation: A medically supervised program aimed at improving the overall wellbeing of its participants/clients thereby reducing morbidity and mortality.

Clients: Persons whose needs are to be satisfied or whose behavior or circumstance the agency aims to change.

Critical Zone: This is a point where institutional factors, individual factors and environmentally-related factors are not favorable to clients.

Illness Perception: Subjective beliefs, attitudes, or ideas about health and illness.

Institutional Support: Influences relating to the program which may facilitate/foster clients' retention or dropout from the program.

Rehabilitation: The restoration to a former capacity through training or therapy.

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APPENDIX

Table 6. Summary of T-tests and Eta Squared

Indicator	T-test	Eta Squared	
		Value	Interpretation
Client satisfaction scale	Significant	0.24(24%)	Large effect. Magnitude of the difference between means of adherents and dropouts in relation to client satisfaction scale is large. Statistically, 24% of the variance in client satisfaction is explained by respondents' status (adherent/dropout).
Institutional support scale	Significant	0.29(29%)	Large effect. Magnitude of the difference between means of adherents and dropouts regarding institutional support scale is large. Implies that 29% of the variance in institutional support is explained by respondents' status (adherent/dropout).
Improved overall wellbeing	Significant	0.15(15%)	Large effect. Magnitude of the difference between means of adherents and dropouts with respect to improved overall wellbeing is large. This means that 15% of the variance in improved overall wellbeing is explained by respondents' status (adherent/dropout).
Understanding nutritional guidelines	Significant	0.12(12%)	Moderate effect. Magnitude of the difference between means of adherents and dropouts with respect to understanding of nutritional guidelines is moderate. Implies 12% of the variance in understanding nutritional guidelines is explained by the status of respondents (adherent/dropout).
Intrinsic motivation scale	Significant	0.12(12%)	Moderate effect. Magnitude of the difference between means of adherents and dropouts in relation to intrinsic motivation is moderate. Thus 12% of the variance in intrinsic motivation is explained by the respondents' status (adherent/dropout).
Control over illness	Significant	0.06(6%)	Moderate effect. Magnitude of the difference between means of adherents and dropouts with respect to control over illness is moderate. Thus 6% of the variance in control over illness is explained by the respondents' status (adherent/dropout).
Family support scale	Significant	0.14(14%)	Large effect. Magnitude of the difference between means of adherents and dropouts in relation to family support is large. Implies 14% of the variance in family support is explained by respondents' status (adherent/dropout).
Social support scale	Significant	0.27(27%)	Large effect. Magnitude of the difference between means of adherents and dropouts with respect to social support is large. Thus 27% of the variance in social support is explained by the respondents' status (adherent/dropout).

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Chapter 81
An Exploration of Mental Skills Among Competitive League of Legend Players

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ABSTRACT

ESports, also known as competitive video gaming, has seen tremendous growth over the past few years. Several studies have been conducted that examined the potential cognitive benefits of playing video games, but few have examined the psychosocial factors needed to perform at the highest level of competitive video gaming. In this study, the researchers aimed to identify specific mental obstacles players face and any mental techniques gamers already utilize by conducting a qualitative content analysis. Interviews with five high-level competitive League of Legend players were conducted to shed light on their experiences. The interviews resulted in two high order themes. Those high order themes were the following: techniques used to achieve optimal performance and obstacles encountered by competitive gamers. The data collected can be used by a wide population in both the performance psychology field and the eSports realm, more specifically, future mental skills consultants working with League of Legends players, gamers themselves, and academics who wish to serve, improve, or study those involved in an emerging performance domain.

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INTRODUCTION AND STATEMENT OF THE PROBLEM

The video game industry as a whole has been growing rapidly. Lately, the industry has seen a legitimate professional community arise. In fact, international competitions and six-figure contracts are no longer just a fantasy for video game players. Certain video games have become highly competitive performance domains offering fame and fortune comparable to traditional sports (e.g., football, basketball, soccer). Thus, more gamers are partaking in high-level competitions regularly and becoming competitive, professional video gamers. ESports is short for "electronic sports" and are defined by Morris (2013) as "organized video game competitions that pit world class players against each other for cash prizes" (Gamers Are Not Only Athletes, para. 2). ESports are commonly compared to traditional sports or physical sports (e.g., Dovey & Kennedy, 2006; Ferrari, 2013; Jones, 1998; Taylor, 2012; Witkowski, 2012).

League of Legends is one of the most popular video games in the world and is played at a highly competitive level. In fact, on October 29th, 2016, two teams battled for the World Champions title and a total prize pool of just over five million dollars (Howell, 2016). League of Legends is a five player versus five player (5v5) video game that is played on the computer. It is classified as a multiplayer online battle arena (MOBA) game as opposed to games classified as first person shooters (FPS) or role playing games (RPG). MOBAs typically consist of two bases that serve as objectives and lanes that make up the battle grounds in between the bases. The objective in League of Legends is to take control of the opposing team's base and destroy their Nexus (a crystal). There are five roles that determine various factors of play, such as characters (referred to as champions) you can fight as, personal goals and objectives, and positioning on the map. The five roles are bot (short for bottom lane), jungle (an area between the bases), top (short for top lane), mid (short for middle lane), and support. Each role requires a different skill set to play at a competitive level. For example, some roles require players to deal a high amount of damage to the opposing team, whereas the support role is tasked with healing dying allies or boosting their team's abilities. Each player must execute their role in a coordinated effort to defeat the opposing team. Professional matches can last anywhere from 20 minutes to over an hour.

As of late, eSports teams are being housed together with coaches, managers, and strategists. Sponsors are investing more money and the crowds are growing thicker. With the level of competition rapidly increasing, it is only natural that there is a high demand for performance enhancement strategies. Companies like MMO Coach (https://www.mmocoach.com/) offer online one-on-one strategy and mechanics coaching to eSports players in various games, and Game Without Pain (http://gamewithoutpain.com/) offers nutrition, diet, and exercise programs designed for enhancing eSports players' training routines.

Despite the rising recognition of eSports performance enhancement techniques, performance psychology's effectiveness in eSports has yet to be studied. Sport and performance psychology is widely accepted as a method to improve the mental side of performance in many domains such as sport, dancing, acting, law, medicine, business, and high risk occupations (Hays, 2009). However, there is very little literature available on the mental side of competitive gaming.

Most of the literature has been focused on studying the effects of gaming either socially or cognitively, and studies were not designed to examine how to enhance performance. Additionally, the literature that does exist on gaming fails to differentiate competitive, video gamers, from casual or recreational gamers. This presents a large gap in the current understanding of high-level performance in eSports. To bridge the gap, the current researchers aimed to get an understanding of what competitive gamers experience mentally. Exploring the mental skills that competitive gamers possess and utilize is an important stepping stone to integrating sport and performance psychology effectively with this population.

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LITERATURE REVIEW

Relationship Between eSports and Traditional Sports

As eSports have developed, literature has been produced drawing comparisons between traditional sports and eSports (e.g., Dovey & Kennedy, 2006; Ferrari, 2013; Jones, 1998; Taylor, 2012; Witkowski, 2012). Similarities in the two arenas may be an indication that sport and performance psychology can be applied to eSports. While there is debate about eSports being considered "traditional sports", previous studies have drawn clear parallels between traditional sports and eSports.

Ferrari (2013) proposed six conditions seen in traditional sports and argued that eSports fits them all. These six conditions are listed below:

1. Their rules and spatial layouts demand a high level of performative play, typically developed through many years of testing, modification, and refinement
2. They have been around long enough to see the rise of expert practitioners with skills sufficient to reliably separate their play from that of casual players (Ericsson 1996, 10-13)
3. Frameworks and career models exist for a child's introduction into the peculiarities of the game, matching them against others of similar skill and ability (Ericsson 1996, 19-24)
4. People want to watch others play these games, and they may go so far as to build their identities around famous players or teams (Crawford 2004, 38-51)
5. Broadcast media relay data about these games to fans who cannot observe live play, and companies willingly sponsors [*sic*] players and teams because of this (Crawford 2004, 130-133), and
6. Infrastructures exist for the fair treatment of players as laborers, for collective bargaining between owners and performers, or for ethics and rules negotiation. (p. 4)

In fact, Taylor (2012) dedicated an entire book chapter, *Computer games as a professional sport*, to document how competitive video games can be seen as a sport. Throughout Taylor's chapter, Dovey and Kennedy were referenced saying:

Bodily experiences of gameplay are not solely emotional or affective – they are also highly physical. The body is always committed to engaging gameplay, from sensorial perceptions experienced as embodied emotional states, through busy hands and fingers in many games, and all through the entire body being involved when playing. (p. 171)

They go on to say "gameplay is a tactical and kinesthetic experience" (p. 171), which is counter to the argument that eSports are not physical enough to be considered sport.

Additionally, Witkowski (2012) linked sports and eSports by looking at players of a competitive video game called Counter-Strike, a first-person shooter game (FPS), and maintained that a certain set of physical skills was required that could be compared to traditional sports movement. It is evident that eSports and traditional sports share a lot of subtle physical and kinesthetic properties but similar comparisons have not yet been drawn for the mental side.

Jones (1998), however, did examine the occurrence of flow in video games and computer based learning environments. Flow is described by Csikszentmihalyi (1991) in seven elements and is commonly associated with optimal experience in sports. Jones (1998) broke down the seven elements of flow (and distinguished between effortless involvement and ability to concentrate on the task at hand creating eight elements) and described how each manifest in video games:

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1. Task that we can complete: The use of levels in a game provide small sections that lead to the completion of the entire task
2. Ability to concentrate on task: Creation of convincing worlds that draw users in. The Dungeons and Labyrinths in Doom II help you suspend your belief systems for a time.
3. Task has clear goals: Survival, collection of points, gathering of objects and artifacts, solving the puzzle
4. Task provides immediate feedback: Shoot people and they die. Find a clue, and you can put it in your bag.
5. Deep but effortless involvement (losing awareness of worry and frustration of everyday): The creation of environments that are far removed from what we know to be real helps suspend belief systems and take one away from the ordinary
6. Exercising a sense of control over their actions: Mastering the controls of the game, such as mouse movement or keyboard combinations
7. Concern for self disappears during flow, but sense of self is stronger after flow activity: Many games provide for an environment that is a simulation of life and death. One can cheat death and not really die. People stay up all night to play these games. It is the creation of an integration of presentation, problem, and control over the system that promotes this.
8. Sense of duration of time is altered: Years can be played out in hours. Battles can be conducted in minutes. The key point is that people can stay up all night playing these games. (p. 5)

In addition to the previously drawn comparisons to traditional sports, eSports' developmental and professionalization path can be compared to that of traditional professional sports. First, both competitive video gamers and athletes compete within a restricted setting, involving specific rules and regulations (Hebbel-Seeger, 2012; Lee & Schoenstedt, 2011). It is a common practice in traditional sports that foreign athletes get granted B-1 visas by the United States government to compete within the United States. In 2013, the government began accepting foreign competitive video gamers on B-1 visas just like they do for traditional sports athletes (Morris, 2013; Tassi, 2013). One year later, Robert Morris University became the first university to recognize video gaming at the varsity level and provided the first collegiate scholarships for competitive video gamers. This development of the gaming industry is likely to mirror that of mainstream traditional athletics in which sport and performance psychology already has a clear place.

ESports Literature

Although performance psychology in eSports has not been studied thoroughly, previous studies have focused on identifying mental effects of gaming, providing some insight on what gamers may experience cognitively and/or psychosocially.

Research on attention and gaming has been studied previously, which could be applicable to sport and performance psychology training. Dye, Green, and Bavelier (2009b) found that action video game players of various ages have enhanced attentional skills. In another study, Dye, Green, and Bavelier (2009a) found that self-identified video gamers, when compared to novice video gamers, had increased information processing speed with no decrement in accuracy. They concluded that the more experienced video gamers were not just jumping to a conclusion quicker, but were processing the information and appropriately responding quicker.

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Nardi and Harris (2006) identified multiple styles of collaborative, interactive play in World of Warcraft. They highlighted the importance of both collaborative play with strangers and friends and outlined ways in which players must adapt to a particular culture that dictates how to interact with one another. Referring to interactions with strangers:

Buffs are part of the culture of the game in which players commit small acts of kindness to maintain a mutually beneficial atmosphere even though no immediate reciprocity is in the offing and no rewards such as experience points are gained. (p. 3)

Although World of Warcraft is not necessarily a player versus player competitive game, this is an indication that communication (both verbal and non-verbal) are important ways to navigate and succeed.

Furthermore, Jeong and Biocca (2012), who used an FPS game as a method to manipulate arousal level, and Jameson, Trevena, and Swain (2011) concluded that video gaming systems could be used as a method of pain distraction. Both studies highlight ways in which gaming may influence the body and cognition.

Performance Psychology

An article written by Almelo (2014) that was posted on Thinkpiece.gg, a popular website for gamers, directly addressed the need for League Championship Series players (the professional League of Legend players) to acquire a sport psychologist. In fact, the now famous eSports team, Schroet Kommando (SK Gaming), has hired a sport psychology consultant to deliver sport and performance psychology services (Partridge, 2014). In addition, Nairn (2016) wrote about Immortals eSports hiring a full-time performance coach, and Fischer (2016) wrote about an eSports Psychologist joining the professional eSports team, Team SoloMid. Although these services now exist, it is only recently that eSports teams are learning that performance psychology services might be effective in enhancing performance. With the increased interest in performance psychology application in eSports, performance psychology literature for eSports is needed.

Lesyk (1998) proposed that there were nine pivotal mental skills that should be in a sport and performance psychologist's toolbox to best serve performers. These nine proposed mental skills are: attitude, motivation, goals and commitment, people skills, self-talk, mental imagery, dealing effectively with anxiety, dealing effectively with emotions, and concentration. These, in addition to other mental skills, are trainable skills that should be practiced and improved upon to ensure successful performances, each of which has been studied in sport extensively. For instance, Larsen and Engell (2013) researched goal setting in professional football; Smeeton, Hibbert, Stevenson, Cumming, and Williams (2013) used imagery enhancing techniques to improve athletes' anticipatory reactions; Davis and Sime (2005) examined the relationship of anxiety on sport injury recovery relating to performance; Robazza, Pellizzari, and Hanin (2004) researched energy management for optimal performance; Wagstaff (2014) examined the ability to regulate emotion and the effects on sport performance; Losier and Vallerand (1999) examined both intrinsic and extrinsic motivation in sport; Eccles and Tenenbaum (2004) researched expert sport teams and their ability to communicate effectively; and Bell and Hardy (2009) examined attentional control and skilled performance in golf. In the sport and performance psychology literature, some studies utilize objective measures to assess use of mental skills (e.g, the Athletic Coping Skills Inventory-28; Smith, Schutz, Smoll, & Ptacek, 1995), while others use case study or qualitative methodology to gain a more in-depth understanding of performers' use and experience with mental skills (e.g., Larsen & Engell, 2013).

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In addition to the above studies, Edwards and Beale (2011) identified breath control as being a fundamental skill that is trainable and can be used to improve performance via energy management. Deep breathing and energy management could potentially be a tremendous asset to high-level mostly sedentary performers, such as gamers. Because these skills have been studied extensively in sports and there are stark similarities between traditional sports and eSports, many of them should be applicable to eSports.

PURPOSE

To address the gap in the literature and the application of sport and performance psychology in competitive gaming, the purpose of this research was to gain insight on (a) the mental skills that competitive gamers already possess and utilize, (b) the mental obstacles or barriers competitive gamers encounter, and (c) the role performance psychology may play in eSports.

METHODS

Research Design

Since examining the psychological aspects of eSports performance is scarce in the literature, an exploratory study utilizing a qualitative design and content analysis was conducted. In content analysis, "the aim [is] to build a model to describe the phenomenon in a conceptual form" (Elo & Kyngäs, 2008). By applying this framework, the researchers could gain knowledge and generate discussion regarding competitive video gamers' mental strengths and needs based on the data collected. This exploratory study could provide a foundation for future research and "gaming psychology" theory development.

Dunn (2013) stated "qualitative research approaches are distinguished by a reliance on verbal reports, descriptions, and interpretation of events" (p. 36). Much of what the current researchers wanted to understand was what competitive gamers' interpretation of the mental side of high-level eSports performance is; for this reason, a qualitative methodology was deemed appropriate. A qualitative, interview-style approach allowed the researchers to get answers to complex questions in which their answers could then be further explored for themes and patterns. Quantitative methods such as answering questions on a Likert scale would have restricted the amount of information that was obtained.

Participants

Among various gaming types, the target population was competitive League of Legend (LoL) players in the metro area of a Western city for the following reasons: (a) LoL is currently one of the most popular competitive eSports games in the world; (b) LoL is a team game - players have to interact in a similar way as traditional sports teams do; and (c) each round in LoL is different, which could potentially require a strong set of mental skills in order to adapt and compete in a variable environment.

A competitive player was defined as a player who had competed in a minimum of two tournaments within the past 12 months. Player rank was also a factor. There are seven levels within the League of Legends hierarchy of talent. The levels (from lowest to highest) are as follows: bronze, silver, gold, platinum, diamond, master, and challenger. Each level has a sub-ranking from one through five where five is

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the most novice of the levels (i.e., Diamond 5 would be ranked lower than Diamond 1). Only those who had achieved the rank of Platinum 5 (lowest of the platinum sub-levels) or higher were eligible for the study. The rank of platinum is a difficult rank to achieve. Using this level targeted the more competitive and experienced gamers.

Five participants were interviewed for the study. As discussed by Dunn (2013), convenience sampling was the best-fit technique given that our population was only coming from one geographical area. The participants were all male and ranged in age from 19-23 years old. This range was targeted because most professional gamers fall into the age of young adults. The maximum age of eligibility for the study was 25 because, at this point, gamers may have more life experiences which may overshadow the scope of mental skills developed and used during gaming. See Table 1 for a summary of participants' demographic information.

Table 1. Demographic Information of Participants

Participant #	Age	Years Competing	Tournaments Played in Last 12 Months	Current Rank	Peak Rank
Participant 1 (P1)	20	2	4	Diamond 4	Diamond 1
Participant 2 (P2)	22	5	13	Platinum 2	Diamond 2
Participant 3 (P3)	19	2	5	Platinum 3	Diamond 2
Participant 4 (P4)	20	2	8	Diamond 4	Diamond 2
Participant 5 (P5)	23	5	6	Platinum 3	Diamond 2

Measures

Interviews were semi-structured to allow the participants and researchers to explore in-depth concepts and produce rich results. The interview questions were designed and reviewed by all researchers to ensure methodological coherence (Elo & Kyngäs, 2008). Five dimensions of video gamers' play identified by Gentile (2011) were considered when creating the structure of the interview questions. These were: the amount of play, the content of play, game context, structure of the game, and mechanics of gameplay (Gentile, 2011). In addition, the interview script included open-ended questions regarding the history of the participant's involvement in eSports, future goals, mental strengths they may exhibit, challenges and obstacles they face, participation on teams, and mental preparation. Furthermore, to understand gamers' perception of sport and performance psychology, a number of directed mental skills questions were asked towards the end of the interview. The mental skills that were listed at the end of the interview were adapted from the work of Lesyk (1998) and Edwards and Beale (2011) mentioned in the literature review. A complete list of questions can be found in Appendix A.

Procedure

Institutional Review Board (IRB) approval was granted to ensure ethical procedures were being followed. After consent was obtained, participants completed the interview with the researchers. The interviews took place in-person in a private room. Interviews ranged from 45 minutes to an hour and 45 minutes long. The interviews were recorded using a voice recorder to eliminate recall error. Given that the re-

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searchers were also an instrument in the research, the interviewers practiced the script and ran two pilot interviews before meeting with the participants.

Data Analysis

Content analysis (Elo & Kyngäs, 2008) was the qualitative method used in this study. The audio recordings were transcribed verbatim to text. The transcriptions were then coded through an open-coding procedure. Two primary investigators co-coded the data until there was 100% agreement on the codes. The software Atlas.ti was used to aid the researchers in the coding process. The quotes that were coded were grouped into meaning units. Those meaning units were then grouped into higher and lower order themes. The higher and lower order themes were compared to identify if the techniques gamers already utilized could counter any obstacles they face. The directed mental skills questions were analyzed by examining the frequency of "yes or no" responses when participants were asked about specific mental skills applying to competitive gaming.

RESULTS

Two higher order themes were identified by the primary researchers: (a) techniques used to achieve optimal performance and (b) obstacles encountered by competitive gamers. *Techniques used to achieve optimal performance* relates to skills (mostly mental) that competitive gamers reported either using themselves or seeing other successful gamers use. *Obstacles encountered by competitive gamers* encapsulates the perceived barriers that stop gamers from performing optimally for both practice and competition. The higher order themes, lower order themes, and meaning units are discussed below. A visual representation of the data can be found in Figure 1. Table 2 was compiled by the researchers to make comparisons between the mental techniques that gamers already utilized for successful performances with their perceived obstacles. A second data set was compiled using the participants' responses when asked directly about if, and how, a particular mental skill applies to gaming. The results on whether they thought the mental skills apply to gaming are displayed in Table 3.

Techniques Used to Achieve Optimal Performance

For Successful Performance: This refers to the techniques that gamers already use to perform at the top of their skill level.

Playing Smart: The participants identified specific techniques in order to get the best results from their performance. They mentioned utilizing game knowledge, smart decision making, playing uniquely, and thinking strategically as ways to create successful performances. P4 expressed playing uniquely as, "you have to see a problem and identify it and in a way that your opponent won't anticipate your move, so you have to be intelligent and kind of unique." In addition, taking a safer approach to gameplay during competition (in comparison to practice) was another technique some participants used to outplay their opponents. P1 mentioned that very high level players have a written game plan. Knowing the limitations of the game was also stated to be important for successful performances.

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Figure 1. The hierarchical structure of techniques gamers already use for success and the obstacles they encounter. The diamonds represent the higher order themes, the rectangular boxes represent lower order themes, and the rounded edged boxes represent meaning units. The numbers listed after each unit indicate the number of quotes related to the meaning unit, and the ratio defines how many participants out of five mentioned the particular meaning unit

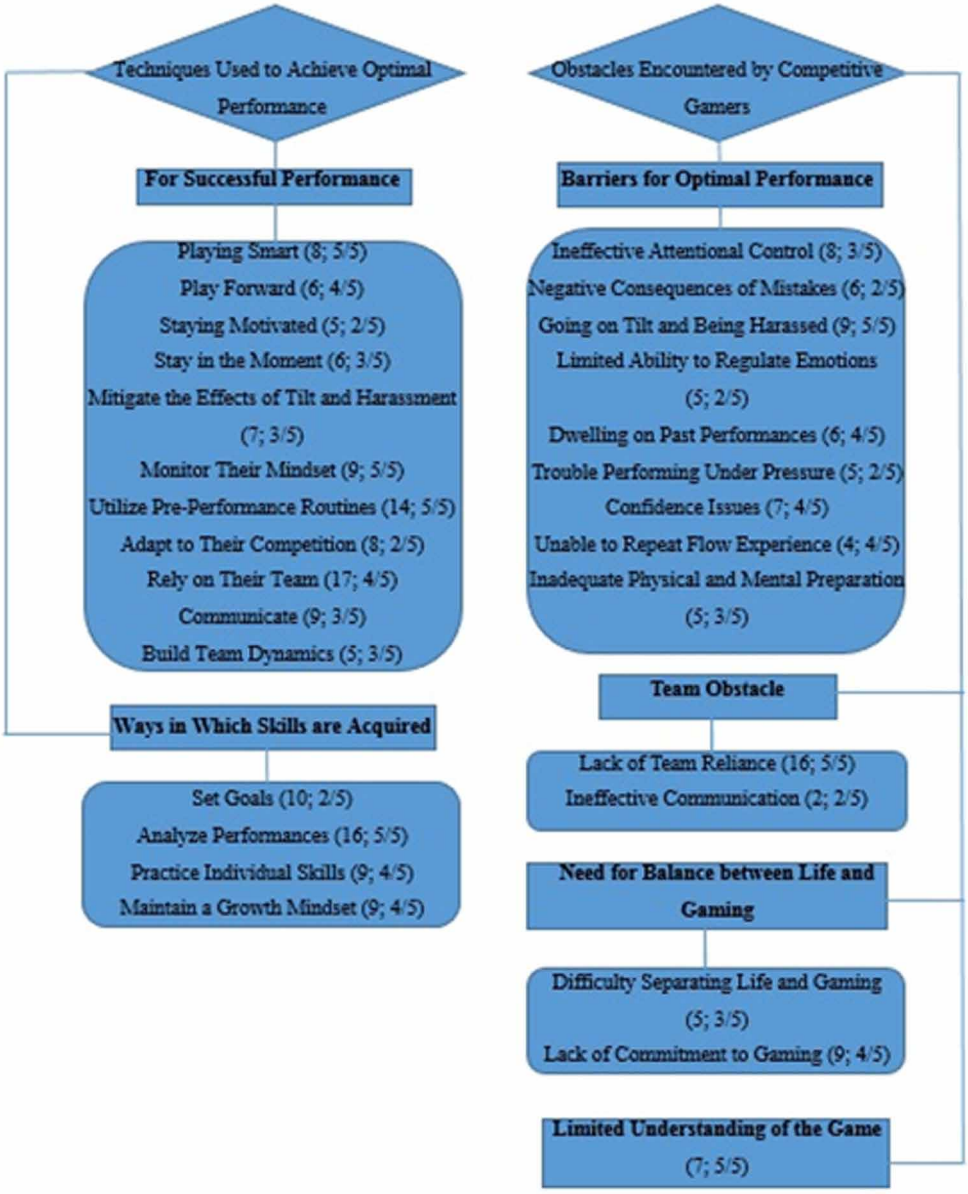

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Table 2. Pairing Perceived Obstacles to Techniques Already Used for Successful Performance

Obstacles	Techniques for Successful Performances
Confidence Issue	Maintain Growth Mindset Practice Individual Skills
Trouble Performing Under Pressure	Playing Smart Utilize Pre-Performance Routine
Dwelling on Past Performances	Play Forward Stay in the Moment
Going on Tilt and Handling Harassment	Monitor Mindset Mitigate the Effects of Tilt and Harassment
Limited Ability to Regulate Emotion	Monitor Mindset Stay in the Moment Play Forward Rely on Their Team
Inadequate Physical and Mental Preparation	Utilize Pre-Performance Routine Monitor Their Mindset
Lack of Team Reliance	Build Team Dynamics Rely on Their Team
Ineffective Communication	Build Team Dynamics Communication
Limited Understanding of the game	Analyze Performance Maintain a Growth Mindset Practice Individual Skills Set Goals

Note. This table displays meaning units derived from codes that have been categorized into two main themes: obstacles encountered by competitive gamers and techniques already used by gamers to achieve optimal performance. This table draws parallels between the perceived obstacles and what strengths can be utilized to overcome those obstacles, as determined by the researchers.

Table 3. Participants' Perceptions of Utility of Specific Mental Skills Application in Gaming

Mental Skill	Participant				
	P1	P2	P3	P4	P5
Goal Setting	Unsure	Yes	Yes *	Yes	Yes**
Imagery	Yes	No	Yes	Yes	Yes**
Anxiety Management	Yes	Yes	Not asked	Yes	Yes**
Energy Management	Yes	Yes	Unsure	Yes	Yes**
Emotional Regulation	Yes	Not asked	Yes	Yes	Yes**
Motivation	Yes *	Yes	Yes *	Yes	Not asked
Communication	Yes	Yes	Yes *	Yes	Yes**
Attentional Control	Yes	Yes	Yes	Yes	Yes**

Note. The participants were asked directly whether they believe the mental skills listed above could be used effectively in gaming. Some participants were not asked specifically about particular mental skills due to the researcher's error. Any response followed by * was discussed earlier in the interview and therefore was not directly asked about during this part of the interview. Responses followed by ** indicate that responses were given after the researchers listed singular mental skills rapidly and received a yes or no response, as opposed to asking about the mental skills and discussing them each one by one.

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Play Forward: Several of the participants identified not dwelling on past games or performances to continue playing at a high level. In addition, P4 was able to play forward by making sure to accept that there is always another game, and it is that one that now matters.

Staying Motivated: A couple of the participants spoke about ways in which they maintain their motivation. P3 stated that after a win, he tries to carry that over and use the momentum for the next game. P2 mentioned that he tries not to blame losses solely on himself. Pride was a source of motivation identified by P3 as well. He also mentioned that his friends push and motivate him to keep improving.

Stay in the Moment: Multiple participants identified staying in the moment as being important for getting the most out of their performance. Eliminating distractions and separating daily life from performance were two techniques P1 utilized to stay focused on the performance. P1 mentioned being absorbed in the task at hand and focusing on the current game as two strategies he uses to maintain high level performance.

Mitigating the Effects of Tilt and Harassment: Three of the participants identified that not allowing tilt and harassment to affect performance was a strength seen in themselves or other successful gamers. Tilt was referred to by P2 as a time when "it's really hard to handle if you make a bad play and it's called going on tilt.". Two participants identified that they themselves had the ability to not allow these obstacles to affect their performance.

Monitor Their Mindset: Several different mindsets were reported to contribute to successful performances, one of which was identified by two participants as having a mindset that allowed thriving under pressure. P3 identified an aggressive mindset as desirable; P1 described a winning mindset. In addition, three participants identified maintaining a positive attitude as being important, and P3 highlighted the importance of having fun while playing.

Utilize Pre-Performance Routines: The importance of warming up either physically, mentally, or both was identified by all participants. Techniques reported were playing different games, deep breathing, pushups, listening to music, and adjusting their body temperature as ways to prepare for a performance.

Adapt to Their Competition: Adaptation to variable circumstances was reported by two participants to contribute to successful performances. P2 mentioned in-the-moment adapting, while P1 reported changing an entire game plan according to the opponent. They also identified specific adapting techniques such as scouting and analyzing their opponent's weaknesses in order to better understand their opponents.

Rely on Their Team: P1 stated, "bottom line is, League of Legends is a team game. It's 5 v. 5. It's not 1 v. 1." Team trust was thought to be important for performing well by three participants. Two of the participants mentioned that establishing and knowing roles within the team contributes to success. Another factor that contributed to team reliance was identified as understanding each other's strengths and weaknesses - not only understanding their team's strengths and weaknesses but also using each other's strengths and weaknesses to maximize effectiveness. As P3 put it, "I understand what champs they want to play and what play style they're gonna do." In addition, P2 mentioned relying on their team for tactical support, and P1 relied on his team for dealing with adversity in the game. Moreover, three participants reported using their team, or aiding their team, with emotional support.

Communicate: Communication was brought up in a number of capacities. Verbal team communication was reported as being important for success several times. More specifically, verbalizing mistakes were stated as being important by P3. A technique that was mentioned to be successful for high

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level players was simplifying communication in order to increase the efficiency of it. In addition, P3 recommended that high level players should, and often do, mute or cut off their communication when playing in solo queue (game type where individuals match up with random teammates) for practice in order to block out any unnecessary negative commentary such as harassment.

Build Team Dynamics: Building team dynamics was something that was reported to contribute to more successful performances. Specific techniques identified were establishing a team logo, building connections through outside interactions, and communicating regularly to grow stronger team bonds. Building specific team dynamics between positions (e.g., bottom lane partners) within the game was also reported to contribute to success.

Ways in Which Skills are Acquired: This refers to the techniques used to improve gamers' skills.

Set Goals: Various types of goal setting were mentioned by the participants. They identified setting short term goals, long term goals, and process goals. In addition, P3 mentioned that he tries to provide his entire team with goals as well. Adjusting goals was also a technique P1 reported using himself.

Analyze Performances: Analyzing mistakes was a technique that all participants identified as being crucial in order to improve. P3 mentioned analyzing mistakes during the performance, while three participants specifically identified mistakes by watching replay video of their performance. In addition to analyzing mistakes, two participants reported processing both mistakes and what went well once the game ended. P4 reported watching other high level players and analyzing their techniques in order to improve his own skill.

Practice Individual Skills: P5 stated, "when I was playing challenger level games…we would practice almost every single day. We would be on probably from 5-10 every single night," exemplifying that practice is essential in maintaining a high level. Many of the participants identified solo queue as the place to learn individual skills to be brought into competitive 5's (a game type where gamers compete with their five-person team against another 5 person team). P1 identified two different, but effective, practice styles used by competitive gamers - one in which the gamer plays to the best of their abilities, the other a more exploratory style where trying new things is the goal. Principles of deliberate practice, as defined by Ericsson, Krampe, and Tesch-Römer (1993), were also described as important by several of the participants. For example, isolating a skill to practice, practicing with a goal in mind, and receiving feedback were all identified as ways to develop skills.

Maintain a Growth Mindset: Several of the participants mentioned key components of Carol Dweck's work seen in Mindset: The new psychology of success (2006) on the growth mindset. The participants mentioned experimenting with new things in practice, learning from mistakes, viewing challenge as an opportunity for growth, and improving on weaknesses as efficient ways of gaining knowledge through practice.

Obstacles Encountered by Competitive Gamers

Barriers for Optimal Performance: This consists of all obstacles identified that participants encountered during a performance, either in practice or in a tournament.

Ineffective Attentional Control: Maintaining focus or getting trapped in "tunnel vision" were identified by the participants as two difficulties during the game. In addition, limited attentional capacity was also reported by P5, who identifies as the shot caller (the person who calls the plays in the game) for his team.

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Negative Consequences of Mistakes: The first negative consequence of mistakes identified was creating a bad habit. P1 identified that "the biggest thing is sometimes mistakes, like you'll make them so much that they turn into a bad habit." Furthermore, mistakes could lead to confidence issues during the game; P3 referred to it as "second guessing yourself." In addition, two indirect consequences were reported by participants. Refusing to take responsibility for mistakes was identified as a barrier that stops gamers from improving themselves. On the other hand, being unable to retain knowledge learned from mistakes was another reason why gamers could not better themselves. In addition, facing those consequences of mistakes during games could be tough. For example, P3 said:

Usually, you can't really do anything, because once you make that decision you can't really go back and change it, so you're kinda stuck with that choice, and deal with the consequences. It's kinda the bad side, so it does lead to a lot of lost games.

Going on Tilt and Being Harassed: Going on tilt generally refers to the situation when someone underperforms and becomes emotional generally caused by others such as teammates; thus, the person going on tilt is unable to adjust performance accordingly and performs even worse. As P2 reported:

A lot of times it's really hard to handle if you make a bad play and it's called going on tilt. You'll hear that a lot in solo queue and, say you gave up first blood, or the first death of your team. And then there are a lot of intermediate or beginner players who will just lose their mind. They'll end up trying to recover something or just keep dying over and over again and it never helps.

Going on tilt is a common and detrimental obstacle gamers will encounter during the game. In addition, harassment is another common obstacle that gamers will encounter when practicing online. As P2 reported:

Anybody who's played competitive video games has been attacked at some point in time about being bad, or being a certain ethnicity, or even young, and a lot of times in video games people will curse at you all the time.

Participants also reported that they have seen gamers who do not have proper coping skills choose to leave the gaming community.

Limited Ability to Regulate Emotions: Participants expressed that they could get emotional when processing a loss during the break of a tournament and that inadequate coping would negatively affect future performances. P1 reported that he has seen other gamers panic when they were outplayed by better opponents causing a wide range of emotions beyond frustration classically seen in tilt. He stated, "[once] in panic mode, they're probably gonna get killed again and get snowballed on". Participants also reported when coming off a win you still must be remain composed for the next match.

Dwelling on Past Performances: Participants reported this obstacle was encountered most often during a tournament. P1 said, "I'll lose 3 games in a row, and I know I'll have to, I have to play 6 more." As P4 learned from his own experience, "Like at [some] tournament my team did really poorly… we lost 0-2. So most people were pretty upset about that."

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Trouble Performing Under Pressure: Participants identified that the pressure perceived when competing on a "big stage" or while performing in front of audiences was greater than the pressure perceived when playing in a comfortable environment, such as their own home. According to the participants, this dramatic increase of perceived pressure could be problematic for gamers without proper coping skills. P2 observed other teams who played on a "big stage" and concluded, "If you go and watch a new team play on a big stage you can tell they're dead silent, they're shaking, they're not really sure what they should be doing before the match. They're trying to figure it out."

Confidence Issues: Several participants reported that overconfidence has a negative effect on performance, by using the words such as "cocky" and "egotistical". As stated by P5: "There are a lot of people I know, who get very egotistical about it… Have this whole ego complex to me and no that's not a good thing, because it becomes destructive." In addition, lack of confidence was identified as an obstacle under certain situations as P2 shared:

In lower Elos [levels] you'll see people play, they'll look at a situation and be like 'oh there's three enemies and just me by myself, I need to run away', when in all reality, LoL is totally skilled game play. You can beat 3 people by yourself if you play it correctly, and you predict their movements.

Unable to Repeat Flow Experience: All participants reported experiencing flow in the past. A flow-like experience, as defined by Csikszentmihalyi (2014), is the subjective experience of seemingly effortless movement while being completely engaged in a task for its own sake (no external purpose). However, when asked what led to the flow experience, and if they could replicate that experience, the most common answer was "No." They either have no knowledge regarding what led to flow, like P2 reported, "You know if I knew what led to that, I would try and do it every single time" or they think they know what caused flow, but are unable to replicate that state, like P3 reported, "I've never really been able to replicate it, it's kinda just been situational."

Inadequate Physical and Mental Preparation: Three participants addressed the importance of physical and mental preparation. P4 stated, "So I think just kind of getting in the right mindset is challenging sometimes but important." In addition, the importance of physical warm-up was also stressed by two participants. For instance, P2 shared:

Like [a tournament], I wasn't prepared for how cold it was there, so that was tough. The tournament was in the morning so I wasn't really prepared at all mentally… physically. I played a couple warm up games but couldn't get my groove. That was a bad day.

Team Obstacle: This refers to the challenges that gamers would encounter as a team and also captures the team component of LoL. Team obstacles were reflected in two ways: lack of team reliance and ineffective communication.

Lack of Team Reliance: Unlike traditional sport, eSport players do not need to meet each other in person - they could choose to form an online team, a local team, or a mix of both. Professional LoL gamers usually play on a set team. However, the lack of team trust is problematic for solely online teams, as P1 stated, "You don't know them like personally so you can't take it to that higher level of trust." Furthermore, P2 reported that within a single team, certain members could have joined for a variety of reasons causing a difference in the level of commitment to that team, which can be problematic. Participants also expressed that regardless of online based teams or local teams, lack

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of team cohesion can be a problem for both types. Moreover, keeping the team calm and providing emotional support for the team when they go on tilt was identified as two separate difficulties by participants.

Ineffective Communication: Three participants claimed that when they practice in solo queue, or play on a random team, team unfamiliarity and lack of teamwork could lead to poor performance. In addition, communication in solo queue is generally ineffective. P2 reported, "They just completely mute their team, but I don't necessarily agree with that cause I previously stated, you can use your teammates to help you get back in the game …"

Need for Balance Between Life and Gaming: This reflected the intertwined relationship of life and gaming, which was perceived as an obstacle by participants.

Difficulty Separating Life and Gaming: Participants identified the difficulty to keep emotions from life and game separated. For example, P4 reported, "If I've had things going on during the day like, or just had a bad day with friends, or dealing with something in real life then it can be difficult to look past that and play well in the game."

Lack of Commitment to Gaming: None of the participants were professional gamers - three of them are in school and two of them have day jobs (one referred to his job as his career). As reported by participants, they would not consider "going pro" because of other things happening in their life. As P4 stated, "One of our main players just stopped playing the game for a long time. He basically sold his accounts and decided to focus on other things in life and he was kinda the leader of the group." However, P3 reported that he would still maintain the dream to become a pro player: "If any opportunities come up for gaming, I would take that in a heartbeat."

Limited Understanding of the Game: This referred to the lack of knowledge about the game. The specific knowledge referred to a wide range of aspects, from the limitation of each pre-programmed champion (refers to the animated characters gamers control in the game), to what one should do under certain circumstances, to the best way to gain the knowledge.

Directed Mental Skills Questions

Eight mental skills were asked about on a consistent basis throughout the five interviews. In total, 34/40 responses were recorded as: yes, this mental skill applies to gaming, 2/40 were unsure if the particular mental skill applies to gaming, 1/40 believed that this particular mental skill does not apply to gaming, and 3/40 were not asked about a particular mental skill due to the researcher's error. Goal setting was thought to be useful by four participants, while P1 was unsure if it would be effective: "It's almost like when you're going up, do you look at each step you take, or are you always looking up?" Imagery was also thought to be useful by four participants, however, P2 believed it would not be useful: "When I think of imagery I think of set ways, and that's not necessarily how it should be." Of the four participants asked specifically about anxiety management, all four said that it is an important skill to have. Energy management was believed to be useful by four participants, however, P3 was unsure if it could actually be useful. He stated, "since we're sitting down a lot of the time it's kinda not as important, so I don't know, I wouldn't say that's too important but I could definitely see that being useful." Emotional regulation was said to be useful in gaming by all four participants who were asked directly about it. Motivation was brought up by two participants organically throughout the interview while two participants said it applies to gaming when directly asked. Communication was identified by all five participants as being

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important in gaming. Attentional control was also identified by five out of five participants as being relevant to gaming. See Table 3 for a full list of participant responses to the directed mental skills questions.

DISCUSSION

Techniques Used to Achieve Optimal Performance

One of the higher order themes that emerged from the data was techniques gamers already use to achieve optimal performance (consistently playing to the best that an individual's skill level allows). This higher order theme can be conceptualized as strengths gamers already possess, which were broken up into two categories: (a) what gamers do to ensure successful performances and (b) what gamers do to improve upon their skills. These mental strengths allow performers to cope and to overcome obstacles that could impede performance. They allow the performers to gain an edge on their competition, to work as a team, and to focus on what is important for performing effectively. Furthermore, these strengths can be utilized by consultants in the consulting process to better serve their clients.

Mechanical skills made up a small portion of the transcripts and could potentially be categorized as strengths but were not coded for (e.g., reflexes, speed of hand movement, speed accuracy trade off). These mechanical skills could be conceptualized as physical skills seen in traditional sports and therefore were not reported on. However, they did provide insight to the two main mechanisms driving performance - mental skills and mechanical skills. Gamers, coaches, and future consultants involved in this performance domain should utilize and train both facets of the game. Mental skills training could allow performers to better utilize and solidify the strengths they already possess as well as develop new tools in order to achieve optimal performance consistently.

Obstacles Encountered by Competitive Gamers

The four lower order themes under obstacles encountered by competitive gamers indicated that gamers need certain tools to overcome those obstacles in order to maintain or reach a high level of performance. For instance, P5 mentioned that sometimes his teammates would get "trapped in tunnel vision," and it was difficult to get them out. Without proper attentional control skills, the "tunnel vision" could be harmful to team performance. Furthermore, these obstacles could be categorized into three levels: (1) barriers to optimal performance is mainly focused on an individual performance level, (2) team obstacles is mainly focused on the team level, and (3) need for balance between life and gaming is focused on the broader picture of life and gaming. However, the fourth lower order theme, limited understanding of the game, could be considered as a necessity that builds the foundation of both individual and team performance.

The researchers found that the three levels of obstacles are similar to those that are encountered by traditional sports athletes. For instance, a lack of ability to regulate emotion and attention are two common topics encountered between sport psychology consultants and athletes (e.g., Robazza, Pellizzari & Hanin, 2004). Moreover, a lack of team reliance could be encountered by newly-built sports teams (e.g., Filho, Tenenbuaum, & Yang, 2014). Difficulty balancing school and sports is commonly seen among high school and collegiate athletes as well (e.g., Rosenberg & LaLiberte, 2011).

Since the benefits of sport psychology have already been acknowledged by traditional sport administrators and athletes (Wrisberg, Withycombe, Simpson, Loberg, & Reed, 2012), and the obstacles encoun-

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tered by athletes and gamers are similar, it is safe to assume that sport and performance psychology can have a clear role in eSports. Given this knowledge, mental skills training should be a useful technique to improve gamers' performances.

Unique Findings Among Competitive Gamers

Although there were many similarities between eSports and traditional sports in terms of mental strengths and obstacles, there were findings unique to competitive gamers. One stark contrast to traditional sports is the online component of eSports and the unique environment that it facilitates. Many of the participants mentioned either forming a team online or joining online teams. As mentioned by Nardi and Harris (2006), online culture along with rituals are formed by unwritten rules. A particular set of social intelligence skills may be required to form and continue to thrive on online teams. Forming online teams could have pros and cons. In traditional sports, we often see teams formed through an institution, such as a school, where there is not much say as to who is a member of the team from the player perspective. However, in eSports, players are often forming teams by themselves, indicating that there may be prior social bonds that are taken into consideration when forming, potentially independent from age, location, goals, skill level, etc. The online interaction of competitive gamers presents a plethora of research that can be done regarding cohesion, social interaction, motivation, goal alignment, etc.

Many of the mental skills discussed by the gamers were comparable to mental skills in traditional sports, however, the terminology in eSports was often unique from traditional sports. For example, "tilt" was discussed frequently throughout the interviews. The competitive gamers would talk about themselves or others going on tilt which is generally caused by mistakes from the player or a teammate. Going on tilt can be associated with a high level of frustration that can negatively impact the remainder of the game. Another example was "comms", a term short for communication. Knowing the language that players use can enhance consultants' understanding of the context and help them relate better with the players.

The Gap Between What Gamers Do and Obstacles Encountered

Some of the obstacles displayed in Table 2 can relate to the techniques that gamers already utilized to achieve optimal performance. For instance, P2 and P3 identified communication as a strength of their own, while P1 stated that ineffective communication style is an obstacle at the team level. Thus, the obstacles perceived by some gamers could be overcome by techniques that have been utilized by other gamers. However, not all obstacles can be matched with a technique that gamers already used to be successful. More specifically, the need for balancing life and gaming was not able to be matched with a specific technique identified in this research. This is an example of an area that a consultant can help the gamer work on. The researchers believe that certain mental skills, such as attentional control and emotional regulation, could be helpful for keeping gamers focused on the task at hand. However, when taking all the life events occurring outside gaming into consideration, mental skills might not be the only appropriate interventions, and consultation might expand to life skill development.

Directed Mental Skills Questioning

The first part of the interview was exploratory questioning, attempting to listen to the gamers' language and uncover whether they utilize specific mental skills before asking them directly using sport and

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performance psychology verbiage. Oftentimes, during the exploratory questioning, the participants identified mechanical skills when they were asked about mental skills, strengths, or obstacles. The direct questioning at the end of the interview allowed for the researchers to get clear "yes or no" responses on whether the participants believed the specific mental skills adapted from Lesyk (1998) and Edwards and Beale (2011) applied to competitive gaming.

ESports has become a highly competitive domain where performance is heavily driven by the mind's ability to process and respond to a large amount of input in a short amount of time, and as efficiently as possible. Therefore, psychological skills training could prove to be very effective with competitive gamers. As most of the participants resonated with the specific mental skills and agreed they could be applied, buy-in appears to be predisposed. A strong foundation of mental skills is likely to be necessary to achieve optimal performance. Therefore, gamers and performance consultants can work together to train and further condition competitive eSports players to compete at the highest level their capabilities will allow.

Limitations

The first limitation to the study was that the sample size was small, hindering generalizability; however, the nature of qualitative studies is that they typically have small sample sizes (Dunn, 2013). Given that five participants were involved in the study, the results are illustrative of these particular gamers' experiences and cannot be generalized across the entire population of competitive gamers.

In addition, no professional gamers were involved as participants. The target population was highly competitive gamers, but none of these participants saw gaming as a current source of income. The specific needs for professional versus competitive gamers may vary. It is possible that professionals would present a different set of mental strengths and needs.

The next limitation was that only one specific game was studied. However, looking at one game made the study more specific and catered to the needs and strengths of the players involved in what is currently one of the most popular competitive eSports in the world.

Age was also a limitation of this study. Many professional gamers are under the age of 18 and therefore classified as minors. Although minors could participate in the study, none volunteered. Minors may also provide a very different set of challenges to performance and strengths they may exhibit. There was also a lack of diversity among participants. In fact, P5 brought up gender discrimination as being a huge issue in eSports and the gaming community; therefore, future researchers may want to explore experiences of different genders in eSports.

In addition, participants were only drawn from one major Western city. Although the results of the study were very applicable towards League of Legends players in this area, of this gender, and of this age group, more work needs to be done to further explore the experiences of different groups identifying as competitive gamers.

Practical Implications

The results identified two major factors - mental strengths gamers already have and obstacles they perceived. Performance consultants could build on strengths successfully utilized by high level gamers to overcome obstacles. For instance, P2 reported that he plays a different type of game prior to a performance to prepare him for LoL. Similarly, the consultants could suggest that their clients use FPS (first

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person shooter, which is a different game type than LoL) games to regulate their arousal level prior to the performance (Jeong & Biocca, 2012). Moreover, the research also provided a general list of the common obstacles identified by competitive gamers. Therefore, consultants should be able to enter a consulting relationship with a better understanding of what a gamer specifically needs. Furthermore, gamers perceived mental skills commonly talked about in traditional sports as interesting and applicable to eSports.

Future Directions

The researchers drew the conclusion that competitive video gamers have similar mental needs as athletes, thus, sport and performance psychology, as well as mental skills training, should be able to help gamers perform at an optimal level. For future research, the effectiveness of mental skills training could be assessed. Moreover, future studies could target other competitive gamers from a larger sample and more diverse group. Different demographics may provide varied insights. Finally, performers from different game types should be studied as well, such as those who play Counter-Strike: Global Offensive (CS: GO), Hearthstone, Defense of The Ancients 2 (DOTA 2), Heroes of the Storm, StarCraft, etc. Since Bavelier, Ashman, Mani, and Föcker (2012) already found that action video game players have better attentional control skills than non-gamers, studying a variety of game types could add tremendous value to the literature.

CONCLUSION

The purpose of this research was to provide scholars, performance psychology consultants, and competitors with more information on the specific mental strengths and needs of gamers. This research identified several strengths and obstacles perceived by gamers, some of which overlap, potentially indicating that some of the obstacles could be tackled by their current strengths. Performance psychology consultants could better serve those in the gaming community by helping them utilize their strengths to help them overcome obstacles and integrating mental skills training into their practice.

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APPENDIX

Interview Questions

1. Tell me about your history of involvement in gaming. (e.g., How/why did you get involved?)
2. What other games do you play if any?
3. What do you want to achieve in your competitive gaming career?
4. What are some mental strengths required to be successful?
5. What are some mental challenges or obstacles you face?
    a. Before performance?
    b. During?
    c. After performing?
6. Do you work with a set team or join random ones as you play? Please talk about some of the challenges/benefits that presents.
7. Please talk about some of the ways that you mentally prepare for practice and performances.
8. (Ask only after briefly describing sport and performance psychology) Describe some ways in which you think sport and performance psychology could be of use to gamers such as yourself.
9. Think back to a time where you played really well, what did that look like, what did it feel like, and what led up to that experience?

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Chapter 82
Addressing the Impact of Trauma in High Poverty Elementary Schools:
An Ecological Model for School Counseling

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ABSTRACT

A positioned-subject qualitative approach was used to uncover multiple perspectives held by elementary school counselors as to how they interpret their work with children affected by trauma in high-poverty schools. As such, school counselors' knowledge of the impact of ecological factors that led to childhood trauma was examined. Findings indicated that complex and systemic trauma were common themes that informed the schools counselors' ability to advocate effectively for mental health programs for children in high poverty schools. This qualitative study also introduces an ecological and social justice (ESJ) school-counseling model for school counseling in high poverty elementary schools that demonstrates how social justice-oriented school counselors seek to meet the needs of their students with mental illness who come from high poverty backgrounds.

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INTRODUCTION

School counselors who work in high poverty schools face two challenges to traditional school counseling service delivery; first, they may discover that students suffer from institutional sources of oppression that may contribute to their problems and secondly, the traditional focus on helping students adapt to the school environment is indefensible when the environment is unjust in the treatment of students (Coyne & Cook, 2004). Many schools in high-poverty areas struggle to cultivate positive environments. Moreover, students who attend schools that are unjust and oppressive are at-risk of experiencing trauma in the forms of bullying, neighborhood gang exposure, or exceedingly harsh punishments from school personnel, (Kira, Lewandowski, Chiodo, & Ibrahim, 2014). Ignoring the dynamics associated with systemic trauma could produce chronic and acute threats to students' social inclusion, belonging, and identity formation (Kira, Lewandowski, Chiodo, & Ibrahim, 2014; Montenegro, & Matz, 2015),which could create harsh and punitive environments, rather than responsive and caring environments. Children educated in high-poverty schools exposed to punitive rather than sensitive and caring school environments are at risk of re-traumatization and increased mental health symptoms (Brown, 2016). The present study advocates the implementation of an ecological model of school counseling to better serve elementary-aged children who face complex, systemic trauma in their high poverty schools.

School counselors may successfully leverage their position as advocates to ensure that the school environment promotes cohesiveness and structure between stakeholders while implementing strategies and interventions for children with mental health disorders in their schools (i.e., teachers, students, and administrators). Such a system ensures the existence of compassionate environments for children with mental illness in high-poverty schools. Moreover, to provide cohesiveness and effective planning, knowledge related to the impact of environmental factors on the emotional health of children is imperative (Bronfrenbrenner, 1979; Brown, 2016). Ensuring that stakeholders across multiple systems have access to knowledge specific to their unique populations is a vital component to the success of high-poverty schools (Brown, 2016). While school counselors may be the first responders and primary advocates, fostering ecologically sensitive school environments requires the commitment of all school personnel. Additionally, due to the increased need for mental health services for low-SES students and limited access to resources within the community, sustainability requires the collaborative efforts of local, state, and regional stakeholders to identify alternative solutions to meet the emotional needs of students to prepare them to become healthy contributors to the school community.

Very little is known about the dynamics, processes, and functions of school counselors who serve successfully in high-poverty schools where mental health disorders are also prevalent. The American School Counselor Association (2016) recently provided guidelines to counselors seeking to promote positive, systemic change in their schools. Exploring school counselors' depth of knowledge surrounding the influence of ecology on the emotional wellbeing of children and their roles in eliminating structural barriers is essential for identifying how school counselors can best serve students with traumatization in low-SES areas. With this in mind, the following research questions guided the present study:

- What knowledge do elementary school counselors have about the impact of environmental factors affecting students from low-SES families?
- What are the perceived barriers that served to impede counselor leadership while serving students from low-SES families with mental health issues?

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- How do elementary school counselors provide leadership for students with mental health issues in high poverty schools?
- How do the participants narrate their roles as leaders in program delivery that include mental health solutions in high poverty schools?

REVIEW OF THE LITERATURE

In this study, a range of social science literature was used to identify how poverty influences learning environments and the likelihood that a child will experience a mental illness. This literature was then used to explore how elementary school counselors in high- poverty schools might advocate for the development of responsive wraparound services for students with mental health issues. The review begins by exploring the link between poverty and mental illness in children and how trauma figures into that relationship. The review then provides an overview of social justice principles and the tenets of ecological counseling that can be mobilized to ameliorate the impacts of poverty and experienced traumas on children's mental wellbeing.

Poverty, Trauma, and Mental Illness Among Children

According to the U.S. Department of Education, one in five public schools qualifies as high-poverty (Marquis-Hobbs, 2014, p. 34). Likewise, the number of high-poverty schools has increased by 60% in the past ten years (Marquis-Hobbs, 2014).

High-poverty schools have been associated with increased exposure to systemic and interpersonal trauma, which can lead to adverse psychological and academic consequences for particular students (Evans, 2004; Evans, Li, & Whipple, 2013; Gerald & Buehler, 2004). Previous studies reveal, however, that poverty affects the educational process for all students, not only those diagnosed with mental health issues (Amatea & West-Olatunji, 2007; Brown, 2006; Chabbra, Chavez, & Harris, 1999). All children are affected when teaching is disrupted because the behaviors of children in distress are not responded to appropriately. Therefore, it is essential to implement preventive and responsive services to address these disruptions and ensure that children with mental health concerns are supported.

Children are linked to the economic experiences of their parents. In high-poverty areas families may encounter social and cultural barriers that limit their accessibility to basic needs, including housing, food, health, education, and public space (Huston, 2011; Ladd, 2012; Ridge, 2002). This deprivation can expose children to interpersonal traumatic events occurring within the family "caregiving system" (Kisiel, Fehrenbach., Liang, Stolbach, McClelland, Griffin, & Spinazzola, 2014; O'Neill, Guenette, & Kitchenham, 2010), which can result in harmful effects for children that are often observable in early childhood (D'Andrea, Ford, Stolbach, Spinazzola, & van der Kolk, 2012; O'Neill, Guenette, & Kitchenham, 2010). Such cases can include physical abuse or neglect where a child's parents or legal guardians fail to provide adequate food, clothing, shelter, medical care, or supervision that a parent with greater access to resources or who is more conscientious would take (Kisiel, Fehrenbach, Liang, Stolbach, McClelland, Griffin, & Spinazzola, 2014; Pino, Herruzo, & Herruzo, 2015). In addition to physical abuse and neglect, sexual abuse and other forms of family violence may be present (Kisiel, Fehrenbach, Liang, Stolbach, McClelland, Griffin, & Spinazzola, 2014; O'Neill, Guenette, & Kitchenham, 2010).

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Interpersonal trauma perpetrated by primary caregivers is referred to as complex trauma (Greeson, Briggs, Kisiel, Layne, Ake & Fairbank, 2011). Chronic exposure to complex trauma can put children at increased risk for a wide range of symptoms expressed across developmentally relevant life domains (Brown, 2016; Kisiel, Fehrenbach, Liang, Stolbach, McClelland, Griffin, & Spinazzola, 2014). At minimum, complex trauma is recurrent and results in maladaptive emotional, behavioral, and cognitive functioning in children (Greeson, Briggs, Kisiel, Layne, Ake,…Fairbank, 2011). Exposure to complex childhood trauma, thus, impairs school-related areas including academics, interpersonal relationships, and communication skills (Bell, Limberg, & Edward, 2013). These experiences of complex trauma can be intensified when they are compounded with systematic trauma-- psychological stressors that are perpetrated by one social system or group(s) against members of the same or different group(s). Examples of systemic trauma relevant to schools in high-poverty areas include bullying, neighborhood gang exposure, and harsh consequences received from school personnel (Kira, Lewandowski, Chiodo, & Ibrahim, 2014).

School counselors serving in high-poverty elementary schools are uniquely positioned to identify students who are affected by exposure to traumatic events. Furthermore, school counselors are equipped to develop school-wide strategies and interventions that support students who present with trauma-related symptoms (ASCA, 2016). However, responding to these concerns requires an understanding of the ecological factors that impact children exposed to adversity and who are emotionally impacted by complex trauma (Brown, 2016). It is imperative that schools situated in high-poverty districts are not only equipped to report incidences of maltreatment in children but are also able to effectively respond when the behaviors of children impacted by trauma are present. Ecological development examines various ecosystems that directly impact children ability to thrive (Bronfenbrenner, 1979).

Ecological Development

Ecological development is derived from the work of Bronfenbrenner (1979, 1984, 1986, 1994). According to Bronfenbrenner, human development occurs through processes of progressively complex reciprocal interactions between active, evolving human beings (Brown, 2016). Ecological models include a body of theory and research concerned with "the processes and conditions that govern the lifelong course of human development in the actual environments in which people live" (Bronfenbrenner 1994, p. 37). The ecology of development focuses on the influence of immediate or proximal settings, and for children, the home and school environments represent such settings. In the context of treatment for children exposed to traumatic events the home and school, settings are where effective interventions and strategies should occur (Bronfenbrenner, 1979; Brown, 2016). As such, the study of ecology in school settings would enhance school counseling program planning and implementation in high-poverty schools by including all relevant micro and macro systems (home, school, neighborhoods, and school-district) in the assessment and decision-making process.

Ecological School Counseling

McMahon, Mason, Daluga-Guenther, and Ruiz (2014), developed an ecological framework specific to professional school counselors. The basic assumptions of ecological school counseling involve the school counselors' ability to conceptualize their students through the lens of the multiple systems that affect student success (ASCA, 2016). Moreover, ASCA (2016) indicates that by focusing on ecology, schools are able to inform multi-level, collaborative strategies to develop sustainable change.

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McMahon et.al. (2014) also submit that in order to promote healthy well-functioning systems and to maintain health, balance, and flexibility, clear boundaries are necessary to create cohesiveness and structure between groups (i.e., teachers, students, administrators). As stated previously, creating an environment that represents cohesiveness and structure is essential while working with children in high-poverty schools who are affected by trauma. School environments that are balanced and flexible are also harmonious and open to implementing changes that are essential to eliminating barriers to learning for traumatized children (McMahon, & Mason, Daluga-Guenther, & Ruiz, 2014; Brown, 2016).

Additionally, according to Trusty and Brown (2005), the school counselors' adherence to advocacy guidelines strengthens their ability and positioning in schools. Stronger positioning within schools can offer opportunities for greater access, harmonious environments, and equitable programming. Harmonious environments are those that represent mutuality and "good-fit" between students and the school environment (Brown, 2016; Kisiel, Fehrenbach, Liang, Stolbach, McClelland, Griffin, & Spinazzola, 2014; O'Neill, Guenette, & Kitchenham, 2010). Furthermore, mutuality and "good-fit" between students and the school environment were essential elements towards eliminating systemic trauma (Kisiel, Fehrenbach, Liang, Stolbach, McClelland, Griffin, & Spinazzola, 2014; O'Neill, Guenette, & Kitchenham, 2010). Therefore, the assurance of mutuality and "fit" require the promotion of mental health awareness and sensitivity programs in school settings serving students in high-poverty schools with high populations of children with traumatization.

Ecological School Counseling and Social Justice Advocacy

The United States Surgeon General reported that approximately 20% of children under the age of 18 years old suffer from mental health issues, and nearly five million children have some form of impairment that considerably impacts their daily lives (Wilkinson, 2012). Schools represent a system with established concepts, values, and perceptions that either creates spaces for positive student outcomes or barriers that encumber student success (Amatea & West-Olatunji, 2007). Because children spend the majority of their time in schools, school counselors play an integral role in responding to their needs, particularly in situations where the home caregiving system may be failing. Educational institutions might perpetuate inequality for students from low-SES families and other marginalized populations if advocacy and leadership are not priorities in practice (Brown, 2016). Therefore, school counselors are charged to identify and eliminate systemic barriers that create inequality and impede learning for children (ASCA, 2012).

Furthermore, counselors who practice through a social justice lens will advocate on behalf of those students who are underrepresented to change and transform practices that are potentially harmful to them (Dixon, Tucker, & Clark, 2010; Hunsaker, 2011; Odegard & Vereen, 2010). According to ASCA (2016), school counselors have an ethical obligation to address the needs of marginalized groups, while establishing programs, strategies, and interventions designed to promote student achievement. Therefore, providing learning environments where all children have access to resources that support learning is the school counselor's responsibility. The concept of social justice is grounded in the notion of equitable allocation of resources including economic, cultural, and social capital (Simpson, Lumsden, & McDowell Clark, 2015). Schools that assess their environments for evidence of inequality are positioned to implement new and innovative solutions that positively impact academic outcomes for children from low-SES families, especially those suffering from complex trauma exposure.

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When schools combine social advocacy with attention to the ecological functioning of the environment, they may be more likely to create cohesiveness and structure between stakeholders (i.e., teachers, students, and administrators). McMahon et al. (2014), describe schools as ecosystems where "a network of interdependently connected components...are in a constant state of change, yet they work to maintain a healthy balance within change" (p. 462). These school ecosystems function as "feedback loops" which can identify imbalances or disturbances within the organization (McMahon, & Mason, Daluga-Guenther, & Ruiz, 2014, p.463).

Often student behaviors are interpreted as problems. However, from an ecological perspective, new behaviors create new structures that provide feedback that could indicate an imbalance within the system. For example, a school-wide evaluation of students' attendance records might reveal that attendance has decreased significantly. Further evaluation of the issue might reveal that a local employer has moved their organization away from the community, causing the loss of jobs (Brown, 2016). Lack of employment has created stress in the home, which results in increased absences among the students who might be experiencing psychosomatic abdominal pain and other ailments. Moreover, the loss of employment has affected attendance and created imbalance in the system for children who have difficulty coping with the stressors of this new life structure.

An ecosystem's feedback loop allows schools to function efficiently with adaptability. Adaptability is necessary to create environments that are able to flourish and maintain viability for future generations. Healthy schools are sustainable when they maintain a "reciprocal, collaborative relationship with the community system in which it exists, thereby enabling citizens and workers to sustain the functions of the community," which "provides the school with a new generation of students ready to contribute to the school community" (McMahon, & Mason, Daluga-Guenther, & Ruiz, 2014, p. 463).

Providing resources that are designed to promote the sustainability of low-SES students requires the commitment of all school personnel; however, school counselors are particularly important contributors to the process through their advocacy and leadership efforts (Brown, 2016). Additionally, due to the increased need for psychological services for low-SES students and limited access to resources within the community, sustainability requires the collaborative efforts of local, state, and regional stakeholders to identify alternative solutions to meet the psychological needs of students to prepare them to become healthy contributors to the school community.

Figure 1 represents the relationship between ecological and social justice advocacy theories. Substantial findings published in the literature on the influence of poverty and the psychological wellbeing of children has emerged across many social science disciplines (Amatea & West-Olatunji 2007; Barnett & Allison, 2012; Chabbra, Chavez & Harris, 1999). As such, ecological development and social justice advocacy theoretical perspectives were used during this study in keeping with the post-positivist tradition of individuals' defining their own realities and identities (Charmaz, 2014). Both ecological development and social justice advocacy principles espouse a constructivist relationship between the researcher and participants in which knowledge is co-created and disseminated. The researcher conceptualized ecological theory and social justice principles and developed strategies and interventions that best represent an ecological and social justice (ESJ) school counselors' model for serving students in high-poverty schools with mental illness. Research questions and the participant selection were derived from this thematic representation.

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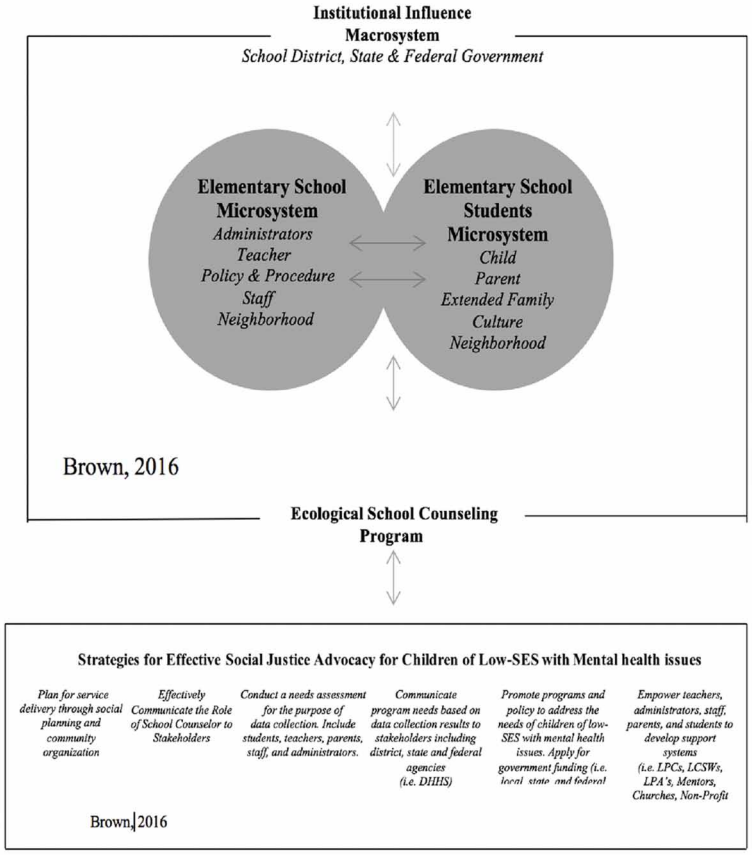
Figure 1. Thematic representation



Methodology

This qualitative study introduces an Ecological and Social Justice (ESJ) school-counseling model for school counseling in high poverty elementary schools (Brown, 2016; Brown, Bass, Spencer, & Dari, 2017). The ESJ school-counseling model demonstrates how social justice-oriented school counselors seek to meet the needs of students with mental illness who come from high poverty backgrounds. Data collection was completed primarily through the collections of positioned subject narratives (Brown, 2016; Brown, Bass, Spencer, & Dari, 2017). In this study, the stories were examined from a social, economic, and cultural context that accounted for the perspectives of counselors who are invested in elementary school counseling for students from low-SES families (Brown, 2016; Brown, Bass, Spencer, & Dari, 2017).

Positioned Subject Approach

The positioned subject approach was used for this study because it allowed the researchers to explore the varied perspectives of a diverse group of elementary school counselors and interpret their perspectives through the lens of their unique settings and situations (Brown, 2016; Brown, Bass, Spencer, & Dari, 2017; Cohen, Vega, & Watson, 2013). The subjects in the present study are committed to leadership

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and social justice work for students of low-SES with mental health issues and/or behavioral concerns in schools. Theoharis (2007) indicates that when using the positioned subject approach, the researcher assumes that the participants create meaning from and interpret their own work from the vantage point of where they serve students (Brown, 2016; Brown, Bass, Spencer, & Dari, 2017). The goal of using the positioned subject approach in this study was to assess how elementary school counselors working in high-poverty schools describe the meaning associated with their experiences and articulate what they value about their work with children from low-SES families (Brown, 2016; Brown, Bass, Spencer, & Dari, 2017).

The Participants

The researchers utilized purposeful and snowball sampling (Creswell & Creswell, 2013) methods to secure school counselors for participation in this study. The study included eight participants currently working as elementary school counselors in high-poverty schools. Additionally, the participants work in several school districts in the United States (Brown, 2016; Brown, Bass, Spencer, & Dari, 2017). The participants were screened to determine the appropriateness of their inclusion in the study, and each met the following criteria (Brown, 2016; Brown, Bass, Spencer, & Dari, 2017). They: (a) currently work in a high-poverty school, as evidenced by 70% or higher of the school population participating in the Free or Reduced Lunch (FRL) program or a school identified as Title I; (b) are elementary school counselors; (c) have an awareness of the various ecological factors that influence their work with children of low-SES, and; (d) advocate, lead, and keep at the center of their practice an understanding of issues related to race, class, gender, disability, sexual orientation and other historically marginalized populations (Theoharis, 2007). All of the participants were assigned pseudonyms to offer the participants anonymity (Brown, 2016; Brown, Bass, Spencer, & Dari, 2017). Furthermore, interviewing elementary school counselors from various school districts enriched the study by offering geographically specific descriptions of counselor roles, responsibilities, and expectations. All of the participants were assigned pseudonyms to offer the participants anonymity (Brown, 2016; Brown, Bass, Spencer, & Dari, 2017). See Table 1 for participant's common characteristics.

Data Collection

The participants in the current study received an email explaining the purpose of the research with a handout attachment that highlighted the theme, 'ecological counseling and social justice' (Brown, 2016; Brown, Bass, Spencer, & Dari, 2017). The researchers conducted initial phone conversations with each potential participant to discuss the content of the handout and determine the appropriateness of their inclusion in the study. Upon completion of the telephone call, those participants identified as eligible then received a demographic information survey via Survey Monkey. The survey required information that pertained to the participant's age, date of graduation from graduate school, childhood economic status, and general educational histories of the participants (Brown, 2016; Brown, Bass, Spencer, & Dari, 2017).

The researchers conducted semi-structured interviews where they asked open-ended questions to elicit responses of depth from the participants (Brown, 2016; Brown, Bass, Spencer, & Dari, 2017; Creswell, 2013). The participants were interviewed in a face-to-face protocol format via Abode Connect. Adobe Connect is a virtual application that recorded and stored the interviews on a password-protected computer. Utilizing a virtual application was the most appropriate and efficient process for data collection from

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Table 1. Common characteristic description

Participants	Works in a High-Poverty School	Less Than 5 Years of Professional School Counseling Experience	Similar Descriptive Language Regarding Ecological Factors	Experienced Childhood Trauma	Worked In a School With a SMH program
Michael	X		X		
*Terri	X	X	X	X	X
Rebecca	X	X	X	X	X
*Mark	X	X	X	X	
Cynthia	X	X	X		X
Aisha	X	X	X		
*Nancy	X	X	X	X	
Sandra	X	X	X		

*Denotes the participants who described their childhood as having several environmental risk factors related to their being raised in a low-SES family.

multiple participants who are geographically situated in several school districts across the U.S. (Brown, 2016; Brown, Bass, Spencer, & Dari, 2017; Wilkerson, Iantaffi, Grey, Bockting, & Rosser, 2014).

The lengths of the interviews were approximately 75 minutes and were transcribed by a professional transcriptionist (Brown, 2016; Brown, Bass, Spencer, & Dari, 2017). Two participants received their transcripts to assure the accuracy of the content. The other participants declined the opportunity to review their transcripts (Brown, 2016; Brown, Bass, Spencer, & Dari, 2017). Moreover, to assure anonymity, the transcripts were modified if they contained specific names of people or organizations. The video files and the transcripts were saved on a password-protected computer storage device (Brown, 2016; Brown, Bass, Spencer, & Dari, 2017).

Trustworthiness

The goal of eliminating potential bias as a participant was accomplished through "triangulation" and the subjectivity statement (Creswell, 2013, p. 251). Triangulation involves the use of multiple sources to provide corroborative evidence to eliminate potential bias. The researchers utilized bracketing strategies to remove themselves from the data. Over and above, the researchers employed an independent auditor to read the transcripts and the study results following their review by participants for accuracy of interpretation (Brown, 2016; Brown, Bass, Spencer, & Dari, 2017).

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Data Analysis

The semi-structured interview framework and a positioned-subject perspective that emphasizes the respondents' lived experiences and stories informed the analysis in the study (Brown, 2016; Brown, Bass, Spencer, & Dari, 2017; Creswell, 2013). The analytic steps included: (a) an examination of the interview transcripts for general statements about how the influence of ecological theory knowledge impacts elementary school counselors' attitudes towards social justice advocacy for children with mental health issues from low-SES; (b) the development of themes around these topics; (c) the construction of analytic categories from the themes, and; (d) the linkage to the previously identified analytic categories into a coherent process (Brown, 2016; Brown, Bass, Spencer, & Dari, 2017; Creswell, 2013).

Coding

The researchers coded the contents of the transcripts. Several phases of coding were conducted. The initial phase involved the process of "naming" items prior to the focused selective phase. The focused selective phase was the process of extracting the most significant or frequent codes while sorting and integrating data (Brown, 2016; Brown, Bass, Spencer, & Dari, 2017; Creswell, 2013). Additionally, the researchers employed an a priori coding schema influenced by their exploration of previous literature on school counseling programs and child mental health in high-risk SES areas.

Six themes and parallel clusters emerged from the data analysis. These include: (a) motivation to advocate; (b) prioritizing mental health in schools; (c) trauma; (d) school-based support (micro-level support); (e) school district support (macro-level support), and; (f) preparedness. The identified clusters are: (a) counselor childhood experience; (b) professional identity; (c) establishing school protocols; (d) complex trauma; (e) systemic trauma; (f) positive and negative school support; (g) positive and negative school district support; (h) childhood experiences, and; (i) feeling prepared and not feeling prepared (Brown, 2016; Brown, Bass, Spencer, & Dari, 2017).

The themes highlighted in this chapter are complex and systemic trauma. One emerging issue that was related to the influence of ecology on students' mental health was complex trauma. Trauma as a single theme emerged from research question number one. Complex trauma is the exposure to multiple and chronic, interpersonal traumatic events; these events occur most often within the family system and typically begin in early childhood (Kisiel, Fehrenbach, Liang, Stolbach, McClelland, Griffin, & Spinazzola, 2014; O'Neill, Guenette, & Kitchenham, 2010).

Embedded in the theme of trauma are interpersonal and systemic factors. Interpersonal factors are described as physical abuse, neglect, sexual abuse, and family violence (Kisiel, Fehrenbach, Liang, Stolbach, McClelland, Griffin, & Spinazzola, 2014; O'Neill, Guenette, & Kitchenham, 2010). Systematic trauma refers to stressors that are caused by one social system or group(s) upon members of the same or different group(s). Examples of systemic trauma included bullying, neighborhood gang exposure, and harsh consequences received from school personnel (Kira, Lewandowski, Chiodo, & Ibrahim, 2014).

Results

The counselors in this study noted that possessing knowledge about the ecological influences helps them recognize behaviors in children affected by their exposure to traumatic events. This knowledge better equipped them to implement procedures to cultivate schools that are healthy, well-functioning,

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dynamic, balanced, and flexible (Brown, 2016; McMahon, Mason, Daluga-Guenther, & Ruiz, 2014). All participants felt that raising awareness of the ecological factors specific to students from low-SES families would also result in their ability to address emerging issues. Two themes related to complex and systemic trauma emerged from the present study.

Complex Trauma

Children are linked to the economic experiences of their parents and, therefore, encounter social and cultural barriers that often limit their accessibility to basic living standards, including housing, food, health, education, and public space (Huston, 2011; Ladd, 2012; Ridge, 2002). Deprivation produces harmful effects for children that are observable in early childhood (D'Andrea, Ford, Stolbach, Spinazzola, & van der Kolk, 2012). According to the literature related to trauma, childhood privation often leads to traumatic interpersonal adversity (Kisiel, Fehrenbach, Liang, Stolbach, McClelland, Griffin, & Spinazzola, 2014; O'Neill, Guenette, & Kitchenham, 2010). Based on the information obtained from the interviews, the school counselors acknowledged the existence of interpersonal factors related to child trauma among their students. All counselors reported that interpersonal factors influenced behaviors and created challenging environments for educators and the students.

Rebecca expressed concerns about her students who have been exposed to traumatic circumstances:

You've got stressors of their family. They're food insecure and they're not getting their basic needs met… A lot of times if there are stressors in the family… then they are more likely to…act out. You know I see a lot of trauma kids because of domestic violence or neglect or abuse and that's the cumulative risk … of having those things happen …and then having a mental diagnosis because of those things too…. all because they were lower SES and the parents couldn't handle all of the stress.

Michael also shared his thoughts related to the students in his elementary school who have food insecurities:

My students who come from poverty, they don't have anything. And from my middle class background… I see students who are all getting lunch at the same time, within thirty seconds of each other and it's always about who is going to get theirs first. Even in higher grades where you would think they would grow out of this, it can still be an issue. It's a power thing…it's status. And I think sometimes it means more to our kids in poverty… Maybe they don't have that much and they don't get much food.

Interpersonal trauma was also discussed in the form of abuse and neglect, which implies cases in which a child's parents or legal guardians fail to provide adequate food, clothing, shelter, medical care, or supervision as a more conscientious parent would (Kisiel, Fehrenbach, Liang, Stolbach, McClelland, Griffin, & Spinazzola, 2014; Pino, Herruzo, & Herruzo, 2015). Because child neglect is the most prevalent form of child maltreatment, it was a concern for a few of the counselors who reported that often what appeared as neglect was actually the parent not having resources to address a crisis situation. For example, sometimes, children come to school without clean clothing because the family does not have electricity or water. Additionally, a few counselors reported that the extent of the problems required creative logistical processes to meet students' needs. Nancy stated:

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I know multiple families that have utilities turned off. So we do what we can and we realize that a child wants to have a sense of pride. So we (counselors) have clean uniforms and the nurse has clean uniform and they (students) can shower and dress and just feel good about their day. It feels good to come in and have a hot shower and put on a clean uniform and learn.

All of the counselors shared their views on the benefit of having effective communication with families as a strategy to identify potential traumatization. This strategy was oriented specifically toward social justice advocacy because the school counselors' adherence to advocacy guidelines strengthens their ability and positioning among their stakeholders (ASCA, 2012). Possessing stronger positioning offers opportunities for greater access, harmonious environments, and equitable programming (Trusty & Brown, 2005). Additionally, because families from low-SES are traditionally without a voice within institutions, the school counselor as a social justice advocate can identify and serve as a voice for families with greatest risk exposure (ASCA, 2012; Martin, 2002).

The counselors in the present study indicated that remaining connected with the families provided insight into the complexity of the issues children face in their homes. Terri stated:

We have family intakes and do a home visits before they (kindergarteners) even come to school. So we go into the homes, they (parents) sign a contract of excellence and then we talk to them about...What hurdles do you have in your family right now? Where do you see your kid in 20 years? How can we help you get there? What are you gonna do to help your kid get there?

Remaining connected with families also provided opportunities for the counselors to assess for high levels of lethality that might exist in students' homes. This is necessary to implement effective school-based interventions, strategies, and referrals (ASCA, 2012). Terri described an incident that might have resulted in the serious injury of one of her students. She stated, "his mom threw herself out of a car because of an abusive situation; he (student) threw himself out of the car to protect her (mom) while it was moving." Terri stated that the student was referred to counseling because he began acting out in school and demonstrating aggressive behaviors toward his peers. She stated,

it wasn't like he was a bad kid… it was more like… we knew something was going on in the home that needed to be addressed…so we thought he needed some help because he appeared angry all the time.

She indicated that the student's parent was able to offer information used to address his aggressive behaviors and prompt the school- based clinician to conduct therapy and establish interventions to help him cope with anger.

Systemic Trauma

Advocacy is defined as the "act of arguing in favor of a particular idea, cause, or policy on one's behalf" (Coyne & Cook, 2004, p. 290). Recent literature reveals that individuals with mental health issues could benefit from social justice advocacy (Lewis & Bradley, 2000; Toporek, Gerstein, Fouad, Roysircar, & Isreal, 2006a). School counselors who work in high poverty schools face two challenges to traditional school counseling service delivery (Coyne & Cook, 2004). First, school counselors could discover that students suffer institutional sources of oppression that might contribute to their problems. Second, the

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traditional focus on helping students adapt to the school environment is indefensible when the environment is unjust in the treatment of students (Coyne & Cook, 2004).

Many of the counselors shared concerns about the impact of systemic factors that contributed to student distress. A few of the counselors discussed the presence of gang activity in communities as a systemic factor. Mark indicated that in the community where his school is located, gangs and drug use is a major concern. He stated, "Oh wow, the environment they live in. There is a lot of gang activity in my school area and we have a lot of folks who are dependent on drugs. It's a lot." Rebecca stated that,

"when you're looking at a rural community like this… it is really easy to build unseen meth labs, you know… to put it simply. So there's a high drug risk."

Rebecca expressed concerns about what she described as racial and ethnic "dogma" that produces an environment of hostility and violence in her school:

Honestly I would say some of the culture…you are looking at here are mostly whites…and this is not always a positive thing. Some of my kids come to school spouting a whole lot of white supremacy dogma because that's what their families hold on to… because they have nothing else. I think, that this kind of mindset that often breeds… it just breeds violence… it just does. And I say that about kids that I really like…and it hurts me to say this… that but it's true.

The ASCA (2012) National Model provides guidelines that reflect an appropriate response to systemic inequality in schools by encouraging school counselors to promote positive, systemic change in schools. (p. 24-25). The literature on systemic trauma reveals that ignoring the dynamics associated with systemic trauma might produce chronic and acute threats to students' social inclusion, belonging, and identity for children (Kisiel, Fehrenbach, Liang, Stolbach, McClelland, Griffin, & Spinazzola, 2014; Montenegro, & Matz, 2015).

A few counselors discussed how school environments perpetuated inequality and inflexibility. Many counselors discussed how inflexibility created conflict between the staff and the students (Coyne & Cook, 2004). Many also expressed that their school environments were disempowering to students and served to discourage positive and productive learning environments. Rebecca stated, "It has to do with administration … I think certain attitudes breed a certain amount of school anxiety and then that leads to behaviors that we don't want sometimes." Empowerment is a necessary component to advance social justice. The counselors expressed the value of strengthening the school culture to eliminate systemic trauma for students. All of the counselors responded "yes" to the question, "Do you feel that the school environment has implications on student behaviors?" Cynthia stated:

Yes, I can see that especially with the younger teachers. They haven't worked long enough I guess. If a student doesn't feel loved and they can tell. And, then they know that you (the educator) really don't care. Just like their parents are giving them the message that they really don't care. If we're not inviting at school and try to make them feel comfortable, then we're not going to make progress.

Social justice advocacy is the embodiment of powerful relationships that incorporate visions of a just society. All of the counselors discussed the importance of creating environments that support the cultivation of powerful relationships among school personnel and students (Cohen, Vega, & Watson,

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2013; Toporek, Gerstein, Fouad, Roysircar, & Isreal, 2006a). Many of the counselors discussed how they felt compelled to observe their school environments to become aware of the attitudes and perceptions of school personnel. Many of the counselors felt this was necessary to create welcoming and less stress provoking environments for students who have experienced trauma. Assessing the school environments is consistent with one of the major tenets of ecological school counseling that implies that "meaning" is both constructed and experienced within schools and their subsystems (McMahon, Mason, Daluga-Guenther, & Ruiz, 2014).

Nancy was concerned with the impact of the "dismissive" behaviors perpetrated by teachers and administrators and how her students might apply "meaning" to comments and behaviors of school leaders:

If a teacher or an administrator have already dismissed or written a child off, they have no motivation to do better. If I (teacher/administrator) dismiss you (student) or write you (student) off ……then the children are going to behave poorly.

Inflexibility in providing consequences was also discussed. Nancy stated:

If a child knows that (they're) going to be disciplined for one mistake that (they) may make 35 minutes at the beginning of the day…in (their) minds the rest of the day is a loss. If we create a culture and a climate of loving correction, accepting and learning and using mistakes ….to make us better than I think that will kind of fuel the child's inner motivation and their ability to try to be their best.

Conducting informal observations were discussed as a strategy for monitoring student and staff interactions.

Aisha expressed her challenges related to the interactions that she observed between students and teachers in her school that she felt re-traumatized students:

I have seen reactions from certain teachers that demonstrate absolutely no empathy. Because the needs are so great, we must meet the students where they are…. I have a kid who is traumatized at home and is also traumatized at school because of the teacher's reaction to them. When the child comes from a horrible home environment, he has no control over his situation and the reaction of the teachers makes life more challenging for him.

The purpose of the current study was to understand how school counselors advocate for students affected by trauma in high poverty schools. The following themes emerged during this study: complex and systemic trauma. These themes guided implications for practice, theory, policy and advocacy and future research. Additionally, as a result of this qualitative study, an Ecological and Social Justice (ESJ) school counseling model for school counseling in high poverty elementary schools was introduced as a guide for elementary school counselors serving in high poverty elementary schools.

Discussion

Complex trauma is described as the exposure to multiple and chronic interpersonal traumatic experiences that typically occur within the family and often begin in early childhood (O'Neill, Guenette, & Kitchenham, 2010). Although the literature suggests that the significance of child abuse on child adjustment

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to the school environment has not been studied extensively, abuse and neglect is shown to have negative consequences for educators and children (O'Neill, Guenette, & Kitchenham, 2010).

The counselors in the present study identified fear, hyperactivity, aggression, depression, and self-harming behaviors among their students. The symptoms they described were the result of exposure to multiple and chronic interpersonal traumatic experiences. Exposure to cumulative risk factors is also characterized by marked impairment of academic and developmental functioning. Because risk exposure is more likely among students in high poverty schools, counselors working in these settings would benefit from professional development and certification related to trauma informed treatment. The counselors in the present study discussed the value of identifying and providing services to students affected by traumatic experiences; however, none of the counselors have pursued certification or training in trauma informed treatment in children.

Implications

The present study contributes to the knowledge about elementary school counselors' perceptions regarding the effects of poverty, importance of advocacy, and school-based mental health programs. The variables considered in this study are easily replicated for future research. As stated earlier, there is limited research regarding ecological school counseling. More specifically, research is sparse related to school counselors serving students from low-SES with mental health issues from an ecological perspective. Due to limited research, it is difficult to understand how to meet the needs of students impacted by adverse environmental conditions that have resulted in their impaired academic and emotional functioning. Future research considerations might include an exploration of the concept of school counseling along with Systemic Trauma Theory. Because there exists a large body of literature that addresses trauma from an individual perspective, obtaining additional knowledge related to the consequences of trauma from a systems perspective could be useful for school counselors as social justice advocates concerned with eliminating systemic barriers for children from abusive environments (Briere & Scott, 2015; Corrigan & Hull, 2015; Hudspeth, 2015)

A study of systemic trauma might serve to advance research related to school improvement from an ecological school counseling perspective. Engaging in further research might be valuable to the process of implementing protocols for students with a history of trauma.

McMahon et al. (2014) expanded on the ecological framework established by Coyne and Cook (2004) by offering an ecological counseling model specific to professional school counselors. The constructs of the Ecological School Counseling Model could be utilized as a framework to create evaluation plans and instruments designed to assess school environments in high poverty schools for evidence of possible practices that may result in developmental delays and contribute to the obstruction of their academic and social advancement (Kira, Lewandowski, Chiodo, & Ibrahim, 2014).

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Chapter 83
Positive Psychological Interventions and Information and Communication Technologies

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ABSTRACT

Since the advent of Positive Psychology there has been a connection between positive psychological interventions (PPIs) and the digital world. The development of PPIs, especially those delivered online, is becoming widespread within and outside the scientific field. Therefore, there is currently a need for accurate information that provides a critical view of all the interventions currently available. This chapter presents an updated review of the relationship between these two fields (PPIs and technologies), and discusses relevant considerations that should be taken into account when technologies are used to deliver PPIs, as well as the elements that can moderate their effectiveness. The final aim of the chapter is to provide readers with basic tools to make critical judgments about PPIs delivered via a technological format.

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INTRODUCTION

Positive Psychological Interventions (PPIs) can be defined as interventions or intentional activities designed to cultivate positive feelings, cognitions and behaviours (Sin & Lyubomirsky, 2009). Since the establishment of the basic principles and objectives of Positive Psychology, increasing and relevant knowledge, both empirical and theoretical, has been produced in this field, demonstrating the efficacy of these interventions for improving well-being and reducing clinical symptomatology (specially depressive). Some examples of this idea come from the two meta-analyses carried out by Sin and Lyubomirsky (2009) and Bolier, Haverman, Westerhof, Riper, Smit and Bohlmeijer (2013). In the latter, the authors concluded that most of the analysed PPIs had a self-applied format, sometimes with face-to-face support, but most were delivered online (Bolier et al., 2013).

The connection between PPIs and Information and Communication Technologies (ICTs), especially with the development of the World Wide Web (WWW), has been present since their inception. Positive Psychology emerged at the same time as the expansion of the digital era; from the beginning it has taken advantage of many of the possibilities offered by ICTs, especially the Internet. In fact, one of the first studies to assess the efficacy of different PPIs was carried out over the Internet by recruiting a sample of people who had visited the webpage https://www.authentichappiness.sas.upenn.edu/ (Seligman, Steen, Park & Peterson, 2005).

Most of PPIs are brief and simple exercises or activities that can be implemented as part of one's daily routine, and where both commitment and daily practice become essential elements of their efficacy (Sheldon & Lyubomirsky, 2006). ICTs (especially mobile devices with Internet access) are being introduced exponentially in our daily lives. They can be very useful tools for designing, introducing and managing the intervention naturally as part of a routine, taking advantage of the growing number of innovative resources they offer, which can make the intervention more attractive and flexible. Moreover, the Internet provides accessibility that allows that these interventions reach a population that otherwise would not have access to them (Andersson, 2009; Andrews, Cuijpers, Craske, McEvoy & Titov, 2010; Bolier, et al., 2014). The current technological advances not only offer a new way to provide treatment, they also open up new possibilities for assessment and intervention. For example, sensorisation systems, currently available through mobile technologies, allow to monitor an intervention, patient's parameters, and environmental indicators, with a degree of ecological validity not previously achieved in the field of Psychology (where the main sources of information were self-reports and retrospective information). There are also examples of the potential benefits of other ICTs. Virtual Reality and Augmented Reality offer high-quality simulations of environments at an increasingly affordable cost, making them powerful tools for therapeutic change. Video games are also presented as innovative learning methods aimed at improving adherence and motivational components, both important variables for increasing treatment efficiency and efficacy. It is not surprising that the potential of ICTs has promoted most developed countries to consider them as the basis for health-care solutions.

This work aims to further examine and describe the associations between PPIs and ICTs. First, the current definitions of the relationships between the two fields will be clarified, and a summary of the PPIs using ICTs for which scientific evidence exists, including several technological applications developed by our group, will be described. Then, relevant considerations to be taken into account when technologies are used to deliver PPIs, as well as the elements that can moderate their effectiveness and their relationship with technologies will be considered. Finally, information from existing scientific literature regarding who consumes technology-based PPIs will be provided.

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RELATIONSHIP BETWEEN PPIs AND ICTs: DEFINITIONS

The application of technology to the field of PPIs has led to the emergence of different terms and definitions that try to capture this interaction. The terms are summarised below:

- **Online Psychological Interventions (OPIs):** These are defined by Ritterband, Gonder-Frederock, Cox, Clifton, West and Borowitz (2003) as interventions focused on behavioural aspects designed to modify and establish certain behaviours and subsequent improvement in symptomatology. Generally, they refer to customisable and interactive interventions that fit the individual's own pace and use the multimedia format offered by the Internet.
- **Technological Behavioural Interventions (TBIs):** Mohr, Burns, Schueller, and Klinkman (2013) proposed this term for technological apps specifically designed to intervene on behavioural, cognitive and emotional aspects, in order to improve physical and psychological health and well-being. TBIs use different devices and technological developments (for example, smartphones, computers, virtual reality, videogames, social networks) for self-assessment, monitoring, psychoeducation, goal setting, skills training, and feedback among others.
- **Positive Technologies (PTs):** This term was proposed by Botella, Riva, Gaggioli, Wiederhold, Alcañiz and Baños (2012) and Riva, Baños, Botella, Wiederhold and Gaggioli (2012) to refer to the scientific and applied approach focused on the study of the use of technology to improve the quality of personal experiences. It is a perspective that seeks to promote the use of technology to foster personal growth and the development of human virtues and strengths, thus contributing to social and cultural development.

As can be seen, there are overlaps between these definitions. Some definitions are more general than others, emphasising either the intervention or the technology used. In this chapter, the focus will be on the definition of PTs proposed by Botella et al. (2012a) and Riva et al. (2012), as it is the only definition that establishes a classification of technologies based on conceptualisations of subjective, psychological and social well-being (Diener, 1984; Kahneman, Diener & Schwarz, 1999; Ryff, 1989; Keyes, 1998; Ryan, Huta & Deci, 2008). According to Botella et al. (2012a), each level of wellbeing includes different goals (hedonic level: emotion regulation; eudaimonic level: flow and presence; and social level: community aims and social connections), and different technological applications can be designed to influence each level. Examples of hedonic PTs would be those that induce a positive and enjoyable experience, such as a virtual reality environment of joy/relax induction (e.g. Alcañiz, Baños, Botella & Rey, 2003; Baños et al., 2004, 2006). Eudaimonic PTs include technologies that help people achieve experiences focused on the search for a full and meaningful life (e.g., Botella et al., 2012b, Mira et al., 2012b). Social PTs include technologies that support and enhance communication and cooperation among individuals, groups and organisations (e.g., Botella et al., 2011).

PPIs AND ICTs

As previously mentioned, in recent years there has been a significant rise in the number of interventions aimed at increasing positive emotions, behaviours and thoughts that contribute to improved well-being and happiness. Currently, a set of PPIs has already shown efficacy in increasing well-being and reducing

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depressive symptoms. Despite these advances, it is still necessary to carry out further rigorous work, especially regarding the effectiveness of PPIs (Bolier et al., 2013). This section first summarises those PPIs that have received greater empirical evidence. For each type of PPI, some currently available applications will be listed as examples. Then, technological applications developed by our group, as well as other PTs with evidence-based effectiveness, will be described.

1. PPIs

- **Savouring:** this activity is designed to intensify and prolong pleasurable experiences (Peterson, 2006). Several studies have shown the effectiveness of savouring in increasing positive mood and happiness (Bryant, 2003). The savouring intervention can be used with a sensory experience, such as eating an ice cream or feeling the sunshine on one's face, and also with memories. The variants within this intervention can be grouped into two categories: 1) the ones that teach and promote the practice of savouring in general; and 2) the ones that teach a specific savouring skill and promote its use. The first group usually includes asking the person to stop every day for at least 2-3 minutes and direct his/her attention to the present moment, focusing on the details and trying to prolong the pleasure of the activity as much as possible. For example, in the case of drinking hot chocolate, the person might focus on the taste, texture or temperature, then on the different sensations experienced when drinking it, and then on the mixture of flavours it leaves in the mouth. This same strategy can be applied at different times or in different situations, for example, walking to work or sitting on the bus, taking the same trip one takes every day. By contrast, the second group involves more structured training, so that people remember pleasant aspects of their lives, for example, being in a specific time and scenario, remembering what the temperature was, who they were with, or why it was a good time. In this case, participants use savouring techniques anchored in positive reminiscence work in order to re-edit a past moment and re-experience an event that has already occurred or even discover new positive feelings about it. The "Live Happy" (Parks, Della Porta, Pierce, Zilca, & Lyubomirsky, 2012) application is an example of transferring several PPIs to an online format; the app includes two savouring exercises. "Remembering happy days" is focused on creating a personal photo album to remember good times, where the user must also write a short description of that special moment. Thus, the exercise uses savouring while activating past experiences and recovering the original emotions and feelings. In the other exercise, "Savouring the moment", the user must take a picture of something beautiful and meaningful and write a brief paragraph that describes the value of the image and what he/she notices when watching it.
- **Gratitude:** This is one of the most used PPIs and with more empirical evidence compared to other PPIs (Bolier et al., 2013; Parks & Biswas-Diener, 2013). It involves doing activities to cultivate gratitude, either reflexively and following structured guidelines, or by carrying out a specific activity. These interventions have proved their effectiveness in increasing well-being, positive affect and physical health, and in reducing negative symptoms. However, literature has also pointed out the need for caution when prescribing this type of intervention. For example, Seligman, Steen, Parks and Peterson (2005) showed the usefulness of gratitude activities in people suffering from mild to moderate depression. In addition, Sergeant and Mongrain (2011) examined the effects of a gratitude intervention in depressed people with different styles of functioning (e.g., people with a greater need for support from others, or people with a self-critical functioning style). They found

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that people with a greater need for support and stronger feelings of helplessness about their goals did not benefit from the intervention, or, in some cases, even worsened when they did the activity.

One of the strategies focusing on a "more reflective" gratitude is the "Journal of gratitude". In this case, participants are asked to record once a week, for several weeks, at least five things for which they are grateful (Emmons & McCullough, 2003; Lyubomirsky, Sheldon & Schkade, 2005). Another exercise to cultivate gratitude is the intervention designed by Seligman and his team (Seligman et al., 2005), entitled "Three blessings". Every night, participants should think for 10 minutes and write down in a journal three events about which they feel grateful and why. This exercise is not designed to record important or unusual events, but rather to focus on those small things that are part of their daily routine and make them feel good. Unlike the "Journal of gratitude", which deals with general functioning areas such as family, friends, work, studies, etc., the "Three Blessings" exercise focuses on situations that occur throughout the day. Regarding implementing specific activities, one example is "The visit of Gratitude". In this case, the participant is asked to write a letter of appreciation to someone about some detail or event that he/she has not had a chance to thank that person for, listing the details and/or situations that reflect the feeling of gratitude. Some authors recommend delivering this letter (Seligman et al., 2005), while others say it is not necessary (Lyubomirsky, Dickerhoof, Boehm & Sheldon, 2011). Regarding online interventions using this technique, one example is "Day to Day" (https://intellicare.cbits.northwestern.edu/#apps), an intervention delivered over smartphones that includes among its activities an exercise designed to cultivate gratitude. For seven days the user receives on his/her phone a simple exercise that must be done throughout the day. In addition, short simple messages explaining the importance of this exercise are sent, and the person is encouraged to follow the received guidelines. "Day to Day" also includes other exercises to increase connectedness, the frequency of pleasant moments, flexibility of thinking and problem solving. Each exercise lasts for seven days and maintains the same structure: at the beginning of the day, the user receives the activity to be done, brief messages of explanation and reinforcement are sent, the user is asked if he/she thinks the prescribed exercise will be positive for him/her, and at the end of the seventh day, two short questionnaires assessing levels of depression and anxiety are administered.

The "Live Happy" application also includes gratitude exercises. In the "Gratitude Journal" exercise, the user records something that happened during the day and why he/she is grateful. In another version of the exercise, the person chooses somebody to whom he/she wants to express gratitude.

- **Kindness**: In any of their variants, in general all these PPIs are aimed at getting the person involved to perform acts of kindness in his/her daily activities. The intention is to produce an interaction between the feelings aroused by doing something for someone and the feeling of gratitude, thus generating a reciprocity between giving and receiving that can lead to increased levels of happiness and well-being. An example of this procedure is the one developed by Lyubomirsky, Tkach and Sheldon (2004), in which the person must commit to five daily acts of kindness for 6 weeks. Another variant of interventions to foster kindness, although based on pro-social behaviour, proposes spending money on another person (Dunn, Aknin, & Norton, 2008). Regarding the number of acts of kindness, the important thing is that the person strives to do more actions of this kind than usual during his/her daily routine. "Live Happy" also includes a diary for recording acts of kindness and nurturing kindness in daily routines through making contact with a friend, relative, etc. With this exercise, "Live Happy" seeks to improve the quality of the user's social interactions.

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- **Promoting Positive Social Relationships:** This PPI includes interventions focused on increasing social contacts and the quality of the interactions. One of the PPIs designed to meet this goal is "Respond actively and constructively" (Gable, Reis, Impett & Asher, 2004), which aims to train the user to respond actively and constructively to good things that happen and/or that someone is sharing with him/her. The user is asked to try to respond with happiness and genuine interest when asking about the event or situation. The purpose of the intervention is to transform neutral (or negative) styles of social interaction into positive interactions and generate new positive social interactions. These new interactions can range from a simple greeting in the morning when encountering someone to fostering genuine relationships with people with whom there is a deep bond of friendship. An example of PPI that includes interventions of this type is one of the exercises proposed by the "Day to Day" app, previously mentioned. In this case, for a period of one week the user receives a daily pattern of positive social interactions to perform. The app tells what, how and how many interactions should be performed every day. The exercise is designed to increase social connectivity and improve the quality of the connections by strengthening ties with close links (e.g., friends) and with people with no bonds or distant links (e.g., salesman, etc.).
- **Search for Meaning:** These interventions help a person build meaning and goals in life that contribute to happiness. An example of these interventions is the "Best Possible Self". This technique is based on the work of King (2001), who proposed the therapeutic activity of writing about future objectives in life in order to achieve greater awareness and define life goals. The exercise requires the individual to write about a future where he/she has worked hard and, as a result, achieved all of his/her objectives and developed his/her full potential. Then, the assignment is to visualise this version of the self at least three minutes a day for a week (Sheldon & Lyubomirsky, 2006).

A similar exercise for building meaning is the "Summary of Life", proposed by Seligman, Rashid and Parks (2006). In this case, the person is prompted to write one or two pages reflecting how he/she expects to live day to day, and think about whether he/she can imagine actively working to achieve the objectives described in the narrative.

As we have seen, in general PPIs that promote the construction and search for meaning have narrative content. However, a study conducted by Lyubomirsky, Sousa and Dickerhoof (2006) warns of the differences in working on positive and negative material to generate increases in emotional well-being. When working with the memory of past experiences, it is preferable to work on the negative material analytically, using questions (e.g., why, how) that will lead to its restructuring. In these cases, the construction of written or oral narratives is very useful, as they involve a systematic, step-by-step process, providing coherence and an explanation for the negative event. The positive material, however, should be worked on without this type of analysis, without trying to make sense of it through written or oral narratives. The repetitive, circular and disorganised nature of experiences that "presumably" remains when remembering the event in private would be more beneficial to increasing well-being, as it would lead to reliving, savouring and capitalising on the experience (Langston, 1994; Quoidbach, Berry, Hansenne & Mikolajczak, 2010). This type of intervention is currently spreading, and there are numerous studies that evaluate this exercise in different clinical and non-clinical populations (Lyubomirsky et al., 2011; Meevissen, Peters & Alberts, 2011; Peters, Meevissen, & Hanssen, 2013). An example of this type of intervention is "Live Happy", which includes an exercise based on the "Best Possible Self" designed to promote optimism.

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- **Personal Strengths:** Although there are some variations in their applications, in general the activities associated with this PPI attempt to identify, use and develop a personal strength. From the perspective of Seligman (2002), a personal strength is a positive personality trait with the following characteristics: the feeling that it is something one owns, a sense of excitement about showing it off, a fast learning curve when practicing it for the first time, a longing to find new ways to use it, the inability to prevent its use, a more energetic feeling when using it, the creation and pursuit of personal projects that revolve around it, and a feeling of joy, excitement and even ecstasy when using it (Seligman, 2002). It is possible to identify one's personal strengths through the VIA (Values In Action) Strengths Inventory (Peterson & Park, 2009), which evaluates 24 strengths grouped into six virtues: "wisdom and knowledge", "courage", "humanity and love" "justice", "temperance", and "transcendence". Usually interventions on personal strengths ask people to identify their 5 main strengths, and then they have to exercise one or more of them in a new way for a week, whether at work, at home or during leisure time. Several important issues should be considered in the training: to clearly define the way the located strength must be practiced, the individual must record how he/she felt before, during and after doing it. It is also important that the individual assess whether the activity was stimulating and easy, whether time passed quickly, and whether he/she planned to repeat the activity. Thus far we have described the PPIs most used and with the most empirical evidence, some of which have been adapted to be delivered through the Internet and mobile devices. Next we will focus on interventions that were initially designed to be applied through ICTs.

2. Positive Technologies to Deliver PPIs

Below, we present a brief description of various positive technologies developed by our team (EARTH of Well-being, Butler system, and Smiling is fun), as well as other applications with evidence-based effectiveness in improving well-being.

- **EARTH of Well-Being (Baños et al., 2014):** This is a self-applied system that includes three modules with activities for working on different aspects of positive affect and hedonic and eudaimonic well-being. A module called "Well-being Park" includes two virtual reality environments and is designed to induce two emotional states (joy and relaxation) by using widely validated emotional induction methods (Lang, Bradley, & Cuthbert, 1995; Velten, 1968). Another module, "Well-being in Nature", also includes two virtual reality environments and different PPIs activities to induce joy and relaxation (savouring, slow breathing and positive reminiscence). The third and final module, the "Book of Life", works like a personal diary and includes 16 exercises focused on the past or the future. The former are directed at recalling past experiences related to different topics (e.g., "A happy moment", "The best place", "Important people", "An achievement", "Courage", "Optimism", "Gratitude", and "Passion"), and the latter involve defining objectives and positive future goals (e.g., in relation to oneself, family, friends, work, and life in general). All exercises have the same structure: a general instruction that explains the overall objective of the exercise and a series of secondary guidelines to aid in writing the narrative. In addition, the user can add multimedia resources (videos, pictures and music) to each chapter. Some of the exercises proposed have been validated in different populations: students (Baños et al, 2014.), people with adjustment disorders (Andreu-Mateu et al., 2012), cancer patients (Baños et al., 2014), and older

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adults (Baños et al., 2012), among others. EARTH of Well-being was initially developed for the Mars-500 project as a self-guided system to generate positive experiences for astronauts during a simulated Mars mission (Botella, Baños, Etchemendy, García-Palacios & Alcañiz, submitted), and it was then tested with Spanish university students. Both studies showed that the system was effective in increasing positive mood and decreasing negative emotions (Farfallini, 2014).

- **BUTLER System (Botella et al., 2011):** This is a positive technology (PT) designed to influence social well-being, but it also has resources aimed at promoting hedonic and eudaimonic well-being. Butler is a social and e-health technological platform based on web technology and virtual reality. It is aimed mainly toward older adults with no experience with ICTs and includes tools to support formal and informal caregivers, families, etc. Its main objectives are to improve users' emotional state, empower the social support network through the use of ICTs, and provide activities that help improve quality of life of the older population (Botella, et al., 2011). The system was designed based on both the Active Aging and Positive Psychology perspectives. Butler's structure includes three types of users (older adults, formal caregivers and relatives/friends of an older adult), and the structure has tools for each of these profiles. In addition, two ways of functioning have been generated (leisure and professional), but they share the same users flow (the older adults). The two types of functioning are described below:
  - **Butler-Leisure** (www.mundomayordomo.com)**:** This function offers tools for older adults and their relatives/friends, and is designed to improve the social use of the platform. Butler-Leisure is a completely open access platform that can be used from any computer with Internet access and works as any e-social network currently available on the Internet (e.g., Facebook, Twitter), where each user obtains and administers his/her own account and enjoys the system. Butler-Leisure offers an e-mailbox, videoconference, a search for friends in the Butler net, and the Book of Life (blog) where the users can write and later share their writing with friends from Butler net. There is also a digital library with multimedia elements (photos, music, videos) and easy access to the Internet with favourites links and access to two virtual environments to generate positive emotions (joy and relaxation).
  - **Butler-Clinical:** This function includes the three user profiles above mentioned (older adults, formal caregivers and family or friends), and each user profile has different tools available. Its main feature is that the caregiver is the main administrator of the e-social and e-health tools. Therefore, Butler-Clinical is not an open platform like Butler-Leisure, as a caregiver must generate access to this type of use. Regarding older adult users, the social tools are the same as in Butler-Leisure. In the case of e-health tools, Butler-Clinical adds the Therapeutic Book of Life, which applies a training program of specific positive events from the autobiographical memory, based on the Review of Life Therapy (Haight & Webster, 1995; Serrano, Latorre, Gatz, & Montañez, 2004). For formal caregivers, the main goal of Butler-Clinical is to facilitate and optimise professional work through daily mood assessment tools, as well as a database with all the user's daily emotional information. In addition, an alarm system is included to send a warning to the professional in charge when the user's score reaches a certain clinical level. The system also restricts user access to social or clinical tools when this is therapeutically recommended. Last, this option allows older adults to share their book of life with relatives and friends and contact them using the e-mail and videoconference tools.

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An interdisciplinary team consisting of psychologists, engineers and programmers monitored the development of Butler. The function has been tested in different seniors' profiles in different contexts. All the studies found positive results regarding efficacy in increasing positive mood states and decreasing negative ones, and it also has shown a high degree of acceptance (satisfaction, usefulness, difficulty of use) in older adult users (Baños et al., 2012, Botella et al., 2009; Castilla et al., 2011; Etchemendy et al., 2011, Preschl et al., 2012).

- **Smiling is Fun (Mira, 2014):** This is another example of a eudaimonic technological development. It is an Internet-based, multimedia (video, image, etc.) interactive programme that allows the individual to learn and practice adaptive ways to cope with depressive symptoms and confront daily problems. *Smiling is fun* trains a range of skills based on the Positive Psychology approach and seeks to break the vicious cycle of stress, isolation, depressive or anxiety symptoms, poor coping, and poor functioning (self-efficacy). Specifically, the programme was designed to promote activity and positive emotions, enhance social support, and work on meaningful goals and values. It has several modules complemented by transversal tools that accompany the user throughout implementation. These tools provide useful feedback that is important for participants' motivation and reinforcement:
  - The "Activity Report" for self-monitoring provides feedback to users, showing them that their mood is related to the activities performed, and the benefits of being active. First, users are asked about their coping ability, mood state and stress level on a scale from 0 to 10. Then, they are asked about their degree of satisfaction with each activity performed during the past 24 hours and to what extent these activities are related to their own goals and values in life. Furthermore, users are asked about the percentage of the day that they have been active or involved in their lives for the past 24 hours.
  - The "Calendar" allows users to know what step they are on throughout the program, and provides information about homework and tasks already completed, reminding users about those still outstanding. Furthermore, the "Calendar" shows which days the participant has filled in the activity report.
  - "How am I?" offers a set of graphs and feedback to visualise the user's progress. It shows the evolution of information about activity level, emotional distress (anxiety and sadness), positive emotionality (active, enthusiastic, energetic, etc.) and negative emotionality (angry, fearful, stressed, tense, moody, etc.). With this tool, participants can graphically see the relationship between their activity level, mood state, stress and coping ability.

The system has been tested in different studies with different sample profiles (Botella et al., 2012b; Mira, et al., 2012a; Mira 2014). Results showed that *Smiling is fun* is effective in improving clinical status and decreasing depressive symptomatology. Currently, a large-scale study designed to compare the effectiveness of *Smiling is fun* with treatment as usual is in progress. Thus far, the results obtained are promising.

- **Live Happy:** We have commented about this technological application in the previous section. It is one of the few evidence-based applications for mobile devices, and its use has been shown to improve users' happiness (Parks et al., 2012). The application was developed using the research approaches of Lyubomirsky, and it includes 8 interventions, all of which have been shown in

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previous studies to be effective in improving well-being and reducing depressive symptoms: 1) savouring, 2) reminiscence, 3) journal of kindness, 4) strengthening social relations, 5) evaluation and monitoring of objectives, 6) journal of gratitude, 7) expressing gratitude and 8) optimistic thinking.

- **Psyfit.nl (Bolier, et al., 2013):** A completely self-applied online intervention with no support from a therapist, developed to improve well-being and reduce depressive symptoms. The intervention was designed based on the principles of Positive Psychology, focusing on positive experiences, personal strengths and skills rather than mental health problems and deficiencies. It includes 6 modules, each with exercises and evidence-based content: setting life goals, positive emotions, positive relationships, mindfulness, optimistic thinking and mastery of life. Each module includes 4 lessons to be taught once a week, and each lesson provides some brief psycho-education and an exercise. In addition, Psyfit.nl includes self-administered questionnaires for monitoring mood, levels of happiness, and well-being, as well as videos of experts, a personal action plan, and an online community where participants can share their experiences.
- **Happiness Coach (Vansteenwegen, 2011):** Is an intervention developed following the same pattern as Psyfit.nl. In this case, the programme uses a subway ride as a metaphor for the interventions. A map emulates different subway tracks and indicates different strategies to improve happiness levels given the different objectives and progress. The programme includes information, advice and interactive exercises to generate behavioural changes.
- **Better Days (Drozd, Mork, Nielsen, Raeder, Bjokli, 2014):** Is an online intervention designed to be used through the mobile phone and aimed at improving daily lives and well-being. It consists of 13 sessions lasting 10 minutes each distributed over 4 weeks. Each session contains some initial psycho-education and an exercise. The available exercises include: gratitude, acts of kindness, optimism, coping strategies, living in the present moment, and strengths. Recently, a controlled study showed an increase in the level of happiness of its users (Drozd et al., 2014).

As described above, different PPIs have shown their effectiveness in improving well-being. In addition, due to the simplicity and ease of use of these interventions, the vast majority have been adapted to a technological format. At present, there is a broad range of applications developed and available on the network that are based on the precepts of Positive Psychology. However, not all technology-based PPIs rely on empirical evidence or have been tested to evaluate effectiveness. For this reason, it is important to mention the Beacon website (www.beacon.anu.edu.au), which offers rigorous assessment by experts and researchers, various online interventions, and apps developed for different physical and emotional disorders. For each intervention, there is a brief description, login information and a summary of the accumulated scientific evidence. Although the Positive Psychology category includes few interventions, Beacon is a good example and tool for the dissemination and use of ICT-based PPIs.

Another recent initiative worth mentioning is the *Center for behavioral intervention technologies* (Cbits; webpage http://www.cbits.northwestern.edu/), opened in 2011 and directed by David Mohr (Northwestern University Feinberg School of Medicine, Chicago). The purpose of this institute, formed by an interdisciplinary team of researchers (computer experts, psychologists, engineers, doctors, etc.), is to develop technological applications that promote behavioural changes in order to improve physical, mental and emotional health. Currently, it has technological developments for smartphones, virtual reality, websites, or phone therapy. The practical use of Cbits is a good example of evidence-based technological

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developments. Its applications can be downloaded from the Internet, and they also give access to scientific studies that test the effectiveness of each system developed (https://intellicare.cbits.northwestern.edu/#apps). Specifically related to PPIs, "Day to day", "Aspire" or "My mantra" are worth mentioning.

SOME CONSIDERATIONS ON PPIs, EFFECTIVENESS, AND ICTs

As mentioned earlier, the connection between PPIs and ICTs offers a number of benefits and improvements that help to reinforce the spread of PPIs. ICTs are considered powerful resources in the field of PPIs: the progress made in the digital era makes it possible to detect, evaluate, investigate, monitor and intervene in a way that had never been seen before in the disciplines that study human behaviour (Miller, 2012). However, PPIs also present difficulties and limitations that must be acknowledged, in order to make an effort to further improve them. Below, some of these difficulties are highlighted.

Motivation and Commitment

Adherence is a key element in the effectiveness and efficiency of any psychological intervention. Lack of motivation, low levels of commitment and dropout rates are some of the main difficulties in any treatment. Unfortunately, online interventions are not exempt from these problems, which may even be greater in this area (Eysenbach, 2005). Studies show that dropout rates that occur with the traditional format are lower than those observed with the online format. If we also consider online interventions that are delivered outside the scientific field, which are not included in the studies, or those that are simply available on the Internet or through mobile applications, the dropout rates are even higher because there is less pressure to stay on task when there is no previous commitment (Christensen, Griffiths, & Farrer, 2009; Parks, 2014). Therefore, this problem is by no means a minor issue, thus justifying the fact that a significant part of the research efforts at the moment are directed to try to resolve it. Some of the resources being used and analysed in order to maintain the person's commitment and adherence are: message reminders, positive reinforcement sent via mobile, daily emails, gamification of the intervention process, the possibility of publishing results in social networks, and frequent feedback on progress. There is a large body of literature about the factors that promote engagement and prevent neglect. However, when it comes to technology-based interventions, it is necessary to learn how to adapt to the connection between the two fields.

According to Rogers (1983), it is important to abandon the naive idea that technological innovations that involve some degree of improvement in efficiency and will be directly adopted by users, and that they will easily obtain more positive results than previous options. Instead, Roger explains that the process of accepting the adoption of improved technology is much more complex, and he proposes five qualities that would influence the adoption rate of an innovation ("comparative advantage", "support", "observability" "complexity" and "experimentation"). Table 1 provides a brief explanation of each of the qualities and its relationship with PPIs. Taking these qualities into account when designing, analysing and selecting a PPI can contribute to solving the problem of the attrition rate, the lack of motivation, and adherence.

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Table 1. Qualities that influence the adoption of an innovation and their relationship with PPIs

Definition by Rogers (1983)	Connection with PPIs
Comparative Advantage: The degree to which an innovation is perceived as better than the idea it replaces. The nature of the innovation will determine the specific type of relative advantage it should have (whether social, economic, political, etc.).	Finding out the opinions of other users regarding the user experience, having a ranking based on the scores given by other users, including videos of experts and participants explaining the advantages of its use, etc. are all aspects that would facilitate this quality.
Compatibility: The degree to which an innovation is perceived as consistent with existing values, past experiences, and needs of potential users. A compatible innovation is the one that is less uncertain for the potential user. In this sense, an innovation can be compatible or incompatible with social values and beliefs, with previous ideas, with needs, and so on.	At these levels it is important to have information on user preferences and whether the intervention is suitable for them. Moreover, given the flexibility offered by current technologies, being able to customise aspects of the intervention would also contribute to this quality.
Observability: The degree to which the results of an innovation are visible to users. The results of some ideas are easily observed and reported by others, while some innovations are difficult to describe.	Giving users constant feedback about their progress, making this information visible through graphs, ratings, messages, etc. helps to make the results of the intervention visible to users.
Complexity: The degree to which an innovation is perceived as relatively difficult to understand and use. Any idea can be located on the complexity-simplicity continuum. Some innovations have a clear meaning to potential users, while others do not. Studies suggest that the complexity of an innovation is negatively related to the rate of adoption.	In this case it is important to consider what PPIs are being prescribed to what user, taking into account their age, degree of immersion in technology, etc. Some online interventions are simple, while others include many more functions. It is not advisable to give a PPI with many options to a person who is not familiar with technology or, conversely, offer something oversimplified to someone with a high technological profile.
Experimentation: Refers to the degree to which an innovation can be experienced on a limited basis. New ideas that can be tested in parts are generally accepted more quickly than innovations that are not visible. In other words, an innovation that can be experienced by prospective users is less uncertain for them and would facilitate its adoption.	Currently there is a widespread dissemination of free or very affordable apps. This aspect helps to promote experimentation.

Rogers, 1983.

Variety and Doses

The vast majority of the PPIs that have shown effectiveness generally come from studies with only one intervention (gratitude, best possible self, etc.). However, the literature suggests that when users practice PPIs outside the scientific field (that is, naturally in the real world context), they prefer to use a wide variety of activities (Parks et al., 2012). In addition to the fact that the implementation of interventions in empirical studies is often disconnected from the users' preferences in a real context, the literature has also indicated that offering variability in interventions has a positive impact on motivation and adherence and increases effectiveness (Parks et al., 2012).

Another element to consider in PPIs is the hedonic adaptation, a phenomenon inherent to almost all positive changes. Along time, an action that once produced an increase in positive emotions and happiness loses its strength until becoming ineffective (Lyubomirsky, 2011). This adaptation also occurs with PPIs. If a person is carrying out only one activity for a long time, it will probably become saturating and boring and, therefore, disable the benefit pursued by the intervention. The literature suggests that one way to deal with hedonic adaptation, either avoiding it or delaying it, is to offer several activities and not just one (Layous & Lyubomirsky, 2012). However, this does not mean that more is always better. A

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recent study shows that when two, four and six interventions were compared, the combination of four interventions showed greater efficacy (Schueller & Parks, 2012).

Another curious aspect related to the intervention doses, but equally relevant, has to do with the time required by PPIs. While scientific studies point to reducing them to the shortest possible time, in the natural context, outside of empirical studies, people spend an average of 1 hour a day on activities aimed at increasing happiness (Parks et al., 2012).

In conclusion, doses and variability are major issues in the effectiveness of PPIs. These factors need to be consider when prescribing a PPI, given that all these minor changes can undermine motivation and adherence, two crucial elements for a PPI to be effective in increasing well-being. These cautions are even more relevant in the context of research, since attempts to highly standardise the procedures and to guarantee internal validity could reduce the effectiveness of a PPI by making them less attractive.

Customising Interventions

It is important for people to perform activities that suit their preferences and profiles. For instance, the study by Schueller (2012) concludes that introverts and extroverts benefited from different interventions. For extroverts, the best results were shown by the "gratitude visit" and "savouring" exercises, while introverts benefited more from the responding actively and constructively and "strengths" interventions and the "three blessings" exercise. Another finding from the same study showed that when participants focused on the "visit of gratitude", whether in person, by mail or by telephone, extraverts benefited most from the visit in person, while this variation was not the best solution for introverts.

In a similar vein, another study also conducted previously by Schueller (2010) investigated whether preferences for some exercises were related to preferences for other exercises. The results showed three preference groups: a group that preferred savouring and responding actively and constructively, another group that favoured three blessings and summary of life, and a third group that preferred the visit of gratitude and strengths. Regarding this grouping, Schueller also found that the participants' preferences were related to a greater probability of completing both the intervention and its matching intervention.

Therefore, it is important to take into account the preferences and adjustment to the interventions. However, again it is imperative to be careful not to oversimplify the findings from the literature and conclude that just because people like to perform a prescribed procedure, the procedure would be sufficient to increase their well-being. The study by Parks et al. (2012), in which participants could choose what activity to perform, showed that the strategies they chose to increase happiness were not necessarily the most effective. For example, two of the most popular activities, "Goal evaluation and tracking" and "Savouring the moment", were not associated with increased happiness and mood. This finding highlights an important issue: individuals' opinions when choosing what is good for them may be wrong. Therefore, deciding which intervention should be prescribed based only on the participant's choice would over-simplify the decision and not lead to more effective results.

The types of mistakes people make when engaging in emotional predictions have been widely demonstrated by theorists who study "Affective Forecasting" (Wilson & Gilbert, 2003). The literature shows that people tend to make mistakes and are not necessarily accurate in predicting the intensity and duration of their emotional responses. Therefore, their decision-making about the activities they can do to increase their levels of happiness and well-being might not be related to reality, especially in people who have difficulties with emotional regulation (Halpern & Arnold, 2008).

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Identified Profiles of Consumers of ICT-Based PPIs

Currently, a PPIs without any technological elements are almost inexistent, the access to interventions is faster, free and very easy. In fact, there are numerous interventions divulgated daily through social networks as Facebook, Twitter, etc. In addition, a large number of studies are realised through calls via Internet that seek people that want to be happier. Nevertheless, there are not enough data about the profile of people who use or seek ICT-based PPIs. This means that samples and data obtained could be biased. So, to identify and analyse the different PPIs consumers' profiles and the effects of interventions is important. In our search we have found some relevant but still few studies addressing this question. Parks et al. (2012) carried out three studies focused in consumers of online interventions. The first one shows the non-homogeneity of the people who use PPIs; two clusters of people were found. The first, "non-distressed", showed lower rates of depression, adequate levels of satisfaction with life, a balance between positive and negative affect, and happiness. The second, "distressed", showed clinical depression rates, low life satisfaction, improper balance of positive-negative affect, and low levels of happiness. The second study was focused on finding out how people increased their levels of happiness and well-being naturally in everyday life, that is, outside of experimental procedures that prescribe who, what, for how long and how often to do the exercise. The results showed that, in a real context, people use between 7 and 8 activities at once, that the hedonic adaptation that is produced in any intervention does not occur until "several months" after beginning an activity, and that the most meaningful activity for them was practiced several times a week and at least one hour a day. That is, there are relevant differences between the procedures being used in the experimental field and spontaneous behaviours that people perform in their daily lives. Finally, the third study, conducted with the Live Happy application and focused on the activities undertaken to increase happiness, showed that in the real world people use, like, and obtain benefits for their mood and happiness by using the same activities that are being used in experimental studies. A variety of preferences were found, as the most preferred activity was "Goal evaluation and tracking", and the least preferred one was the "Acts of kindness journal". Finally, the people who used the application reported a greater increase in well-being.

FUTURE RESEARCH DIRECTIONS

ICTs have much to offer, but the digital world develops and spreads at a much greater rate than the scientific field can keep up with. One of the first consequences involved, which surely cannot be avoided, is that not all the currently available exercises were developed through an evidence-based method. For this reason, it is important to improve the effectiveness of Positive Technology through evidence-based practices as randomized controlled trials in order to discern between "good" and "bad" practices. It is crucial for people (clinicians and users) to have information that allows them to discern between interventions, so they can choose critically which interventions they want to use, knowing whether they are supported by the scientific literature.

On the other hand, the ease and simplicity that characterise PPIs might suggest that any exercise can be effective in increasing these variables. However, this is far from reality. A growing body of literature shows the importance of certain variables that are critical to the effectiveness of these interventions. Some of these variables are: the characteristics of the activity, previous well-being levels, the intervention dose, users' motivation, hedonic adaptation, the match between the activity prescribed and the

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person, personality characteristics, and the technological user profile, among others. For this reason, the effectiveness of PPIs cannot be taken for granted. It is important to further deepen the knowledge about the profiles of people who use PPIs, their daily practices and preferences, in order to promote a rigorous dissemination of positive psychology over the Internet.

CONCLUSION

ICTs are making it possible to redesign the forms, scope and quality of psychological interventions. They offer significant advantages without sacrificing the quality of the intervention, and they allow an accessibility to interventions that was unviable in the traditional format. At the same time, given their simplicity, PPIs are presented as very good candidates to be adapted to and delivered in digital format. This union has led to a great expansion of PPIs in digital format and to different lines of research on the effectiveness of these interventions, the promotion of rigorous and evidence-based practice, and the study of the different factors that contribute to increasing PPIs' effectiveness when delivered digitally.

As a consequence, the number of apps, webpages, or online exercises that "sell happiness" increases exponentially day by day. It should be kept in mind that most PPIs, due to their simplicity, are mainly designed to be self-administered, and ICTs offer a format and advantages that make their use in this area convenient. However, as mentioned above, the technological offer grows so quickly that makes it impossible to ensure the reliability of all its contents and to all its users, and, in fact, a number of applications and exercises currently available were not developed through rigorous studies that show their effectiveness in increasing happiness and well-being.

As stated, Positive Psychology was born during the digital revolution, thus the union between the two fields has been present since its inception. This union certainly will grow and improve in the future. The 21st century represents a new era in which PPIs and technology can interact synergistically. Future technologies allow for constant monitoring, sensing and feedback (at the pace that the user wants) and this one will help to increase the efficacy and effectiveness of PPIs. In addition, future technological strategies (such as artificial intelligence or augmented reality) will be able to provide either new enhanced experiences. These new mixed ICT tools might evolve into experts in "increasing well-being" in all its facets (hedonic, eudaimonic, and social-interpersonal). Nevertheless, given that the expansion and growth of ICT developments will be faster than the psychological scientific evidence, it is necessary to improve and disseminate PPIs with the help of ICTs. But we cannot forget that "not everything works"; "not everything works for everyone" and "not everything works with everything". This "growth with caution" is one of the most important challenges of Positive Technology based in evidence.

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KEY TERMS AND DEFINITIONS

Eudaimonic Positive Technologies: Technologies that help people to achieve experiences focused on the search for a full and meaningful life.

Hedonic Adaptation: Along time, an action that once produced an increase in positive emotions and happiness loses its strength until becoming ineffective.

Hedonic Positive Technologies: Technologies that induce a positive and enjoyable experience, such as a virtual reality environments of joy or relax induction.

Online Positive Psychological Interventions: Customizable and interactive interventions offered by the Internet and focused on behavioural aspects, designed to improve symptomatology.

Positive Psychology Interventions: Interventions or intentional activities designed to cultivate positive feelings, cognitions and behaviours.

Positive Psychology Intervention's Effectiveness Moderators: The different variables that influence on the effectiveness of these interventions such as the characteristics of the activity, personal characteristics of the users, the intervention dose, elements that contribute to motivation, variety, etc.

Positive Technologies: Technologies designed to improve the quality of personal experiences, foster personal growth and develop human virtues and strengths.

Social Positive Technologies: Technologies that support and enhance communication and cooperation among individuals, groups and organizations.

Technological Behavioural Interventions: Technological apps specifically designed to intervene on behavioural, cognitive and emotional aspects, in order to improve physical and psychological health and well-being.

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Chapter 84
Sensory Impairments and Challenges in Ageing

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ABSTRACT

This chapter describes how sensory impairment is often regarded from a medical/disability point of view and its effects on mental health can be poorly recognized. Communication is a key issue for deaf and deaf-blind people and difficulties here underlie developmental, psychological and emotional problems and delay or prevent appropriate assessment and treatment. Sensory related issues are seen as medical problems and as disabilities. 95% of the information about the world around us comes from our sight and hearing. However, the main concerns of visual and hearing affected by the total or partial absence of sight and/or hearing are usually how to live, how to learn and how to communicate. Their difficulties are often as much to do with society's attitudes towards them as with the direct effect of sensory impairment.

INTRODUCTION

The best way to keep something bad from happening is to see it ahead of time... and you can't see it if you refuse to face the possibility." William S. Burroughs

Ageing is the process of becoming older. Ageing can refer to single cells within an organism which have ceased dividing (cellular senescence) or to the population of a species (population ageing). In humans, ageing represents the accumulation of changes in a human being over time (Bowen, & Atwood 2004), encompassing physical, psychological, and social changes. Ageing is among the greatest known risk factors for most human diseases (Dillin, Gottschling, & Nyström 2014), of the roughly 150,000 people who die each day across the globe, about two thirds die from age-related causes. The causes of ageing

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are uncertain; current theories are assigned to the damage concept, whereby the accumulation of damage (such as DNA oxidation) may cause biological systems to fail, or to the programmed ageing concept, whereby internal processes (such as DNA methylation) may cause ageing. Programmed ageing should not be confused with programmed cell death (apoptosis). Human behaviour is highly dependent on the reception and integration of information derived from sensory organs, such as the eye and ear, as well as from nerve endings in skin, muscle, joints, and internal organs. There is, however, no direct relation between the sensitivity of receptors and the adequacy of behaviour, because the usual level of stimulation is considerably greater than the minimum required for stimulation of the sense organs. In addition, an individual adapts to gradual impairments in one sensory organ by using information available from other sense organs. Modern technology has also provided glasses and hearing aids to compensate for reduced acuity in the sense organs.

Age can result in visual impairment, whereby non-verbal communication is reduced (Worrall, & Hickson, 2003) which can lead to isolation and possible depression. Macular degeneration causes vision loss and increases with age, affecting nearly 12% of those above the age of 80 (Mehta, 2015). This degeneration is caused by systemic changes in the circulation of waste products and by growth of abnormal vessels around the retina (Nussbaum, Thompson., & Robinson, 1989).

Ageing is a complex multifactorial process leading to loss of function and a very broad spectrum of diseases. Sensory impairment is often regarded from a medical/disability point of view and its effects on mental health can be poorly recognised. Communication is a key issue for deaf and deaf–blind people and difficulties here underlie developmental, psychological, and emotional problems and delay or prevent appropriate assessment and treatment. Sensory functions are the critical means by which individuals gain access to information and connect to their physical environment and the people around them. Unfortunately, many older people and their families, as well as the professionals who serve them, accept sensory loss as a "normal" part of the Ageing process. Furthermore, few are fully aware of the range of rehabilitation interventions available for older adults with sensory impairments. 95% of the information about the world around us comes from our sight and hearing. Sensory impairment is when one of the senses; sight, hearing, smell, touch, taste and spatial awareness, is no longer normal. Communication is the greatest challenge. A sighted and hearing person will explore their surroundings, a person with sensory impairments will need encouragement to explore and interact. Normal progress to language is hard and intensive education and support is needed throughout the person's lifetime. Ageing has long been associated with decline in sensory function, a critical component of the health and quality of life of older people.

Sensory functions are the critical means by which individuals gain access to information and connect to their physical environment and the people around them. Unfortunately, many older people and their families, as well as the professionals who serve them, accept sensory loss as a "normal" part of the Ageing process. Furthermore, few are fully aware of the range of rehabilitation interventions available for older adults with sensory impairments. Sensory impairment is often regarded from a medical/disability point of view and its effects on mental health can be poorly recognised. Dual sensory impairment is the combination of both hearing and sight impairment. It is not necessarily a total loss of both senses – indeed the majority of dual sensory impaired people do have some degree of sight and/or hearing. Those with a less severe degree of both sight and hearing impairment may also be referred to as having a dual sensory impairment or loss. Sensory impairment is often regarded from a medical/disability point of view and its effects on mental health can be poorly recognised. Sensory impairment is the most common health

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problem that the elderly experience and could occur or increase as a result of disease or Ageing (Kim, Kim., & Kim, 2011; Saunders, & Echt, 2007).

Any temporary or permanent loss or abnormality of body structure or function, whether physiological or psychological. An impairment is a disturbance affecting functions that are essentially mental (memory, consciousness) or sensory, internal organs (heart, kidney), the head, the trunk or the limbs. The term sensory impairment is therefore often used when referring to damage that occurs to the structure of the eyes or ears affecting the normal functioning of our vision and hearing senses.

TYPES OF SENSORY IMPAIRMENTS

The latest prevalence estimates on vision, hearing, and dual impairment come from the National Health and Examination Surveys 1999 to 2006 (Schiller, Lucas, & Peregoy, 2012; Swenor, Ramulu, Willis, Friedman, & Lin, 2013). Vision impairment was considered best corrected visual acuity of 20/40 or worse in the better eye, and hearing impairment was considered pure-tone average >25 decibels in the better ear. Dual impairment in their study was a combination of vision impairment and hearing impairment. It is true that sensory impairment particularly vision and hearing impairment is common in Ageing. These normal age-related sensory impairments are common, as are vision and hearing impairments due to multifactorial etiologies such as chronic diseases (e.g., diabetes, hypertension) as well as exposure to excessive noise, ultraviolet sun light, and excessive tobacco use (Agrawal, Platz, & Niparko, 2008; Dillion, Gu, Hoffman, & Ko, 2010). There are three major types of sensory impairments were discussed in following order namely; visual impairment, hearing impairment and Deaf-blindness (dual sensory impairment).

VISUAL IMPAIRMENT

Among the various issues that affect the elderly, common health problems including age related visual Impairment will be one of the major concerns. Demographic studies have consistently shown that age is the best predictor of blindness and visual impairment (Padula, 1982). It was also reported that legal blindness (best corrected visual acuity of less than 20/200 in the better eye) occurs in up to 3% of the world population by the age of 60 (Padula, 1982; Patterson, 1994). Visual impairment among the elderly is a major health problem. With advancing age, the normal function of eye tissues decreases and there is an increased incidence of ocular pathology. Demographic studies have shown that age is the best predictor of blindness and visual impairment. The most common causes of age related visual impairment in the elderly are presbyopia, cataracts, age related macular degeneration, primary open angle glaucoma and diabetic retinopathy. Untreated visual impairment leads to physical handicap, increased incidence of fall, depression, social isolation and dependency. Active screening for visual loss in the elderly should be part of the health examination. The elderly should be encouraged to come for formal 1-2 yearly eye assessment for early detection of visual impairment and to treat all associated problems in order to prevent permanent visual loss. People who are blind or have low vision can use technology aids, equipment and strategies to lead fairly independent and safe lives at home and in the community. Blindness and low vision can occur as a result of disease or infection, conditions or accidents. Symptoms of vision impairment are central vision loss, peripheral vision loss, contrast impairment, glare, reduced

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depth perception and blur. Vision loss among the elderly is a major health care problem. Approximately one person in three has some form of vision-reducing eye disease by the age of 65. The most common causes of vision loss among the elderly are age-related macular degeneration, glaucoma, cataract and diabetic retinopathy. Age-related macular degeneration is characterized by the loss of central vision. Primary open-angle glaucoma results in optic nerve damage and visual field loss. Because this condition may initially be asymptomatic, regular screening examinations are recommended for elderly patients. Cataract is a common cause of vision impairment among the elderly, but surgery is often effective in restoring vision. Diabetic retinopathy may be observed in the elderly at the time of diagnosis or during the first few years of diabetes. Patients should undergo eye examinations with dilation when diabetes is diagnosed.

HEARING IMPAIRMENTS

Age-related hearing loss (presbycusis) is the loss of hearing that gradually occurs in most of us as we grow older. It is one of the most common conditions affecting older and elderly adults. Approximately one in three people in the United States between the ages of 65 and 74 has hearing loss, and nearly half of those older than 75 have difficulty hearing. Having trouble hearing can make it hard to understand and follow a doctor's advice, respond to warnings, and hear phones, doorbells, and smoke alarms. Hearing loss can also make it hard to enjoy talking with family and friends, leading to feelings of isolation. Age-related hearing loss most often occurs in both ears, affecting them equally. Because the loss is gradual, if you have age-related hearing loss you may not realize that you've lost some of your ability to hear. There are many causes of age-related hearing loss. Most commonly, it arises from changes in the inner ear as we age, but it can also result from changes in the middle ear, or from complex changes along the nerve pathways from the ear to the brain. Certain medical conditions and medications may also play a role.

Many factors can contribute to hearing loss as you get older. It can be difficult to distinguish age-related hearing loss from hearing loss that can occur for other reasons, such as long-term exposure to noise. Noise-induced hearing loss is caused by long-term exposure to sounds that are either too loud or last too long. This kind of noise exposure can damage the sensory hair cells in your ear that allow you to hear. Once these hair cells are damaged, they do not grow back and your ability to hear is diminished. Conditions those are more common in older people, such as high blood pressure or diabetes, can contribute to hearing loss. Medications that are toxic to the sensory cells in your ears (for example, some chemotherapy drugs) can also cause hearing loss. Rarely, age-related hearing loss can be caused by abnormalities of the outer ear or middle ear. Such abnormalities may include reduced function of the tympanic membrane (the eardrum) or reduced function of the three tiny bones in the middle ear that carry sound waves from the tympanic membrane to the inner ear. Older people who experience hearing loss have a combination of both age-related hearing loss and noise-induced hearing loss. Age-related hearing loss is also known as presbycusis. Although age-related hearing loss is not a life-threatening condition, it can have a significant impact on your quality of life if left untreated.

Age-related hearing loss occurs gradually over time. Various changes in the inner ear can cause the condition, these include:

- Changes in the structures of the inner ear.
- Changes in blood flow to the ear.

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- Impairment in the nerves responsible for hearing.
- Changes in the way that the brain processes speech and sound.
- Damage to the tiny hairs in the ear that are responsible for transmitting sound to the brain.

Age-related hearing loss can also be caused by other issues, including:

- Diabetes
- Poor circulation
- Exposure to loud noises
- Use of certain medications
- Family history of hearing loss
- Smoking

Symptoms of age-related hearing loss typically begin with an inability to hear high-pitched sounds. Typical we may notice that they have difficulty hearing the voices of females or children. They also have difficulty hearing background noises or difficulty hearing others speak clearly.

Other symptoms that may occur include:

- Certain sounds seeming overly loud.
- Difficulty hearing in areas that are noisy.
- Difficulty hearing the difference between "s" and "th" sounds.
- Ringing in the ears.
- Turning up the volume on the television or radio louder than normal.
- Asking people to repeat themselves being unable to understand conversations over the telephone.

These are the early symptoms for hearing impairment. They could be signs of other medical conditions and should be checked out by a doctor. Hearing loss or hearing impairment is a partial or total inability to hear. It can be caused by genetics, Ageing, exposure to noise, illness, chemicals and physical trauma. It is usually described as mild, mild-moderate, moderate, moderately severe, severe, or profound. Hearing loss exists when there is diminished sensitivity to the sounds normally heard. Deafness is defined as a degree of impairment that a person is unable to understand speech even in the presence of amplification. Many in the deaf community view it as a condition, rather than an illness.

DUAL SENSORY IMPAIRMENT

Dual sensory impairment (DSI), or deaf-blindness, is a combination of vision and hearing impairment that interferes with the person's ability to acquire information and communicate with others (Watters, Owen., & Munroe, 2005) DSI encompasses a spectrum of sensory loss and individuals may be completely deaf and completely blind or they may have some residual hearing and/or vision. The widely used Nordic definition states that "deaf-blindness is a combined vision and hearing disability. It limits activities of a person and restricts full participation in society to such a degree that society is required to facilitate specific services, environmental alterations and/or technology." (Puts, Deeg, Hoeymans, Nusselder., & Schellevis, 2008). The loss of functioning in one sense cannot be compensated for with

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the other sense, resulting in a distinct disability. Those with DSI can be broadly classified into two main groups based on when the sensory losses occurred: a) congenital (individuals who experience the onset of hearing and visual impairment before the age of two years, including onset at birth) (Munroe, 2001) acquired (onset later in life). Common causes of congenital DSI include intra-uterine infections (e.g., congenital rubella syndrome), (Dammeyer, 2010) congenital brain damage and chromosomal abnormalities such as CHARGE syndrome (Lew, Weihing, Myers, Pogoda., & Goodrich, 2010; Kramer, Kapteyn., & Kuik, 2002). Acquired DSI can be related to Ageing, post-natal infections/early childhood infections and acquired brain injury, (Lew, Weihing, Myers, Pogoda., & Goodrich, 2010; Saunders, & Echt, 2007; Spandau & Rohrschneider, 2002). Among older persons with DSI, vision loss is often a result of presbyopia, decreased pupil size, cataracts and glaucoma, (Saunders, & Echt, 2007; Watson, 2001) and causes of hearing loss include age-related changes in the inner ear and a reduction in blood flow and loss of neurons that result in a diminished capacity within the central auditory system (Saunders, & Echt, 2007).

The occurrence of DSI is particularly prevalent among the Ageing population, with studies showing between 9% and 21% of adults older than 70 years having some degree of DSI. (Campbell, Crews, Moriarty, Zack., & Blackman, 1999; Jee, Wang, Rose, Lindley, Landau., & Mitchell, 2005), Despite this, there is little direction regarding recommended clinical practice and rehabilitation of individuals with DSI. It is assumed that the problems encountered by individuals with DSI are considerably greater than the effects of vision impairment or hearing impairment alone, because when these two sensory impairments are combined, the individual is seriously deprived of compensatory strategies that make use of the nonimpaired sense. In this article, the literature available regarding DSI is summarized, and research needs regarding rehabilitation strategies are outlined and discussed. Simple suggestions for addressing DSI are provided that use available tools and technology.

Impaired vision and hearing are common among older adults, (Watters, Owen., & Munroe, 2005; Puts, Deeg, Hoeymans, Nusselder., & Schellevis, 2008), and can occur separately or in combination (Munroe, 2001). Visual loss impacts negatively on functional independence, mental health and cognition, and reduces quality of life, as well as increasing the need for support services (Dammeyer, 2010; Saunders, & Echt, 2007). Age-related hearing loss is more frequent and is associated with an increased risk of depression, and impairs quality of life and the ability to conduct activities of daily living, as well as leading to an increased reliance on community and informal supports (Puts, Deeg, Hoeymans, Nusselder., & Schellevis, 2001; Spandau, & Rohrschneider, 2002; Fisher et al., 2014). Hence, strategies include the provision of corrective lenses, hearing aids, assistive devices (e.g., magnifiers, listening devices) and rehabilitative services such as visual, auditory and communication training should be encouraged and/or implemented by clinicians in order to promote both longevity and an improved quality of life in their older sensory impaired patient.

PHYSIOLOGY OF SENSORY IMPAIRMENT IN AGEING

Physiological Ageing refers to the changes in structure and functioning of the body that occur over a lifespan. Many of these changes are involuntary and occur very gradually while others occur over a short period. After the age of 70 other sense organs may show a reduction in sensitivity. Reduced taste sensitivity is associated with atrophy and loss of taste buds from the tongue in the elderly. Human Ageing, physiological changes that take place in the human body leading to senescence, the decline of biological functions and of the ability to adapt to metabolic stress. In humans the physiological developments are

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normally accompanied by psychological and behavioural changes, and other changes, involving social and economic factors, also occur. Ageing begins as soon as adulthood is reached and is as much a part of human life as are infancy, childhood, and adolescence. Gerontology (the study of Ageing) is concerned primarily with the changes that occur between the attainment of maturity and the death of the individual. The goal of research in gerontology is to identify the factors that influence these changes. Application of this knowledge is expected to reduce the disabilities now associated with Ageing. The biological-physiological aspects of Ageing include both the basic biological factors that underlie Ageing and the general health status. Since the probability of death increases rapidly with advancing age, it is clear that changes must occur in the individual which make him more and more vulnerable to disease. For example, a young adult may rapidly recover from pneumonia, whereas an elderly person may die. Physiologists have found that the performance of many organs such as the heart, kidneys, brain, or lungs shows a gradual decline over the life span. Part of this decline is due to a loss of cells from these organs, with resultant reduction in the reserve capacities of the individual. Furthermore, the cells remaining in the elderly individual may not perform as well as those in the young. Certain cellular enzymes may be less active, and thus more time may be required to carry out chemical reactions. ultimately the cell may die.

Ageing also brings about a reduction in the ability to change the focus of the eye for viewing near and far objects (presbyopia), so that distant objects can ordinarily be seen more clearly than those close at hand. This change in vision is related to a gradual increase in rigidity of the lens of the eye that takes place primarily between the ages of 10 and 55 years. After age 55 there is little further change. Many people in their 50s adopt bifocal glasses to compensate for this physiological change. The primary age change in the skin is a gradual loss of elasticity. Although this basic change plays a role, other factors, such as exposure to the weather and familial traits, also contribute to the development of wrinkles and the pigmentation associated with senescence. The ability of the skin to take up slack and remain closely adherent to the underlying structures is due to the presence of fibres of the proteins elastin and collagen. Because of the importance of hormones in the regulation of many physiological systems, impairments in endocrine (ductless) glands have traditionally been cited as important determinants in Ageing. With Ageing, the bones gradually lose calcium. As a result, they become more fragile and are more likely to break, even with minor falls. Healing of fractures is also slower in the old than in the young.

PREVALENCE OF SENSORY IMPAIRMENT IN AGEING

Prevalence estimates indicate the burden of a condition (e.g., visual impairment) at a defined location at a point or period in time. Accurate prevalence estimates are needed to plan for availability of health care services, associated monetary costs, and quality of life connected with having the condition. Such data are also of importance in planning future studies, such as controlled clinical trials of prevention and treatment of the disease. Periodic estimates of prevalence enable the tracking of temporal trends; this is important especially in situations where new, costly interventions are being introduced.

Vision impairment has been identified as the second most prevalent physical impairment observed within the elderly population (U.S. Department of Health and Human Services, 1995). Prevalence rates of blindness and visual impairment for elderly persons have been consistently demonstrated to increase sharply and monotonically with increasing age. Like vision impairment, hearing impairment has been identified as a major chronic condition in old age (U.S. Department of Health and Human Services, 1995). Recent studies have shown that hearing impairment among elderly people has doubled in prevalence

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over the past 30 years in the United States, based on self-reported data on trouble hearing (Strawbridge, Wallhagen, Shema, and Kaplan, 2000). Millions of Americans are affected by sensory impairments, with vision and hearing loss being two with the highest prevalence. Vision and hearing loss are particularly prominent in the older adult population. While vision loss has a negative impact on a person's perception of the world, hearing loss diminishes a person's mode of communication and can lead to social isolation. The World Health Organization (WHO) estimates approximately 360 million or 5% of the world's population has at least a moderate hearing loss (WHO). An estimated half of these hearing loss cases result from a lack of preventative measures, including but not limited to immunizations or noise exposure reduction. In the United States, an analysis of data from 2001 to 2010 estimated 60.7 million individuals aged 12 years or older have hearing loss in at least one ear. The prevalence of hearing loss in the US is even higher in the older adult population; 75% of individuals aged 70 years or older have hearing loss, defined by pure-tone thresholds as mild (>25 through 40 dB HL), moderate (>40 through 55 dB HL), moderately severe (>55 through 70 dB HL), severe (>70 through 90 dB HL), or profound (>90 dB HL) (Goman, & Lin, 2016; American Speech-Language-Hearing Association, 2016) . Despite this high prevalence of hearing loss in the elderly population, less than 30% of those who could benefit from hearing aids (HA).

Vision loss is another sensory impairment with a high prevalence in the elderly population. The WHO estimated in 2014 that 285 million people are estimated to have a visual impairment, with 39 million classified as blind and 246 million as low vision (World Health Organization, 2014). Low vision is defined as the grouping of moderate and severe visual impairments. Approximately 65% of these individuals are aged 50 years and older. Reportedly, the treatment of visual impairment over the past 20 years has improved significantly worldwide. Unlike the prevalence of hearing loss, the prevalence of visual impairment has decreased despite an increasingly larger population of older adults globally. This is primarily due to a decline in vision loss caused by infectious diseases worldwide. The high prevalence of dual sensory impairment in the older adult population, there continues to be a lack of awareness and resources not only among those affected but also among professionals in these fields. Increased collaboration among the interdisciplinary fields is crucial to lessen the impact of undiagnosed or untreated dual sensory impairment.

CHALLENGES IN AGEING

For many of us, it can be unpleasant to grow older. Our society and culture value youth, and being old is sometimes treated like a disease that has no cure. Of course, it's a reality that all of us have to face at some point, so Ageing is a huge topic of study for sociologists. Among other things, they observe patterns of social activity and identify the challenges we all face as we age. Three of the larger challenges that have been identified are retirement, ageism and social isolation. Challenge of Ageing that may seem more obvious is ageism. Although it can target any age group, ageism generally refers to prejudice and/or discrimination against older people. Ageism can be blatant or subtle. For example, it involves anything from refusing to hire an elderly worker to assuming an older woman needs help crossing the road. The elderly are often given a negative stereotype: slow, confused, helpless, resistant to change, and/or generally unhappy. Like racism and sexism, discrimination can happen when unfair generalizations like this are made. Although the stereotype is not true of every older individual, age-related bias, unfortunately, exists in practically every setting. Another challenge of Ageing is that of social isolation. Being alone

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can be extremely unpleasant at any age. It's something that many people fear about growing old because, unfortunately, social isolation is common amongst the elderly.

Our journey through the second half of life requires each one of us to adapt to a variety of age-related challenges. The physical challenges of Ageing result in various forms of functional decline in the body. The psychological challenges of Ageing impact our sense of identity, independence, and purpose in life. The spiritual challenges of Ageing demand reflection on difficult issues such as loss, grief, death, and impermanence. The cultural challenges of Ageing include retirement, financial planning, ageism, inclusion, and contribution. And finally, the environmental challenges of Ageing include dealing with change, transition, transience, thresholds, and liminality. The challenge of Ageing is a means to cultivate clarity, understanding, and self-compassion. The challenges and choices of Ageing impact our quality of life. It is important to understand the essential characteristics and influences that Ageing has on our body, mind, spirit, culture, and environment so that we give ourselves an opportunity to meet the challenges ahead with the spirit of creativity.

The major challenges of Ageing conjure doubt, despair, difficulty, discomfort, uncertainty, and anxiety. Our tendency is to approach Ageing with a sense of enmity. Our tendency is to avoid, deny, or hide ourselves from the raw realities of Ageing. Perhaps this is the most significant challenge of all that is, overcoming our fear of Ageing.

CONSEQUENCES IN AGEING

Impairment is the effect of any problem associated to any body part. These are reflected as the cause of disabilities; this means that they act as symptom prior to the disability, which could be treated or would be attempted to stop by consulting a doctor or prescribing a treatment. The Ageing of our societies is one of the greatest success stories of the twentieth century. More than three decades have been added to the lives of hundreds of millions of people over the last hundred years. This is an accomplishment well worth celebrating; but we must also bear in mind that with increased longevity come significant long-term economic consequences – and that many societies are ageing at a record speed.

One of the most recognized consequences of ageing is a decline in immune function. While elderly individuals are by no means immunodeficient, they often do not respond efficiently to novel or previously encountered antigens. This is illustrated by increased vulnerability of individuals 70 years of age and older to influenza, a situation that is exacerbated by their poor response to vaccination.

Hearing loss affects more than 8 million people in the UK. About 5 million people could benefit from hearing aids, but over half of these are reluctant to use an aid because of the associated stigma.

Multiple psychosocial factors have been associated with poor vision in elderly people. Visual impairment among elderly people has been correlated with psychological distress, low morale, and depression.

Empirical evidence that documents the full sequence of events involving the indirect effects of sensory impairment on quality of life and well-being is lacking. Only one previous study (Lee et al. 1999) has examined the impact of both vision and hearing impairment on psychological well-being. Ageing of the population affects all aspects of the society including health, social security, education, socio-cultural activities and family life.

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SENSORY IMPAIRMENT AND DISABILITIES

A disability is a condition in which there is a lack of an individual's mental, mobile or moving functions of its respective organ or part. In this condition, the individual is not able to function or complete any task which is associated to its absent part or organ. It can also entail to any sensory, physical, cognitive or intellectual impairment and various types of chronic disease and mental illnesses. It's not compulsory in disability that the condition should occur from birth; it can rather occur at any time in an individual's life span. The term broadly classifies the illness or irregular capacity of any functioning of a body part, then it may relate to any associative physical, cognitive, mental, sensory, emotional, developmental, or some combination of problems.

Sensory disabilities dramatically increase with age and may seriously compromise an older person's ability to carry out routine daily activities. In 1991, visual and hearing impairments were reported by over 10% and 17% of persons aged 65 years and over, respectively (Raina, Wong, Dukeshire, Chambers., & Lindsay, 2000). Given the projected growth of the older adult population, it is particularly important to continue understanding the relationship between visual and hearing impairment and functional independence.

Impairment is a cause of Disability. According to the federal government, the term impairment is defined as: an "inability to engage in any substantial gainful activity by reason of any medically determinable physical or mental impairment which can be expected to last or has lasted for a continuous period of not less than 12 months." Medically, it is a condition which leads to disability in an individual. It can be stated as the basic root cause of any disability. It's an abnormality associated with the physiological, psychological, or anatomical structure or function of a body part or organ. Impairment can relate to the permanent or temporary loss of functioning of an organ. It acts as an alerting symbol to identify an affected problem in an individual. The problem when diagnosed at the specific time can be cured by consulting or taking a prior treatment.

SCREENING AND IDENTIFICATION

Timely screening of hearing and vision will: (1) facilitate identifying those in need of referral to a hearing or vision professional; (2) enable individually tailored care for residents, thus promoting the health and well-being of older adults with sensory impairments; (3) identify sensory impairments and, by addressing them to whatever extent possible, care plans can be adapted to accommodate for these impairments.

Simple approach that can be used by general internists to routinely screen the functional status of elderly patients in office practice. The approach relies on checking a limited number of targets that are commonly dysfunctional but often unappreciated when conventional histories and physical examinations are done for elderly patients. The new focus is on carefully selected tests of vision, hearing, arm and leg function, urinary incontinence, mental status, instrumental and basic activities of daily living, environmental hazards, and social support systems. Brief questions and easily observed tasks are used to obtain the information needed for a suitable, effective screening while minimizing the time for administration.

Visual impairment is common among older people and is associated with falls and reduced quality of life. Visual problems in older people are often not reported to medical services. Screening has been recommended because vision could be improved by encounter ageing treatment in the majority of older people with impaired vision. There are several ways to screen for hearing impairment. For example,

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there are a number of physical measures and scales that seem to correlate reasonably well with pure tone audiometry, the current "gold standard." (Dupuis et al., 2015; Moher, Shamseer., & Clarke, 2015). Pure tone audiometry can be made more or less sensitive and specific depending on the frequencies tested and the decibel threshold used to define hearing loss. Third, there are hearing handicap scales (Carpenter & Hirdes, 2013; Schow, & Nerbonne, 1980; The American Speech-Language-Hearing Association, 2016).

REHABILITATION SERVICES

Rehabilitation services for older adults with age-related sensory loss need to accommodate these difficulties. Improved staff education and rehabilitation programmes providing clients and carers with strategies to overcome communication breakdown is required. A multidisciplinary perspective to the assessment and remediation of older adults is recommended.

Vision rehabilitation services can vastly improve quality of life and help them live more independently.

Vision rehabilitation services include:

- Communication skills: reading, writing, Braille and assistive computer technology.
- Counselling: to help you, your spouse, family members and friends adjust to your vision loss.
- Independent living and personal management skills: home management, home modifications, personal self-care, financial management.
- Occupational therapy.
- Independent movement and travel skills: orientation and mobility training.
- Low vision evaluation and training with low vision devices.
- Vocational evaluation and training.

Hearing loss services include:

- Comprehensive hearing evaluations.
- Cochlear implants.
- Speech and language therapy.
- Assistive devices (e.g. audio loops).
- Training on hearing aids, assistive devices.
- Supportive workshops.
- Recreational/social activities.

In current practice, rehabilitation of sensory impairments in the ageing population is divided into separate rehabilitation services for impairments in vision (low vision rehabilitation centres) and in hearing (audiology centres and hearing aid providers). Concurrent hearing impairment could affect the success of low vision rehabilitation (Leonard, & Horowitz, 2004) and vice versa. Moreover, healthcare providers do not automatically deal with impairment of the 'other sense', which may lead to less effective rehabilitation.

Educating our peers and using these guidelines in our practice will enhance the quality of life of the geriatric patient. One of the greatest challenges in the geriatric population is their ability to communicate their problems, needs, and desires in a medical setting. Hearing and visual impairments can hamper a

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patient's ability to express himself or herself clearly or to understand questions or commands. This is an enormous burden on the patient, the caregiver, and the physiatrist as they work to achieve rehabilitation goals. Addressing these issues on the patient's initial visit can ameliorate problems and prevent frustration and further difficulties.

Rehabilitation comprises the provision of a custom-fitted hearing aid and instruction on its use and maintenance. Progress during rehabilitation depends on patient and family education to help the patient adjust to the hearing loss and the use of hearing aids. Family training with a speech therapist is also crucial to teach them about auditory enhancement techniques and communication skills. Improving the geriatric patient's ability to hear can lead to significant gains in terms of rehabilitation and the patient's overall quality of life. Physicians should evaluate their patient's hearing on a regular basis and consider the management of hearing deficits as they care for their patients. Utilization of healthcare resources and assistance increases in the geriatric population with visual impairment because of their decreased level of function overall.

RESEARCHES ON SENSORY IMPAIRMENT IN AGEING

Researchers have discovered that sensory impairment is more dangerous than previously thought, particularly in regard to mortality. Vision loss has been associated with a 5% to 29% increased mortality rate in older adults (Cugati et al., 2007; Karpa et al., 2010). Hearing impairment alone has been linked to all-cause mortality through three mediating variables: disability in walking, cognitive impairment, and self-rated health (Karpa et al., 2010). A recent cohort study from Australia documented that dual sensory impairment increases risk of mortality over 10 years by 62% compared to older adults without sensory impairment (Gopinath et al., 2013). In addition, older adults with best corrected vision impairment and moderate to severe hearing loss had a two-fold increase in 10-year mortality (Gopinath et al., 2013). A strength of this population study was the objective measurement of sensory impairment through pure tone audiometry and distance visual acuity. Asking older adults about their vision and hearing impairment is often not sufficient. The researchers also controlled for smoking, body mass index, systolic blood pressure, diabetes, cancer history, angina, stroke, acute myocardial infarction, and cognitive impairment (Gopinath et al., 2013). Additional steps to improve the care of older adults with sensory impairment include: (a) reconsideration of the "lack of evidence" supporting population screening for vision and hearing impairment; (b) development and testing of primary care models of interventions for hearing and vision screening and referrals; (c) development of safe environmental designs; (d) technology designed and tested for this population; and (e) neuro-imging studies to investigate brain changes due to sensory impairment.

FUTURE RESEARCH DIRECTIONS

Future research will need to examine the influence of other concurrent health conditions on sensory impairment. Asking the elderly about their overall hearing and visual function is not sufficient in detecting sensory impairment. To detect hearing and vision impairments among elderly home care patients, standardized measurements of their hearing and vision are necessary. Today's practitioners should focus

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on the use of screening tools in the clinic, risk assessments, programs for fall prevention, and rehabilitation after a fall.

CONCLUSION

Impairments of vision and hearing are common in this frail older outpatient population. Combined vision and hearing impairments have a greater effect on function than single sensory impairments and influence functional status independent of mental status and comorbid illness. Elderly home-care patients cannot be expected to take the necessary actions to meet their sensory impairments themselves; they need close assistance and help. With the increasing need for and use of health care services due to an ageing population, the major goal in public health and medicine is to keep elderly individuals living independently and to prevent institutionalisation. Small improvements in vision and hearing impairment may enhance physical and psychological functioning in older adults.

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KEY TERMS AND DEFINITIONS

Ageing: Ageing is the process of becoming older.

Consequences: It is a result of a particular action or situation often one that is bad or not convenient.

Physiology: It is the scientific study of normal mechanisms and their interactions which works with in a living system.

Rehabilitation: It is a treatment or treatments designed for psychosocial aspects to facilitate the process of recovery from injury, illness or disease to as normal condition as possible.

Sensory Impairment: It refers to a defect in sensing and passing on the imulse. This leads to absense of sensation and neuronal coordination.

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Chapter 85
Psychological Impacts of Downsizing Trauma

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ABSTRACT

The chapter summarizes research studies as well as case studies from companies worldwide that show how organizational changes followed by downsizing create a traumatic experience for all organization members. The author's focus is on the psychological perspective on traumatic experience by all employees (victims and survivors) and managers whose task is to organize and implement changes in the organization. Based on the literature review, the chapter describes symptoms and psychological effects of organizational change trauma on individuals and the ways to minimize the traumatic effects. The author believes that outplacement and therapeutic approach are effective tools for overcoming the layoff trauma and also send positive signals to employees and to general public.

INTRODUCTION

This chapter is based on a thorough summary and critical analysis of relevant available research and non-research literature with the aim of summarizing the valid findings about the traumatic impacts of downsizing on members of organizations. The author used the traditional literature review of Google Scholar, Business Source Complete and Psych Web databases. The main research task was to find relevant research studies describing the traumatic impacts of downsizing on all organization members. Only studies with relevant research and reliable sources were selected for the chapter. The main goal of the selection process was to bring the reader up-to-date with available and reliable literature on the traumatic effects of organizational restructuring resulting in downsizing. This serves as the basis for practical proposals of procedures to minimize the traumatic effects of downsizing. The proposals are intended to be useful for practitioners such as managers, consultants, psychologists.

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Trauma in organization is a consequence of a situation which causes traumatic experiences to individuals within the organization. Before the symptoms of organizational trauma and ways to cure or prevent them are discussed, the reasons that lead to such situations need to be revealed. Traumatic events are quite often results of rational business decisions to optimize business efficiency. One of the frequent strategies is a restructuring the company that is accompanied by downsizing. As the definition states: downsizing is a deliberate organizational design which reduces the manpower and is planned to improve organizational performance. It is an approach that influences the workforce size, operational costs and work processes (Appelbaum, Patton, & Shapiro, 2003). Fisher & White (2000) say that like "rightsizing" and "reengineering", downsizing is a class of management tools for attaining desired change. The decision to downsize a company is among the toughest managerial decisions. It is a legitimate managerial approach to solving critical problems in an organization. Among the main reasons for downsizing are, for example, declining profits, increased pressure from competitors, a merger, the introduction of new technology, the desire to decrease levels of management, and getting rid of unproductive employees.

There are various approaches to this process. Companies follow a structured and planned procedure or they run this process in a haphazard manner, in which layoffs are happening without planning or prior warning. In this case, employees even do not realize what is happening or why. It is obvious that the first-case scenario has much less impact on the members of the organization. However, even in such a process there are negative impacts on the victims – people who are laid off as well as on survivors – people who remain in the company, including employees and managers. Unfortunately, there is no indication that downsizing in organizations, despite its negative effects, is declining.

On the contrary, there are several assumptions that tend to persist in managerial decision making. First, downsizing and decline are natural and even desirable phases of an organization´s development. There is a need to reduce waste and inefficiency that builds up in organizations. Downsizing then leads to efficiency, higher productivity and flexibility as "agility and leanness go together" (Cameron, 1994). Therefore, a common assumption is that organizational downsizing will spur business performance. The usual belief is that organizational restructuring accompanied by downsizing will provide a better alignment with the external competitive environment, improve financial indicators, and ultimately improve stock price performance (Lee & Teo, 2005). Trends like technological advances, environmental emergencies, and global economy are shaping the world. They affect corporate culture and the employees who support the culture. Environmental forces such as technology as well as political/regulatory, economic, and socio-cultural challenges, coupled with bad decision-making, a lack of resources and knowledge, and global competition, are all factors driving change. A good example could be the growth of mergers and acquisitions which result in restructuring frequently accompanied by downsizing. The internationalization of companies is on a growth pattern. This brings the necessity to restructure the companies where one of the necessities of such a process is the change in employee structure and/or downsizing. The number of multinational companies was around 17,000 in 1980; this figure had increased to more than 63,000 in 2000 and had increased further to 70,000 by 2004. At the same time, the number of subsidiaries of multinational companies in 2004 stood at approximately 690,000. Consequently the size and power of Multinational Corporations (MNCs) has grown steadily during recent decades through mergers and acquisitions: between 1990 and 1999 the number of global mergers increased from 9,000 to nearly 25,000. The number of transnational mergers during the same period increased from 2,500 to more than 7,000 in 1999 and over 8,000 in 2000 (Voss et al, 2007). Just in Europe in period from 2002 to 2010, more than 11 000 cases of restructuring were recorded by the European Restructuring Monitor, with the ratio

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of announced job losses/job creations standing at 1.8:1. In the period 2008-2010, that ratio increased to 2.5:1(Voss et al, 2007). A similar trend in US as well as globaly can be assumed.

MAIN FOCUS OF THE CHAPTER

Even though organizations keep coming up with new expressions for their organization restructuring methods, it is still the same old strategy for hitting financial targets. These methods have been called names like "restructuring," "termination," "permanent layoffs," "resource alignment," "downsizing," and "rightsizing" (Schiro & Baker, 2009). So it is obvious that organizational downsizing has become an important part of business life. Burke (2005) indicated that organizational restructuring and downsizing are a complex and difficult task quite often resulting in completely missing the original strategic goal. Interestingly, there is growing amount of literature suggesting that restructuring fails to reach the stated objectives (usually financial) about half the time" (p. 21). Downsizing is especially hazardous to learning organizations, which is another trend. Because a single individual has multiple relationships in such an organization, unselective, nonselective downsizing has the potential to cause significant damage to the learning and memory capacity of organizations. That damage is far greater than might be implied by a simple count of the number of employees laid off. One needs to consider the multiple relationships generated by one individual. It is obvious that restructuring that involves significant reductions in employees can inflict damage and create the loss of significant "chunks" of organizational memory. Such a loss damages ongoing processes and operations, loses current contacts, and may lead to missing business opportunities. Moreover, this process may increase stress and influence the well-being of employees (Amabile & Conti, 1999; Reynolds-Fisher & White, 2000). There are further disadvantages to downsizing regardless of the type of the organization. For example according to Schiro & Baker (2009), the drawbacks of downsizing could include:

1. Morale issues can surface,
2. Growth is stymied,
3. Productivity can go down, and
4. Employee health and behavioral problems can appear.

It is well-known that organizational change (including layoffs, downsizing, acquisitions, and mergers, but also job relocations, technological innovations at work, management restructuring, introduction of team-based work, and the like) may have adverse effects on employee well-being.

In this chapter, the author is going to look inside the organization during and after the downsizing process. The focus will be primarily at the individuals within an organization. The author strongly believes that organizational trauma is a concept referring to experience of trauma by the members of the organization.

After one looks inside the organization, s/he can see that the whole organism of the company is traumatized. Separate parts of the system undergo various symptoms of the trauma. The psychological impacts are most severe for victims of downsizing. However, the survivors - the remaining employees - also suffer from this traumatic situation. The survivor literature provides convincing evidence that organizational downsizing has negative consequences for remaining employees (e.g. Brockner, 1988, Makawatsakul

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& Kleiner 2003; Devine, et al., 2003). Similarly, evidence shows that organization restructuring can be a traumatic event for middle as well as for top managers.

Although organizational trauma originates at the individual level, the individual projects his or her trauma into the larger organizational system. The human body cannot differentiate between an emotional emergency and physical danger, trauma that results from experiences which represent psychological emergencies can trigger significant emotional trauma. Unresolved emotional trauma blocks people's capacity to be effective and ability to perform (DeKlerk, 2007).

The trauma is understood, according to American Psychiatric Association, as a

situation when the person has experienced and event that is perceived as a serious threat to his or her life or physical integrity; serious threat or harm to his or her children spouse, or other close relatives or friends; sudden destruction of his home or community; or seeing a friend or a close person experiencing such an traumatic event (American Psychiatric Association, 2013)

Quite often organizations approach downsizing with sheer ignorance of the emotional dimension of the organizational setting. They focus on articulating a vision, selling the positive rational aspects of the change. This is an important aspect; however, it doesn't help to overcome the emotional wounds that lead to experiencing of trauma. It is like telling a person who just lost a partner about new opportunities for new partners. This ignores the pain and harm that comes with a change.

The next part is a description of the symptoms and causes of downsizing trauma on organizational members. It is important to realize that these symptoms are natural and are part of the healing process; therefore, they need to be acknowledged. Feeling sadness caused by the downsizing should not be considered as a weakness but as a natural part of the organizational healing process. As DeKlerk (2007) states it is not the trauma itself that produces disorders such as post-traumatic stress disorder, but rather the failure to process trauma adequately that can lead to pathological behavior.

The Victim

Losing a job is very difficult life situation. Holmes & Rahe (1967) consider this as the 8th the most stressful situation in life. It does not only mean losing a job. With the job loss, a person loses social networks that one developed at the work place. The person also loses the daily routine and activities. Losing a job may quite often mean losing a hook to one identity related to the job performed. All this leads to numerous emotional and physical side effects of losing a job. The emotions that accompany a job loss actually resemble the Kubler-Ross grief cycle experienced when losing a loved one. Most people report feeling a rush of emotions, but the most typical are denial, shock, sadness, anxiety and anger.

The typical reactions to the layoff trauma based on the Kubler-Ross grief cycle consists of 5 stages:

- **Stage 1**: Denial — "I feel fine."; "This is not happening, not to me."

Denial is usually only a short-term defense mechanism. Denial can be conscious or unconscious denial to accept the reality and factual information. It is a defense mechanism and some people can become locked in this stage.

- **Stage 2**: Anger — "Why me? It's not fair!"; "How can this happen to me?"; '"Who is to blame?"

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During this stage, the individual grasps that denial cannot continue. Person feels anger that is directed toward the organizations as such, to manager personally, other colleagues or even toward him/herself. The person is very difficult to deal with for misplaced feelings of rage and envy to the survivors of the downsizing.

- **Stage 3**: Depression — "I'm so sad, why bother with anything?"; "I invested so much time, energy and effort in the company and this is the result? So what's the point?"; "I miss my job, my daily routine so why to go on?"

During the fourth stage, the person begins to understand the certainty of job loss. Because of this, the individual may become silent; refuse social contact not only in the company but also with relatives and friends. Colleagues usually try to show sympathy or attempt to cheer the person up. However, this only allows the victim of downsizing to avoid looking into future opportunities. So it is not recommended to attempt to cheer up an individual who is in this stage. It is an important time for grieving that must be processed. For example, Greenglass, Burke, & Moore (2003) conducted a study with 488 unemployed hospital nurses whose units had closed as the result of restructuring. Their findings suggested that anger, cynicism, and emotional exhaustion operationalized distress, indicating the importance of studying patterns of negative reactions and their consequences for depression.

- **Stage 4**: Bargaining — "I'll do anything for a few more days, months at the company." This stage involves the hope that the individual can somehow postpone or delay the job termination decision. Psychologically, the individual is saying, "I understand I will lose the job, but if I could just do something to get another chance at least for some time..."
- **Stage 5**: Acceptance — "It's going to be okay."; "I can't fight it, I may as well accept it and move on."

In this last stage, individuals begin to come to terms with the fact of job loss. (Adapted from Kübler-Ross, E. (2005).

However, the person who just lost a job may suffer of further symptoms in various stages of the cycle. These symptoms can lead to trauma formation:

- **Anxiety**: Irrational anticipation that danger is about to happen, which causes unhealthy nervousness.
- **Apprehension**: A dreaded and fearful anticipation that something bad will happen to oneself in the organization
- **Cynicism**: Having distrust of action and intentions of other, accompanied by skepticism, suspicion and sarcasm.
- **Decreased Commitment**: Reduced willingness to take up time or energy to fulfil obligations.
- **Distrust** - Losing faith or confidence about organizations trustworthiness and honesty.
- **Emotional Numbness**: Apathy demonstrated by absence of emotional sensations and reactions such as feeling good, happy or sad.
- **Higher Absenteeism and Turnover**: Being more inclined to take sick leave or resign.
- **Lack of Focus**: Inability to concentrate on one's work.
- **Lack of Involvement**: Reluctance to immerse oneself in the work or organization.
- **Perception of Betrayal**: Feeling that organization was disloyal unfaithful and deceitful.

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- **Rejection**:The experience of not being accepted, but rather pushed aside by the organization.
- **Sadness**: Intense feelings of unhappiness, grief and sorrow.
- **Uncertainty**:Being undecided and not knowing what to do or where to go with one's actions.
- **Withdrawal**: Removing oneself emotionally from organizational obligations and relations (DeKlerk, 2007).

Naturally, one cannot expect that every individual will undergo the same cycle. Especially in reaching acceptance, many victims will fight before reaching the acceptance stage. A lot depends on the strength of psychological contract between the individual and organization. A psychological contract is according to Armstrong (2014), a group of unwritten expectations that exists between the employee and the organization. It is a sum of beliefs that includes the expectations of organization from the employee as well as the employee´s expectations that the organization will meet. These expectations usually include fair and consistent treatment, job security, opportunity for using of the talent, and believing in the promise fulfilment from the management. To many of the victims and survivors downsizing may imply a one-sided renegotiation of the terms of the psychological contract between the organization and its employees, such that the latter receive less from this relationship and invest more in this relationship.

There are also other variables that influence the intensity of the traumatic effect of downsizing on the laid-off employees. Cascio (2002) published an Australian study with71 individuals who had accepted voluntary buyout packages (after 7 to 44 years of service, with an average of 25 years) and were contacted 2 to 7 years after leaving their firms. Almost 90 percent were married, and about half had dependent children. Surprisingly, 61 percent considered their health to be about the same, and 29 percent considered it to be "better" or "much better."

Cascio (2002) also cites research showing that one's financial situation is a major factor in how people perceive and respond to job loss, both physiologically and psychologically. Financial incentives, which often accompany voluntary severance agreements, may well moderate the ill effects of job loss. As one set of authors noted, "evidence is mounting that events viewed as uncontrollable and undesirable are more likely to be associated with psychological and physical distress." The findings of this study suggest that rather than considering themselves to be "victims," individuals who are offered voluntary buyouts may see themselves as having the opportunity to make choices about their future prospects that are not available to the "survivors." As a result, they experience less distress later on (Cascio, 2002). However, our empirical evidence from working in outplacement projects for companies after takeovers shows that job loss generates substantial distress above and beyond the loss of income.

Terminating employees, even when it seems an absolute and obvious necessity, is extremely unpleasant for all involved. At worst, the victim can quickly get into a severe state of anxiety, stress, self-doubt, and depression. Devine et al. (2003) reported that individuals are called downsizing victims because the literature documents job loss and the psychological and physical consequences. Devine et al. explained that "based on a small number of empirical investigations it is accepted that those who lose a job through no consequence of their own become anxious, depressed, unhappy, and dissatisfied with life in general" (2003, p. 110).

To summarize, the downsizing has obviously traumatic effects on employees who are victims of this process. Despite the fact that people react to this situation differently, losing a job is more than losing an income, it often means losing the social connections and quite often also losing the self fulfilment. The main symptoms that indicate the trauma formation in the downsizing victim are anxiety, distrust,

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and lack of focus and perception of betrayal. However, similar symptoms can also be noticed in people who remain in the organization.

The Survivor

It is a mistake to believe that downsizing would not affect the remaining employees. The employees who remain with the organization after downsizing are identified as "survivors".

These employees are responsible for new business performance and ultimately the success of implementation of restructuring (Baker, 2006). However, it is quite common that these people are taken somehow for granted are often neglected in the organization restructuring process. As Chipunza & Berry, (2010) show, survivors are the greater losers than those laid-off, because they have to bear cynicism, irritation and in general feel insecure. Research (e.g., Noronha & D'Cruz, 2005) indicated that in the new situation emerged after downsizing; an organizational success depends on the well-being of the survivors in terms of their attitudes, loyalty and eagerness to work. Travagione & Cross (2006), claim that survivors feel a reduction in affective commitment, performance and job satisfaction and increase in health problems. The research findings show that downsizing is negatively correlated with survivors" organizational commitment, work motivation and psychological well-being (Faheem et al, 2013). The survivors usually have feelings of guilt, stress, anxiety, distrust, fear, insecurity, and depression.

Thus, it is rather naïve to believe that downsizing employees may automatically boost profit. Cascio (2002) shows the data that clearly prove this point. Data from the S&P 500, 1982-2000, showed that profitability, as measured by the return on assets, does not necessarily follow downsizing, even as long as two years later. The 2001 Layoffs and Job Security Survey, conducted by the Society for Human Resources Management, reported that only 32 percent of respondents indicated that layoffs improved profits. Even massive staff cutbacks at firms such as Eastman Kodak, Apple Computer, and AT&T have not produced increased earnings years later. Furthermore, Cascio (2002) shows data indicating that downsizing employees does not improve productivity. The American Management Association surveyed 700 companies that had downsized in the 1990s. In 34 percent of the cases, productivity rose, but it fell in 30 percent of them. These results are consistent study of 250,000 manufacturing plants by the National Bureau of Economic Research which concluded that the productivity-enhancing role of employment downsizing has been exaggerated. While some plants did downsize and post healthy gains in productivity, even more (including many of the largest facilities) managed to raise output per worker while expanding employment. They contributed about as much to overall productivity increases in manufacturing as did the successful downsizes.

A review of the adverse effects of downsizing on the remaining employees: For example, Cascio (2002) found that 70 percent of senior managers who remained in downsized firms reported that morale and trust declined. Survivors felt overworked (54 percent), overwhelmed by workload (55 percent), having a lack time for reflection (59 percent), not having time to complete tasks (56 percent), and having the need to multitask too much (45percent). Similar situation is with the managers. Cascio (2002) cites a study that asked a simple question. How had the restructuring changed the nature of the managers' jobs? More than 30 percent of the managers said they now had more staff reporting to them,64 percent had increased responsibility, 69 percent had a wider range of duties,77 percent worked longer hours, 83 percent experienced increased stress, and 85percent had increased workload overall. Against all that, however, only 37 percent said they'd received a salary increase. Is it any surprise that 49 percent felt a decreased sense of commitment to one bank or that 64 percent experienced decreased job satisfaction?

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Asked about their level of commitment and their views on working for the bank, the managers offered 8 positive and 390 negative comments. There is other substantial evidence that organizational downsizing has negative consequences for remaining employees (Beylerian & Kleiner, 2003; Brockner, 1988; Devine, Reay, Stainton, & Collins-Nakai, 2003; Makawatsakul & Kleiner, 2003).

Vahtera et al. (1997) noted that some common changes in mental health surface during and after a downsizing or an organizational change:

Stress is "a dynamic condition in which an individual is confronted with an opportunity, demand, or resource related to what the individual desires and for which the outcome is perceived to be both uncertain and important" (Schuler, 1980. p. 189).

Self-esteem is the individuals' perception of liking or disliking themselves and the degree to which they think they are worthy (Brockner, 1988).

Anxiety is common when stressed. It helps individuals to cope with various tense situations (National Institute of Mental Health [NIMH], n.d.a).

Depression is another issue that may surface in the wake of downsizing, according to the (NIMH, n.d.b)

Besides these negative symptoms, there are other accompanying symptoms that the victims may experience. According to Rice & Dreilinger (1991), survivors can experience:

- **Low Morale**: Survivors have the tendency to become depressed when their friends and associates leave the organization. They are not sure what to do to save their own jobs, so they maintain a low profile.
- **Decrease in Productivity**: Survivors usually face worker overload because there are fewer employees to get the work done. They can get confused about their specific roles or responsibilities, as well as what management thinks about them.
- **Distrust Management**: Survivors have seen that competence and performance no longer equate with continued employment. Their psychological contract with management has been unilateral, and they question management's trustworthiness.
- **Excessive Caution**: Survivors usually discontinue risk taking and decision-making, and innovation. Shifting the responsibility or playing it safe is the new rules of conduct.

Similarly, Noer (1993) shows that the survivors typically experience a number of emotional reactions, including fear; sadness, depression, and quilt. Betrayal, distrust, and anger; unfairness; anxiety and stress are also among the emotional reactions as the social network gets damaged during downsizing. Comparable results were noted by Schiro et al (2009); the employees who had remained with the organization in transition exhibited a lack of confidence, distrust, high levels of stress, and doubts about their roles.

Review the most prevalent trauma symptoms of survivors such as stress, anxiety, depression and survivor syndrome in detail:

Faced with the possibility of a layoff, increased workload, the unknown, or an early retirement, many employees experience an increase in their stress level. Situations that results in stressful reactions affect virtually everyone in the organization. Stress can be good or bad, and by itself, it might not alter behavior. However, the cumulative effects of stress can reach an individual's coping threshold (Gilmore, 1994). Beehr & Newman (1978) had defined stress as a situation which will force a person to deviate from normal functioning due to the change (i.e. disrupt or enhance) in his/her psychological and/or physiological condition, such that the person is forced to deviate from normal functioning.

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Behavior can be changed at certain levels of stress given that a person's ability to function is at risk. The continued threat of possible victimization as the causative agent in deteriorating psychological health induces such stress-related illnesses as heart disease and ulcers (Leana & Feldman, 1988). Stress also can reform a person's character. It may change feelings, perceptions, social relations, well-being, behavior, and almost all social or individual reactions. It is very damaging, and if it is not controlled, it can lead to serious health consequences.

Torkelson & Muhonen (2003) conducted a study to determine how men and women cope with stress during a period of change and how there is a relationship between coping strategies to health. Ninety-eight health care administrators participated in the study. Denial explained a significant proportion of variance in the health problems. A study to systematically separate and combine the effects of organizational downsizing and work-related stress on a measure of health in survivors of layoffs included 240 men and 319 women ages 16 to 59 (Dragano, Verde, & Siegrist, 2005). The researchers found that although health associated with organizational downsizing was partly related to an increase in work-related stress, the findings showed an additional synergy produced by the combined exposure to both conditions.

Cheng et al (2005) administered a survey to 8,705 male and 5,986 female Taiwanese individuals' ages 25 to 65 years old from the general population. The findings reported that job insecurity was an important source of stress and that adverse psychosocial work conditions and poor health followed. Rose (2003) studied the results that the stress in work environment reduces the intention of employees to perform better in jobs with the increasing level of stress the employees thinking demoralize and his tendency to work well also decreases.

Similar to victims, survivors may show symptoms of anxiety. The feeling of anxiety can be infinite, and many emotions can be apparent during the period of uncertainty at a wok place. The emotional, psychological, physical, and job-related problems of the survivors influence them and their families. The emotional and psychological toll is similar to the grieving associated with death and the devastation of fighting in military conflicts. It means that survivors may go through a similar grieving cycle as the victim. Of course, not all necessarily undergo such emotional distress. But Greenglass & Burke (2000) surveying 1,363 nurses found that the heavier was the nurse's workload, the greater were their levels of emotional exhaustion, cynicism, depression, and anxiety. This means that not only the survivor's social network and relationships get damaged. The increased workload pressure combined with job insecurity causes further traumatic experience.

The enormous exposure to traumatic and stressful situations in which a person feels symptoms of anxiety can lead to developing a depression. There is a strong connection between depression and high-risk behaviors. Excessive drinking and drug abuse are all self-injurious behaviors that individuals may use to provide temporary relief from intense emotional pain. These behaviors are observable with victims as well as with the survivors. In any case such a behavior can have devastating effect on the future recovery from the trauma.

The emotional symptoms of depression potentially include the following:

- Withdrawal from socializing;
- Loss of interest in previously enjoyed activities;
- Constant irritability or sadness;
- Constant pessimism;
- Feelings of inadequacy and self-loathing (Sue, et al, 1990)

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All these symptoms obviously influence the performance, attitude and behavior of the employees. This makes it very difficult to make these people to behave so they are in line with the company's strategic goals.

Moreover, the employees who remain on the job face some of the same symptoms as the survivors of catastrophic accidents. Survivor syndrome is a set of attitudes, feelings, and perceptions that occur in employees who remain in organizations following staff reductions (Devine, Reay, Stainton, & Collins-Nakai, 2003). Doherty & Horsted (1995) described survivor syndrome as the expression of many different emotions by the surviving employees after a downsizing. The survivors may suffer of survivor syndrome as they feel the guilt of surviving (Conway, 1993). According to Gandolfi (2008) survivors feel positive inequity, anger, relief, and job insecurity. Research to date has suggested that the various reasons for survivor syndrome include a violation of the psychological contract, an act of unfairness by the management, or an organization's lack of vision (Schiro et al 2009).

The syndrome first affects morale and then influences the company's productivity at the bottom line. Moreover, downsizing has been linked to elevated levels of burnout, cortisol and testosterone, cardiovascular complaints, psychosomatic complaints, absenteeism, and sickness and absenteeism of the remaining employees (Kalimo et al, 2003).

Paterson & Cary (2002) surveyed 71 employees in an organization that had just downsized. Their analysis showed that procedural justice and change anxiety explained the effects of change management procedures on acceptance of downsizing. Although distributive justice did not have the predicted direct effect on employee morale, it did help to explain the effects of procedures on the employees' acceptance of change and morale by helping reduce anxiety about the change. By showing that procedural justice and change anxiety explained the effects of change management procedures on acceptance of downsizing. Although distributive justice did not have the predicted direct effect on employee morale, it did help to explain the effects of procedures on the employees' acceptance of change and morale by helping reduce anxiety about the change. The results disclosed that all employees needed specific leadership behaviors pertaining to inspiration, encouragement, and challenging the process to ensure that they achieved the best performance results. All in all their research clearly pointed out that the most severe and frequent job stress events occurred because of a lack of organizational support and stress due to inadequate pay and insufficient staff.

Manager

Managers are not immune to the traumatic effects of downsizing, either. A growing amount of literature draws attention to the fact that managers may also suffer from the traumatic effects of downsizing. This especially true for mid-level managers. As the previous discussion suggests, managers in firms undergoing significant restructuring are much more likely to feel that their psychological contracts have been violated and to respond with reduced loyalty and increased attempts to leave the organization.

Armstrong-Strassen, (2005) in her analyses of the empirical evidence, shows that management-level survivors are not immune from the adverse effects of downsizing. The author examined number of studies related to management reactions to downsizing in general without differentiating among the management levels.

Downs (1995) contended that middle managers have the hardest job of all during downsizing because they are usually the ones who are responsible for laying off employees and, at the same time, they worry about the permanence of their own jobs. The findings of the present study indicate that middle managers

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perceived a significantly greater sense of powerlessness over decisions affecting the future of their job than executive-level managers prior to the downsizing and that this sense of powerlessness increased significantly during the involuntary departure period.

Laying people off can be a traumatic situation for managers as this is an unusual and emotionally tense situation to which they are not trained and psychologically equipped. Quite often the managers make mistakes in communication that only contribute to damage of the company culture and social interactions. While top executives may make general, almost abstract, decisions about the total number of employees to be laid off, first- and second-line supervisors are often the ones who have to select and then personally inform the particular individuals to be let go. These front-line managers are caught in the middle, between their responsibilities to the organization and to their subordinates (DeWitt, Trevino, & Mollica, 2003). To dismiss employees who may be long-term colleagues or even friends is a traumatic situation that leaves a permanent label on managers who carry these decisions out. The layoffs cause so huge amount of much discomfort for managers that psychologists note a common tendency among them to try to minimize the discomfort by avoidance and distancing behaviors.

REDUCING THE TRAUMATIC EFFECTS

The most effective way to reduce the traumatic effects of downsizing is to avoid it. There are alternatives to layoffs such as:

- Internal transfers
- Restricting overtime
- Reducing the hours in a standard workweek
- Not renewing contracts for temporary and part-time workers
- Offering temporary leaves
- Job sharing
- Retraining
- Giving early retirement with preferential conditions
- Reducing executive salaries and incentive pay (Jackson et al, 2009).

However, downsizing can become an inevitable approach in situations when all the other alternatives are not realistic. To make this process the least painful for everyone, we need to look at methods which can minimize the traumatic effect of such processes. Some available methods that can assist the victims, survivors and managers follow.

The Victim

Companies usually offer the downsizing victims a severance package. Nevertheless, offering only monetary compensation is insufficient. One of the services that may help to reduce the traumatic effect of a lay off is outplacement. This service can be used as a part of the complex severance package.

Outplacement can be defined as a service that assists the management during the lay off period maintaining the positive image of the company. The service starts with the psychological assistance during the announcement of the decision of downsizing to group of employees or to individuals. The

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outplacement counselors are available to the victim of the lay off right from the moment of learning about the decision. This is important factor as the emotional support is needed from the first seconds to minimize later traumatic reactions which can be directed inward or outward toward the company, manager and other survivors. Our experience in coordinating large outplacement project clearly proves that this is the basis for the success of later intervention which is on more rational level. So, this psychological assistance should not be underestimated. It can contribute to shortening of the grieving cycle. In some cases, managers undergo training and coaching sessions aimed at managing emotionally distressing situations during the announcing of terminations. The timing of an outplacement offer is important because as time passes people tend to lose interest in such services after lay off.

After the psychological support during which the employees are accompanied through the emotional distress, the outplacement consultants start to work with the victims on analyzing their reemployment potential, auditing their experience, knowledge and skills and also proposing further training areas necessary for the labor market. The next stage of the outplacement process is the job search counselling and training starting with preparing resumes, and training in job search techniques. This is supposed to keep the victims activated and focused on future rather than dwelling in the past. Experience proves that people tend to look back and focus too much on what they did for the company and how unethical and unfair it was to lay them off. Therefore, these people need to be focusing on job search, training activities that concentrate their attention toward future. The important factor is to maintain the momentum in job search. Quite often employees who are left without this assistance tend to lose the work habits and routines. The critical period seemed to be around 6 months. After this time people struggle to be motivated in their job search.

The main goal of outplacement is reemployment of the laid off employee. We can call this service also a last benefit for the employee. It can actually help to maintain the image of the company, trust and reputation in the eyes employees as well as the public. The research of Messenger (2003) confirms that the outplacement improves the image of the company inward and outward as well. It reduces the level of managerial stress and improves the morale of remaining employees. The company is showing that it cares for employees and will not ignore them in the future if similar situation happens.

One of the conditions of successful outplacement is selection of outplacement experts. The external experts should be preferred. Victims accept the assistance from a different person or entity preferably to the one who actually caused the situation and laid them off. The main criteria for outplacement expert should be:

- Reputation and references
- The communication strategies and professionalism
- The professional background of outplacement consultants
- Flexibility in delivering the assistance methods

De Vitte et al. (2005) state the emotional support; education and individual coaching are the most important methods. Psychological assistance is necessary to minimize the reactions such as anger, denial and apathy. In some cases, it is necessary to include family member in the process of trauma healing after lay off.

Next, very important procedures lead to identification of skills, abilities and needs for further education and training. The career counselling should consist of resume writing, active job search, successful interview, establishing professional contacts, entrepreneurial training, etc.

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After the identification of educational needs, the outplacement professionals should recommend the educational institutions the victim should attend (any fees related to this should be part of the severance compensation).

Above all complex entrepreneurial training seems to be the most effective way in overcoming the unemployment especially in regions with high unemployment.

The recent trends indicate that the use of outplacement as a part of severance package is widely used. As revealed in the 2015 study by Lee Hecht Harrison (LHH) (Phuong, 2015) surveying nearly 400 employers worldwide, the majority of respondents stated that their organization offers outplacement, either full or partial, to all levels of employee. The study confirms our recommendations stating that 90% of respondents prefer human interaction in outplacement programs. They indicated that in-person meetings, seminars and coaching are deemed to be the most important elements of a successful outplacement program.

Despite of this, there is obvious trend to use information and communication technology (ICT) as main and/or supporting tool in outplacement programs. Using platforms that can support a variety of self-development options such as e-learning courses, virtual interview center, personality assessments along with consolidated job-search database seem to be very effective and efficient tools. The LHH study showed that more than 50 per cent of respondents praised such platforms. However, only 2 per cent of respondents prefer a technology-based outplacement program. These findings may seem a little confusing. The main reason for this discrepancy is the difference between using a blended approach with personal face to face contact and purely online outplacement program. A research study (Simuth, Sarmany-Schuller, 2010) clearly indicates that the lack of direct social interactions is one of the main barriers of using ICT as the only tool for communication in adult educational settings. Moreover, offering online help to traumatized employee is completely missing the point of what outplacement program is supposed to achieve. Based on this, the main recommendation is to use blended learning program with in-person interventions with a support of the ICT tools.

It is clear that the victims of downsizing go through a traumatic experience and depending on individual need to get through emotional healing process. The outplacement service can help to minimize the impact of the downsizing process.

The Survivors

As with the victims of downsizing, there are several ways to minimize the traumatic impacts of downsizing on surviving employees and managers. The main actors in the trauma reduction process for employees are managers themselves.

Therefore let´s, look at what would help managers. According to Ramsey (2004), following simple recommendations could minimize the negative impact of downsizing on managers:

- Make a big deal out of full disclosure.
- Radiate confidence and a “we’ll get through this” attitude.
- Show true care about former co-workers who have been let go and about those still on the job.
- Remind employees that the mission of the organization is still the mission.
- Rally the staff or crew by emphasizing the best insurance against further layoffs is to make them more productive, more profitable and more indispensable to the overall organization.
- Provide additional training and growth opportunities for employees.

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- Do whatever possible to lighten the load of your downsized workforce that is overstretched and over-stressed.
- Make a case to the front office for retaining all remaining employees.
- Take care of yourself so you have the resilience and energy to offer others all the support they need during tough times (Schiro, 2005).

A manager needs to create an environment where the emotional wounds could be open in creative non-threatening way to make a team of survivors up and running in the direction of new strategic goals. This can, however; be done by trained manager or by a trained specialist or by psychologist.

De klerk & Sasol (2007) propose a therapeutic model for healing emotional trauma caused by downsizing. This model consists of four interconnected steps.

1. Acknowledging the existence of trauma;
2. Providing a safe place to work through the trauma;
3. Symbolizing the trauma;
4. Allowing emotions and dealing with emotions.

First the organization needs to accept the existence of organizational trauma. Managers need to take action against the as Iancovini (1993 in De Klerk, 2007) described "the unconscious conspiracy of silence about the feelings of sadness, anger, denial and fear that employees experience" (p.66). As with physical wound, De Klerk (2007) claim, the wounds of emotional trauma should be open, the problem correctly addressed and emotions must be symbolized and dealt with before employees can progress to acceptance of the situation and it consequences. This is the role of managers and leaders. They not only have to allow the organizational members to deal openly with the traumatic emotions, they need to deal with their own trauma openly. Among the most powerful strategies for handling this are sensitivity to the traumatic, effects of change, compassion, emphatic listening skills, introspection to understand own emotions and ability to show and talk about their own traumatic symptoms.

The second step lies in providing a safe place where even the most irrational thoughts and emotions can be expressed openly. Many of the trauma victims do not understand the symptoms and get confused by their feeling and thoughts. They quite often blame themselves and feel that there is something wrong with them. The symptoms of trauma are very often associated with weakness; people tend to be ashamed of their thoughts and feeling and try to hide them. This can lead to traumatic residue that may last for years in some individuals. Therefore, De Klerk (2007), stress that such an environment needs to allow the traumatized people to express their fears, anger, and helplessness without being judged, moralized.

The third step is based on a therapeutic approach using the combination of expressive art therapy (e.g. drawing, painting, writing etc.) with narrative therapy (especially story telling). This approach is particularly important as adults tend to suppress their traumatic feelings and thoughts into their unconsciousness. Then, it is very difficult to express the true thought and emotions in front of a group of colleagues. As De Klerk (2007) clearly demonstrate, developing one's story can bring order to the emotional chaos of recollections and emotions. Putting the negative experience in words and /or images allows the victims of trauma to stop the inhibition process of their negative thoughts and feelings. They also describe how important it could be to use metaphors in this process. It eases discussing difficult emotions. This kind of approaches offer an environment providing emotional safety that makes the trauma visible explicitly and clearly.

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The last step refers to the grieving process during processing the trauma. Grieving is an emotionally heathy process that takes some time. Therefore, to fully overcome the trauma, a lot of patience is necessary. Hasty resolution of grieving usually leads to anger and resentment. The trauma victim needs to go through the whole grieving cycle as described previously.

A very important factor in this healing process is the use of humor. De Klerk (2007), stress that humor is a great way to deal with trauma. Humor and laughter can be reflecting and distancing from the grief at the same time, allowing the victim to recover and enjoy current life more fully. It is generally believed that laughter can be therapeutic. As the writer Leo Rosten says "Humor is the affectionate communication of insight."

Of course, we are aware that this approach is psychological and not every manager or leader would be able to pursue these steps. However, it is important to realize that the survivors of the downsizing process are the victims as well. They undergo emotional upheaval that quite often leads to traumatic experience with all the symptoms and consequences. Trauma in organization is a psychological phenomenon and needs to be treated by psychological methods.

Another way to look at the traumatic experience is from the perspective of psychological contract between the organization and the employee. During the restructuring and downsizing process the psychological contract can be broken and therefore it needs to be renegotiated. From this perspective managers must communicate clearly with employees about the scope of the changed psychological contract and the time frame within which violations will be remedied. One of the conditions for this is carefully and honestly explain any external forces which cause organizations to "change the deal" to all survivors. After the change, managers should avoid micro-managing employees during, otherwise employees would get the feeling of decreased autonomy and responsibility which would contribute to their feelings of hopelessness.

CONCLUSION

This chapter has shown the trend of using organizational restructuring accompanied by downsizing as a common strategic tool. Whatever the expectations of this process are, it always entails some degree of organizational trauma. The author indicated that organizational trauma is actually a trauma for specific individuals who happen to be members of the organization. A body of research was provided clearly demonstrating that this process can be very traumatic and have serious consequences for individuals. The people who are affected the most are those who lose their jobs. As a consequence, they suffer displaying clear trauma symptoms such as anxiety, decreased commitment, and emotional numbness, lack of focus, sadness, uncertainty and withdrawal. One way to minimize the impact is to offer to these victims of downsizing the benefit of outplacement services. We have shown that outplacement can be an effective method if it follows certain principles. The core principle is to maintain a personal contact of the outplacement consultant with the victim right from the moment of learning about the job loss until reemployment. This principle needs to be stressed nowadays when there is a trend of using ICT in supporting victims. The author recommended a blended approach including regular personal contact with a support of ICT in some aspects of learning and job search.

The author has also provided enough evidence to show that downsizing can have negative impact also on people who remain in the company. These survivors show the trauma symptoms such as higher level of stress, anxiety, depression accompanied by loss of interest in socializing with colleagues, irri-

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tability, pessimism and feeling of inadequacy. As a result these employees show lower morale, decrease in productivity and tendencies to distrust management. This, then, can have negative impact on the productivity, customer satisfaction resulting in loses rather than higher profits. As noted, downsizing has traumatic effects on the employees who remain in the company as well as on managers. In some instances, the effect can be very similar to the experiences of the terminated employees if not even more severe. Managers need to carry on with the trauma survivors, provide them with support and keep the business running toward the new strategic goals at the same time. Therefore, the author proposed a procedure based on a therapeutic model that can help the managers to go through the traumatic experience in a healthy way. This would enable the manager to create an environment where the emotional suffering can be discussed in a creative and non-threatening way. The author firmly believes that this is the only way to make the remaining employees loyal again, and to keep them productive and innovative even after such turbulent period.

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KEY TERMS AND DEFINITIONS

Downsizing Survivor: An employee or a manager who remain at the company after the organizational restructuring accompanied by downsizing.

Downsizing Victim: A person whose contract is terminated due to the organizational restructuring accompanied by downsizing.

Organizational Downsizing: Process in which a company attempts to optimize its human resources by reducing the number of employees.

Organizational Trauma: A situation in which the members of the organization go through an unpleasant situation that causes traumatic symptoms.

Outplacement: Service provided to assists the management during the lay off period maintaining the positive image of the company.

Trauma Healing: A directed process in which a manager or specialist use therapeutic methods to help the employees to deal with their negative emotions during and after the traumatic period.

Trauma Symptoms: Typical reaction to organizational change that is dramatic. Such symptoms include, stress, anxiety, depression and fear.

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Chapter 86
Making the Unbearable Bearable through Existential Spirituality

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ABSTRACT

In this chapter the case is made that spirituality can indeed have a significant impact upon practical life. Existential spirituality refers to the way one gives meaning and purpose to one's life. The value of spirituality is best appreciated when one's life undergoes an existential crisis, particularly when a worldview, which was assumed to give sense to one's life, no longer has the legitimacy it once had. When a religious, traditional or customary doctrine or worldview loses its authority through an existential crisis, the individual often experiences nihilism. This can often make an experience of hardship quite unbearable because one's suffering is unable to reference any grand narrative or framework of meaning to give sense to one's situation. Using Kierkegaard's three stages of existence, it is argued that making one's spirituality more authentic by taking personal responsibility on an individual level, might be able to make unbearable experiences more bearable.

INTRODUCTION

Spirituality is found in the very core of our being and because it is so deep its impact upon everyday living is not often recognised. However, it usually receives our attention especially when it is 'weak' or absent typically perhaps when we are being deeply reflective or during a difficult time in our lives such as when suffering or confronting an existential crisis. This is echoed by Debats (2000, p. 102) who explains that "[w]e are reminded of Frankl (1973), who stated that, in general, the issue of the meaning of one's personal life has no relevance until some personal or professional crisis occurs." Often this can occur when one's worldview, usually established in traditions, doctrine and 'authoritative' representations for life, fail the individual in particular contexts. When one lacks an adequate spirituality – i.e. when one can be understood as 'spiritless' – the impact can be quite obvious through feelings of ennui, boredom, anxiety, sorrow, uncertainty, angst, depression, emptiness, meaninglessness, or even as an

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unbearable grief in which one is unable to navigate purposely through a particular situation. The need to become spiritual, in an authentic manner in such a situation, is understood to potentially have a huge impact. This is because an authentic spirituality can enable one to come to terms with and work through one's present condition by finding meaning and purpose beyond the immediate situation. Such an impact can therefore make a difficult or even a seemingly unbearable experience to become bearable. In this chapter, it is argued that making our spirituality more authentic in an existentialist sense, can possibly enable lives to become more meaningful – even in some apparently meaningless or unbearable situations.

SPIRIT, SPIRITUALITY, AND THE RELIGIOUS

It can sometimes be difficult to take spirituality seriously, especially regarding its potential role or impact upon 'real' practical life in the 'here and now'. One of the problems that has contributed to this is a tendency to reify what we understand by 'spirit'. Doing so, leads to questions such as what is the 'stuff' which spirit consists of? Is it partly divine? Is it immortal? From the Greek term *pneuma* and the Latin term *spīritus* we understand that spirit refers to a life-giving breath of vigour and as such it is not a 'thing' but rather is more like a life-giving 'force'. Consequently, spirituality can be understood to refer to the desires, interests and purposes which energise us, and also give inspiration to our existence. Consequently, spirituality is not a commodity that we can obtain, but it refers to our very being where, for example, being either full of spirit or being spiritless can be aspects of the manner or the way in which we participate in living our lives and facing our challenges.

In addition to avoiding reification in order to take spirituality more seriously, it is also important to recognise that spirituality is not dependent upon religion (Webster, 2009). Spirituality refers to the ultimate meaning and purpose for life and it can often appear religious. However, it is important to recognise that spirituality is not identical with religion because spirituality is pertinent for all persons – both the religious and the non-religious. Religion can tend to represent a particular body of doctrine which an adherent can obtain and so it can be related to epistemology. Smith (1978, p. 20) usefully recognised that the Latin *religio*, being the root for 'religion', has a much "more stable history" as an adjective rather than as a noun substantive concept. Hence other derivatives such as *relegare* and *religare* refer to the manner in which activities – such as worship – are undertaken.

In a similar sense, Caputo (2001, p. 43) has identified that in the Middle Ages the term *religio* was understood to be a virtue and hence it is more ontological in nature because it refers to the attributes of people rather than statements of knowledge or beliefs located beyond people usually in sacred texts. This understanding has led him to state elsewhere that "to be 'religious' in its deepest sense is to be a searcher, living in search of something" and he contrasts this with those who "are satisfied with the reality that sits under our noses" (Caputo, 2007, p. 38) who are not questioning, doubting or grappling.

Being religious refers to a way-of-life or a way of living, while having a religion can refer to a particular set of doctrine, which can be obtained. In this context spirituality is associated with being religious because it represents a life of continual searching and meaning-making, of living the questions. This is in contrast to one who has 'found' answers and is no longer doubting, searching or questioning and has succumbed to what Dewey (1929) refers to as the quest for certainty. The spirituality of religious persons pertains to how they relate to and live out their religion and this often occurs at an individual and very personal level. Being able to live a good life and being able to die a good death necessarily requires persons to have a rigorously developed spirituality, which may or may not make reference to any religion.

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This is not to say, however, that people who have a religion cannot also be spiritual. Spirituality for those who are religious therefore refers to the manner that they relate to their religion. So, while one may be an adherent to a particular religion, one may still be questioning and searching for important meanings to gain 'deeper' insights and more nuanced meanings regarding certain aspects of one's life. Spiritual people can be identified by their openness to new meanings and the possibilities associated with re-considering current beliefs and values, rather than stubbornly hanging on to particular meanings in a closed-minded fashion, being unwilling to re-evaluate one's beliefs.

The ultimate meanings associated with spirituality can be sourced in two basic ways. Firstly, they can be found in formalised systems such as religions, ideologies or philosophies, and secondly these meanings can be created by individuals. Yalom (1980) refers to the first kind of sources as Cosmological, as they proclaim various worldviews about the meaning of life and are typically associated with mainstream religion, while the second source is found within individuals themselves, which Yalom terms as Terrestrial as this existential kind relates to each individual as the meaning of my life in contrast to the meaning of life. It is important to recognise that these two sources overlap with each other in the form of hermeneutics where individuals make meanings for themselves within the context of their immediate culture in which they reflect upon traditional and 'authoritative' narratives which may be partly or completely embraced, adopted or rejected and how one chooses to relate to these. 'Terrestrial' or existential meaning is not created *ex nihilo* as if the individual could transcend reality and' bracket out' (as per Husserl's *epoché*) all the objective realities which have been encountered. Spirituality therefore refers to a dialogical engagement with both the Cosmological and Terrestrial dimensions.

EXISTENTIAL SPIRITUALITY

In order to better appreciate the potential impact that spirituality might have on 'real' life, it ought to be understood as being existential in nature (Webster, 2004). Existentialism, unlike other more esoteric philosophies, is one of the most important practical philosophies "to be lived" (Cooper, 1999, p. 21) and therefore it is not a philosophy of purely subjective inwardness but is inescapably integrated with the environment and all others that are encountered. As a philosophy, Existentialism deals with meanings of existence and it is often called upon to engage with any felt meaninglessness of life as per Sartre's nausea and musings on the absurdity of life, often with references to nihilism. Certainly, existentialism is related to various 'crises' of sorts when an individual is confronted with an apparent emptiness, vacuum and meaningless to their existence as has been portrayed through Edvard Munch's painting *The Scream*. However, the immediate individuating response to an existential crisis is only one aspect of this philosophy. It is also able to offer some guidance for providing purposefulness for life, and therefore it has an important role to play in making the unbearable bearable, when such purposefulness is lacking, to be able to live well in a very practical sense.

When spirituality is understood to be existential, it becomes clearer to understand that it addresses a role that the individual must actively undertake. Writers, psychotherapists and theologians who draw on Existentialism, all identify that the active role required of individuals to take personal responsibility for giving themselves meanings and purposes to live by, is very difficult. It is much easier for people to surrender their individual freedom in this regard and to conform to what many others believe in, such as external authorities found in traditions, customs and cultural norms. The acknowledgement of this challenge is partly captured in works such as Eric Fromm's (1942) *Fear of Freedom*, Rollo May's (1981)

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Man's Search for Himself and Paul Tillich's (1980) *The Courage to Be*. There are other examples of course and they draw on a broad range of theistic, humanistic and existential preferences. Importantly, their focus is upon enabling humans to live well in a very practical sense.

Existential spirituality provides the 'why' and the foundation for morality and how people understand what it means to be a good person. Without this, individuals would be adopting a passive and obedient way-of-being to accept authoritarian moralities which are external to themselves Our desires regarding what we want to do, what we want to attain and what we want to become, are very much embedded within our spirituality. Consequently, because it is existential, our moral conduct is not dependent upon passive obedience (in a deontological sense) to external codes of conduct and authorities found in various legal, religious and secular sources. Rather our conduct with others and the way we live our lives through practical activities are expressions for how we understand what it means to live a good and purposeful life. The definition of 'good' must in this context make continual reference to the relations with others and to the environment in which one finds oneself. This is much like Dewey's (1985; 1988) individualism where being moral requires individuals to make constant reference to how their activities are affecting others – hence his reference to morality as consisting of the whole character of individuals. There is therefore a very important link between spirituality and the desires that people have. Existential spirituality which is authentic may even allow people to transcend common codes of ethics (Caputo, 1993) understood as what authorities and/or traditions require of citizens, and instead engage with the 'big picture' concerns regarding ultimate meanings and purposes of a good life. Kierkegaard refers to this as the 'teleological suspension of the ethical' – meaning that an individual doesn't necessarily have to be bound to universal ethical rules if there is a higher purpose that is able to transcend such rules. This can be difficult to understand and accept but it has great importance for enhancing personal responsibility and potential in an existential sense, which is a central key for living a personally meaningful life. Due to the potential impact of this, it is considered important to explore some of Kierkegaard's works on this matter.

KIERKEGAARD'S THREE STAGES OF EXISTENCE AND SUBJECTIVE TRUTH

Although Søren Kierkegaard (1813 – 1855) was a Christian philosopher, much of his insights have been adopted by humanists and secular psychotherapists. Before him, Hegel (1983) employed the concept of spirit (i.e. Geist) in three different ways – the Subjective; Objective; and the Absolute, which transcends differences to achieve a unified system or theory of understanding. Kierkegaard (1992, p. 112) rejected this emphasis upon 'systematizing' and 'objectifying' existence arguing emphatically "that there can be no system of existence and that a logical system must not boast of an absolute…" and instead argued for the predominance of the contextual and uniqueness of individuals which comes to the fore through reflection. He argued that by being educated "spiritual existence [is] intensified by reflection" of a dialectical sort in a continuous manner, but without reaching a 'final' conclusion as is often presented via 'objective' knowledge. There are similarities which Kierkegaard shares with Dewey (1929, p. 88) who also promoted a rigorously reflective attitude that one ought to have "toward the material of direct sense-perception" including 'facts' of religious beliefs.

It is important to recognise that this existential perspective of Kierkegaard's is not solipsistic. It might be argued by those with more 'objective' leanings such as Rieff (1966) that through Freudian psychotherapy persons become lost in self-interest and isolated from others in society, including being isolated

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from moral authorities. Dworkin (2015) and O'Hara (2009) however, position Rieff and his perspective as failing to appreciate the relational nature of persons from an existential perspective. Clearly individuals are embedded in a multitude of I-Thou relations for which s/he is inescapably morally responsible. So, in contrast to the isolated and self-interested characteristics associated with solipsism, existentialists understand the individual to be primarily a relational being.

This existential perspective offers some differences to psychotherapy that have been espoused by Freud. For example, Rollo May (1983, pp.14-15) indicated what makes Kierkegaard's writings an attractive addition to traditional psychotherapy sources is that "Kierkegaard was writing about exactly what my fellow patients and I were going through. Freud was not …Freud …knew about anxiety. Kierkegaard … he knew anxiety". As such, it can be appreciated that psychotherapists who draw upon Existentialism do not consider themselves as the sorts of 'priests' that Rieff (1966) feared, because they are focussed on sharing their human-ness phenomenologically with their clients (Reker & Chamberlain, 2000; Sharpio, 2016). It would appear that in order to offer others profound insights regarding the meaning and purposes of human life, one first has to undergo some direct existential confrontations oneself in order to gain an authentic understanding (Shapiro, 2016). Kierkegaard himself experienced some critical existential crises in order to communicate to his readers that he really knew anxiety and existential suffering almost to the point of it being unbearable to himself.

In order to appreciate Kierkegaard's (1988) insights regarding existential spirituality, it is helpful to review his three 'stages' of existence or rather 'existence-spheres'. The first is the aesthetic stage and represents the pursuit of happiness. However, this stage is much like irresponsible hedonism, where one pursues temporary pleasures one after the other and attempts to avoid all kinds of unpleasantness, pain and suffering. Being motivated by these two main principles of pleasure and pain is actually enslavement to one's caprice and base appetites or alternatively enslavement to external authorities who determine how 'good' is to be understood and experienced. Consequently, this stage of existence invites people to choose between taking on certain roles assigned to them in life to perform what is expected of them. Even being 'ethical' is reduced to a form of obedience such as Bauman (1991) observes of 'good' Nazis. Kierkegaard refers to these roles as masks which hide the real 'self' of individuals. If a person living in this first sphere of existence was to undergo suffering, such a person would be very limited for dealing with it. This is because her mindset understands that all suffering is wrong and ought to be avoided. Pain and suffering are understood to be unwanted inconveniences to the pursuit of pleasures and if such suffering is severe or prolonged, they can be considered to be unbearable.

The second stage of existence for Kierkegaard is termed the ethical and it focusses upon personal responsibility. In contrast to playing various 'roles' as per the previous aesthetic stage, this ethical stage unites the person as a responsible self who is committed to a particular moral code of conduct and uses it to constantly measure or judge himself or herself against. Such codes, be they religious, legal or cultural, have authority over one's life. They determine the meanings of present and future situations – including the occasions of suffering. All that is required is the commitment and obedience of the individual. If there is to be an experience of suffering, then this is given 'sense' through the code to which one is attached. As long as one accepts that such a code has authority over one's life, then suffering can be made bearable by giving it meaning in the overall doctrine. Suffering can be accepted stoically because it is understood to be one's lot in life. However, if the legitimacy of the code itself is doubted and an individual is unable to reconcile their own suffering as having a purposeful role within the doctrine, then such suffering (and indeed perhaps life itself) might become meaningless as the moral code is no longer believed to be legitimate or 'true'.

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The third stage of Kierkegaard's is the religious stage, which he argued can in some (extreme) situations actually take one beyond – or 'suspend' – ethical codes. His best-known example is found in his (1983) book *Fear and Trembling*, which refers to when the patriarch Abraham who, when spoken to by God, agreed to sacrifice his son Isaac. Kierkegaard explained that this event can only be understood religiously because if we only consider it from an ethical perspective, then we must condemn Abraham as guilty of the intention to murder. Clearly Kierkegaard's religious perspective is specifically Christian as some Jewish authors (e.g. Levinas, 1998 and Rieff, 1966) interpret this event differently to Kierkegaard. From Kierkegaard's Christian perspective Abraham is not guilty of criminal intent but rather he can be understood as the father of the faithful. Importantly through this story Kierkegaard identifies that faith is necessarily a very individual affair for which the universal realm (of ethical codes) does not have authority. In this sense the individual is alone and separated from the certainty and comfort that is often promised by doctrines, which can give sense and purposes to existence. Walking by individual faith is therefore a risk-filled existence that can simultaneously involve anxiety and angst as well as a sense of empowering freedom.

Due to its very nature, the foundations and justification for one's faith cannot be clearly communicated in an intelligible way to another person because it transcends the rationality of meanings which are intrinsic to language itself, and so Kierkegaard often describes Christian faith as a paradox. It is also not something that is developed by an inwardness but is dependent upon a relationship with the divine, which takes one outside of oneself and even beyond rationality. Faith is not obtained simply by reading books or listening to sermons, but rather it is cultivated "by immersing oneself in existing" because Christianity itself "is an existence-communication" that an individual has alone with God (Kierkegaard, 1992, p. 560). While this is important for Christianity as understood by Kierkegaard, there are some practical implications that can be gleaned for spirituality in general, which refers to Kierkegaard's notion of subjective truth about being alone in relations.

For Kierkegaard's (1992, p. 33) pseudonym Climacus, "Christianity is spirit; spirit is inwardness; inwardness is subjectivity; subjectivity is essentially passion…". This indicates that this third 'stage' or sphere of existence for Kierkegaard – the religious state of being – is quite different to the second stage of the ethical, which relies upon certain rules and codes having authority over the individual. Climacus is clear that Christianity is not a doctrine (ibid., p. 383) but instead is the intense and single-minded ultimate interest (passion) that an individual can have for the whole of her existence. This is essentially subjective in the sense that the meaningfulness of one's life is not 'objective' as if it could be obtained through an impersonal statement of doctrine. Rather it is only possible through the way that one personally relates to the divine in a dialogical relationship. Kierkegaard's subjectivity is not solipsistic because it is the relationships that are engaged with and that give it grounding in 'reality'. This is echoed by others such as John Macmurray (1961, p. 28) who explains that "Now we have recognised that our change of attitude takes us from the isolated self to the self in relation to the Other …I exist as an individual only in a personal relation to other individuals." This is very similar to the I-Thou relation of Buber, which he argued represented a shift from communication to communion. For Kierkegaard (1998, pp. 109 & 115) this notion is based on his understanding that "Christ …would not have anything to do with the crowd" and instead only wanted to relate "to the single individual" in a meaningful relationship – which simultaneously includes everyone in relation with him/her-self and with each other.

Due to the understanding that Christianity is fundamentally a relation of dialectical communication – or communion –, Kierkegaard did not spend effort arguing for the objective reality and existence of his Christian God and divine Son. Instead, he claimed that "objectivity is believed to be superior to subjec-

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tivity, but it is just the opposite" (ibid., p. 185) and throughout his works he argued for the importance of subjective reflection being understood as subjective truth. He focussed upon how we as individuals relate to God – even as a possibility. This priority of the 'how' of our relating over and above the verification of any 'what' of an object's existence, led him to claim that subjective truth is the most valuable sort of truth we can be a part of (Kierkegaard, 1992). The issue for our reflection is not to verify whether objects such as God actually exist, but rather to reflect upon how we make sense of our relating to God and the meaningfulness that we understand our lives to have. Here Kierkegaard's notion of subjectivity can be appreciated to be a central component to phenomenology and hermeneutics – especially through Heidegger and Gadamer.

This notion of subjective truth might be explained more clearly using a couple of examples. The first of these involves Kierkegaard's story of a flower growing up on a pile of dung in an obscure part of a back garden. In this situation, the flower might reflect "I myself have not been able to determine the situation and the circumstances, and so it is not in the remotest way my affair; that I stand where I stand is God's will." (Kierkegaard, 1971, p. 339). The unfortunate location where the flower finds itself represents the 'throwness' – as per Heidegger's (1996) 'facticity' – that we often find ourselves in life, being in situations that we would prefer not to experience because they are either uncomfortable, unpleasant, or involve suffering. Nevertheless, no matter what our current situation, we might be able to find or create some meaning that gives sense and purpose to our existence.

The second example for explaining subjective truth is with reference to the story of the Good Samaritan who came upon a victim of crime while travelling along a road. Kierkegaard uses this metaphor to argue that what matters is not the actual road upon which our lives are travelling along, but how we are travelling on the road. He observed that the same 'objectively real' road in the story was walked upon by five different people – the victim, robber, priest, Levite and the Good Samaritan. He comments that "spiritually speaking, we have to say that each one walked his own road – so the highway, alas, makes no difference, it is the spiritual that makes the difference and distinguishes the road" (Kierkegaard, 1993, p. 290). Interestingly, he argues that 'worldly wisdom' is deceptive when it focusses solely upon the question 'where is the road?' as exemplified by such questions as 'where might I find truth?' – as if this were a commodity to be located and obtained. This is problematic because it reduces one to pursuing an external source to have authority over how one ought to live. He claimed that "spiritually understood the road is: *how* it is walked" [original emphasis] (Kirkegaard, 1993, p. 291) and importantly that this is more difficult to live well rather than simply 'finding' an objective road as promoted through Rieff – even although it might be a true one, such as true religion or philosophy.

Kierkegaard's notion of subjective truth indicates that our personal identity is a task activity achieved through exercising one's interest, will and purpose. Similarly Dewey (1985, pp. 361-2) argues that "In fact, self and interest are two names for the same fact …interest means the active or moving identity of the self with a certain object…" Rather than essentialise ourselves with an identification which is formed through our 'throwness' in the world, for example, a flower on a dung heap, or our gender, ethnicity, social status, death of a loved one or a disability -, our identity is formed through how we give sense and purpose to the conditions with which we live. This involves evaluating the way that we relate to all the elements in our environment. This is where the role of suffering may actually enhance one's capacity for living a more purposeful life when it is understood that while the crisis can be unique to the individual, each of us is nevertheless a unique person with an identity that is uniquely our own. No one else can experience the exact hardships we experience. No one else can die our death. Only we as individuals can experience the uniqueness of these events. Our experiencing of these encounters can

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contribute to our own uniqueness and help us to be the individuals we are. However, this is not always easy to appreciate when feelings of anxiety and suffering appear overwhelming and even senseless as in the case of nihilism.

UNBEARABLE DISPAIR AS NIHILISM

Nihilism is an orientation to nothingness and meaninglessness and when one is confronted with a crisis which might be considered as being unbearable, there is also a nihilistic sense of meaningless associated with the encounter. The philosopher Friedrich Nietzsche (1967, p. 9) described nihilism as a condition where an "aim is lacking" and the question "'why?' finds no answer." It often emerges when individuals come to recognise that their taken-for-granted cultural traditions, including religious and moral norms, have lost their significance and/or legitimacy for giving meaning to their lives. Nihilism is similar to being spiritless because it understands life to have no point or purpose to it. A person who is nihilistic acknowledges an absence of a 'grand narrative' that might give meaning to an immediate situation or even to one's existence in general and has not (yet) generated a purpose of their own to replace the traditional one.

Nietzsche (1967, p. 23) offers some valuable insights into nihilism, describing it as the absence of any "ultimate meaning". He lamented that the dominant culture of his time promoted a 'herd mentality' and a 'slave morality' which lost sense of people as being unique individuals and focussed instead upon the expectation of all to passively comply and obey for the purpose of 'fitting into' their assigned roles and to perform what was expected of them to ensure the public 'good'. He observed that the traditional norms of a culture offer individuals their meaning and purposes for living 'a good life' in an authoritative manner, but this subsequently makes them into 'good' slaves.

This condition of slave morality is described by Nietzsche (1998, p. 24) as being nihilistic, who argued that "[w]e see today nothing that wishes to become greater, we sense that things are still going downhill, downhill – into something thinner, more good-natured, more prudent, more comfortable, more mediocre, more apathetic…". He identified that the loss of the individual will to a surrender to the mass, attracted a certain 'approval' by authorities as being 'good', but he saw this as a 'levelling' which enslaved people to the will of others. In response to this, Nietzsche took a position that was against people becoming 'uniform', 'regular' and 'predictable' and instead he argued for a sovereign individual, who, "resembling only himself, [becomes] free again from the morality of custom, autonomous and supermoral" (Nietzsche, 1998, p. 36) who is so free that he can create his own values and can choose his own good and evil (Nietzsche, 1966).

Nietzsche has often been misunderstood as an 'immoralist' (to use his own term) because of his call to challenge cultural norms by 'sounding them out with a hammer' and to live a life of 'master morality'. Interestingly, he argued that those who give up on religion tend to "cling that much more firmly to the faith in morality" and yet every system of morals without a religious background "necessarily leads to nihilism" in the sense that there lacks an answer to the question 'why be moral?'. Nietzsche contended that individuals ought to be able to give their own personal reasoning and justifications for choosing to live their lives the way that they do – even although their reasons may take them beyond the realm of pure rationality. He encouraged his readers to become 'free spirits' who could be identified by the fact that they could think differently to what is commonly believed and taken for granted by mass society (Nietzsche, 1996, p. 139). One of the purposes he had for making such an argument was that he was

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concerned about the lived experiences of the individual having their meanings being given from outside sources such as legal customs, religious traditions and moral codes, because this tends to marginalise personal responsibility. Consequently this submission to slave morality encourages the will of each individual to be 'unfree' because people become slaves to what is assumed to be necessary.

In contrast to this, Nietzsche argued that individuals ought to break free from their unquestioning dependence on customs and traditions, re-evaluate their values and even 'create' their own. Importantly, he didn't argue that all values should be rejected but rather that their legitimacy might be evaluated. Morals ought to have a 'why' to justify their value and currency. This requires individuals to exercise their own will because not only must they critically examine the customs of society, but they must also be committed to living according to particular purposes. Nietzsche (1990, p. 33) recognised that this was very important and even empowering for each person as he explained that "if we possess our why of life we can put up with almost any how." This is crucial if people are to bear situations of suffering, which can appear unbearable to them.

A sense of nihilism can often accompany situations where one is suffering without apparent 'good reason'. This kind of meaninglessness is in contrast to examples such as 'suffering' the pains and anxiety of childbirth or 'suffering' through the pain barriers of exercise, because these sorts of experiences have readily recognizable meanings which transcend the immediately difficult time by referencing some expected good consequences that the present situation is contributing towards. Being nihilistic or spiritless occurs when one's existence or situation of suffering or emptiness appears to be without sense, that is, 'senseless', and without a connection to any purpose beyond the present moment. As Nietzsche argued, having a purpose or a 'why' helps to face such situations more ably and even to be made more bearable. This understanding has been adopted by Victor Frankl, who through his approach to psychotherapy, has used it to explain why some individuals have been able to cope with some extreme and unbearable sufferings such as those which he witnessed in the concentration camps during the Holocaust.

While Frankl's context of the concentration camps might appear extreme, he has nevertheless argued through his research ever since, that no matter what our circumstances, humankind's spirituality (which he describes as our search for ultimate meaning) is universal and is necessary for living well. His 'Logotherapy' approach to psychotherapy is designed to heal through the formation of meanings. It is clearly secular and Frankl limits how often he references spirituality so as not to confuse it as a therapy that might be construed as religious. He claimed that "[t]he consciousness of one's inner value is anchored in higher, more spiritual things, and cannot be shaken by camp life" and he provokingly asks, "But how many free men [sic], let alone prisoners, possess it?" (Frankl, 1984, p. 83) to indicate that an authentic spirituality is not common. He references several studies, especially of young adults, to conclude that 'developing a meaningful philosophy of life' is a more valued life-goal above others such as making money and improving one's living standards (Frankl, 2000). However, this life-goal is very difficult to achieve. Frankl critiques Maslow's hierarchy of 'needs' claiming that the search for a meaningful life should not be considered the last 'need' to be attained after all the biological and psychological needs have been met. Rather, he contends that spirituality is the most fundamental 'need', especially so when the other needs are not being met – such as in the concentration camps which he experienced. Indeed, it is often when people lack some or even only one of the other 'needs' for a good life in Maslow's list such as food, shelter, health, relationships, self-esteem and love, that spirituality then can be understood as offering significance for practical living. It is able to make an unbearable situation more bearable.

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THE IMPORTANT ROLE OF SPIRITUALITY DURING SUFFERING

Unbearable suffering – be it extreme anxiety, apathy, despair, or physical/emotional grief – can be made more bearable if some sense can be given to the event which gives it a 'place' and therefore a purpose in a big picture understanding of life. Failure to give sense to such suffering can lead to a sense of nihilism. Due to Kierkegaard's intense interest in living as a Christian, he understood that being called by God usually also involves some suffering in order to partake in the sufferings of Christ. Clearly suffering is also experienced by those existing in the aesthetic and ethical stages of existence, but in such cases it is usually understood as being accidental. For Kierkegaard's religious stage suffering has a more significant role for deepening an understanding for life and for undergoing further repentance and therefore personal transformation. He explained that suffering is "crucial for religious existence" and "the more that is suffered, the more religious existence" (Kierkegaard, 1992, p. 288). Kierkegaard was well-aware of the role that suffering has for Christianity in the sense that it often plays an important part in purifying the hearts/motivations of those who are converted. He stated that "in the profoundest sense one may suffer indescribably, also have one's thorn in the flesh, but despite this …one can find joy …to live for an idea" (Kierkegaard, 1998, p. 229). Debats (2000, p. 105) notes that it is important to recognise that meanings reside in meanings and are not to be found in the empirical world or with 'things'. Therefore one must often go beyond immediate experiences in order to attain meaningful insights which might offer some purpose to one's suffering.

It is more than an intellectualised idea that is needed to bring one through an experience of suffering, because the idea must be lived with intense belief and interest. Kierkegaard (1992, p. 313, 387, 397) claims that "the existing person continually has a *τέλος* [ultimate purpose]" which is able to play a significant role in transforming individuals through how they relate to various entities, by appealing to a sense of happiness, fulfilment or meaningfulness. Such a *telos* must be related to with a totally committed subjective truth that one understands that the purposefulness of one's life literally depends upon it. In his entry titled, *The Gospel of Sufferings*, Kierkegaard (1993, p. 235) argues that for the religious person "the heavy burden is beneficial – that must be believed; it cannot be seen. Later it perhaps can be seen that it has been beneficial, but in the period of suffering it cannot be seen." Elsewhere he explains that in many instances our lives 'make sense' when we look backwards and can see how the consequences of certain events – such as those involving suffering – have all had an impact on how we have developed, changed and become the persons we are today. However, in our day-to-day existence we must live our life forwards. This means that we are unable to know what the long-term future consequences will be from the situations in which we currently find ourselves. This is why Kierkegaard encouraged his religious readers to believe in the good of their current sufferings even although it may not be apparent in the immediate moment how their lives are to be benefitted from the hardship.

Importantly, Kierkegaard warns of an attitude which might work against spiritual growth. When in the midst of a suffering situation, people might hope for relief from an unseen hero such as a god-like king in a Molière play, who almost magically intervenes at the final scene to make everything right. This might be reflected in the wish for an outstanding physician with a guaranteed cure or the return of a loved one. Kierkegaard argued that such an attitude is problematic because the focus of the one suffering becomes focussed on the immediate (temporal) situation and its relief, rather than upon the long-term/eternal life that lies before one. Consequently, there is only a concern being given to the temporary realm and for finding comfort in it rather than in something more substantial and longer lasting. This is in contrast to the one who is focussed upon the long-term/eternal rather than the temporal. Such a person understands

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the importance of what sort of being she is becoming and what sort of virtuous character she has become to be able to take with her into the (eternal) future. Kierkegaard (1993, p. 379) acknowledged this in his statement that "the person who truly wills to suffer everything disdains temporality's relief and thus is comforted eternally."

In the previous section reference was made to Kierkegaard's review of the story of the Good Samaritan and that the key for spirituality in this passage was not so much finding the 'right' road in an objective sense, but rather how one walks upon the road that one finds oneself 'thrown' upon. It is important to note that the road to which Kierkegaard refers, is the 'narrow' and 'hard' one, which Christians are called to travel. This is why he titles this section of his work as "*It is not the road that is hard but that hardship is the road*" [original emphasis] (Kierkegaard, 1993, p. 292). Throughout this section of his book he repeatedly uses the phrase "hardship is the road" to emphasise that spiritual life does not necessarily depend upon searching to find a particular road/ultimate meaning/true doctrine in an objective sense, but rather bearing up under the hardship that one might be experiencing in the here and now. He observes that most people have often commenced upon a road of life for living well by willing the good. However, "most people fall away when it is apparent that the road becomes harder instead of easier." (ibid., p. 297). This seems to be the point that he is making for being spiritual – one "does not so much as a moment …looking around – no, with all his might and main he is in the hardship, joyful in the hardship, joyful in the thought that hardship is the road." (ibid, p. 299)

The value of this understanding is not limited to Kierkegaard's philosophy or to existential Christianity, but it is also taken up by those who intervene in the lives of those who are suffering in order to help them. Psychotherapist and author Scott Peck (1978, p. 13) in his *The Road Less Travelled* commences his first chapter with the sentence "Life is difficult". In his book, he makes the case that "it is in the whole process of meeting and solving problems that life has its meaning." (ibid., p. 14). This could be understood as the manner of walking the road, rather than the road itself. In his work he makes the case that the spiritual growth of his clients is often due to them taking on personal responsibilities for engaging differently with the situations that they are grappling with, rather than 'solving' them through the removal of the actual hardships themselves.

Similarly, the psychiatrist Viktor Frankl, through his Logotherapy, has aimed to heal his clients through their exercising of their own 'will to meaning', rather than providing them with strategies to remove the objective conditions of the hardships. Frankl was familiar with the works of Kierkegaard and his therapeutic approach is reflective of Kierkegaard's subjective truth. To illustrate this, Frankl shares the following;

An example of meaningful suffering drawn from my own practice is the story of the old general practitioner who consulted me because of his depression after his wife had died. Using the form of a Socratic dialogue, I asked him what would have happened if he rather than his wife had died first. "How she would have suffered," he said. I replied, "Don't you see, Doctor, that great suffering has been spared her, and it is you who have spared her this suffering; but now, you have to pay for it by surviving and mourning her." Our dialogue induced him to discover a meaning in his suffering… (Frankl, 1988, p. 90)

Here we can appreciate that the objective conditions relating to the suffering of this man – that is the death of his wife – did not change. However, he came to see the situation differently and therefore the manner of how he related to this unbearable suffering of her death, did change. This is the potential

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value that existential spirituality can offer. It can potentially transform an unbearable sense of meaningless suffering into a purposeful activity.

MAKING THE UNBEARABLE MORE BEARABLE THROUGH THE AUTHENTICITY OF ONE'S SPIRITUALITY

Spirituality is able to have a significant impact upon practical life. It is able to transform senseless and nihilistic hardships into purposeful activities. This has been recognised by Rollo May (1983, p. 37), who observed that "…psychotherapists, confronted as they are in clinic and consulting room with the sheer reality of persons in crisis whose anxiety will not be quieted by theoretical formulas", require a spirituality which is very practical. He argues that in these situations the potential value of spirituality is immense, because it can help turn lives around to become more profound and purposeful in the face of apparently unbearable situations.

Suffering and hardships might be tolerated by people who can draw upon external sources to provide meanings for their experiences – including those which are very challenging. For example, a person who is suffering may hold fast that the event is from God and is a just form of punishment to be endured. This understanding of a reward and punishment frame of reference is typical of Kierkegaard's ethical sphere of existence. In such a case this hardship would not constitute an existential crisis with its characteristic anxiety and uncertainty because this suffering 'makes sense' according to a particular doctrine or 'grand narrative.'

However, an episode of doubt, despair or suffering can develop into an existential crisis, which is nihilistic if it leads a person to question the legitimacy of certain doctrines, codes or traditional grand narratives which have been accepted in the past as having authority over her life. But coming to the brink of nihilism through such a crisis can potentially be of great benefit. As a psychotherapist, May (1983, p. 57) considered that "a crisis is exactly what is required to shock people out of unaware dependence upon external dogma and to force them to unravel layers of pretense to reveal naked truth about themselves which, however unpleasant, will at least be solid." Through breaking away from uncritically accepting external sources of authority, one is able to begin acting and behaving out of one's own freedom to choose and be personally responsible for the purposes that one lives by. It is important to recognise that such a sense of personal freedom is simultaneously a sense of great personal responsibility, and therefore this cannot be a retreat to relativism or solipsism, because individuals are inescapably accountable to all others for their activities and consequences – both intended and unintended. Significantly, this authenticity of one's spirituality may enable some unbearable experiences to become bearable.

It is often through an 'existential crisis' that we confront the strength (or weakness) of our spirituality which is needed to bear up and to navigate through what may seem to be an unbearable situation. May (1969, p. 19) even asserts that "[i]t is only in the critical situation of emotional and spiritual suffering …that people will endure the pain and anxiety of uncovering the profound roots of their problems." Hence such crises may provide the necessary experiences that are required for healing 'deep' problems in people's lives. The process of working through an existential crisis often requires us to uncover the foundations of our values which we often uncritically take for granted, to reflect upon, 'test' and re-evaluate these, and to take on a greater sense of personal responsibility for the way that we relate to and value various purposes and aspirations.

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It was argued by Kierkegaard that those people who were not existing in the religious stage of spiritual maturity, tend to conform unquestioningly to the roles that are assigned to them by their culture. Becoming more authentic requires individuals to recognise and accept that they are 'alone' in the world as 'individuals' and that they are free to exist outside of these roles, which are often imposed on them. This 'free' existence is not as a sovereign or isolated individual, but as a self who is inescapably embedded in relations, who must decide for herself and accept responsibility for her decisions and actions. Being 'alone' in this sense means being aware that the actions and activities which are performed are done so on the basis of her own intentionality and volition and not because she was obediently 'told' to do so by an external authority – even a moral or religious one.

Understanding human beings to be fundamentally intentional beings means that meaningfulness and purposefulness for life do not pertain to acquiring or having some things like a sacred piece of knowledge or 'truth', a skill or technique, or even a cure. This is because all of these depend upon the intervention of external authorities. In contrast, purposefulness and existential meanings come from within the individual in response to her relations with the other entities in her environment. Certainly, individuals can receive things external to themselves, which may provide them with some relief from apathy, despair or 'suffering without meaning', but in order to be able to live a meaningful life as an intentional being, one must prioritize one's being over one's inclination to have and exercise one's own will towards a personal sense of purposefulness.

Eric Fromm (1976, 1989) has written extensively on the two modes for existing – of being and having. He does this to create a contrast for how the mode of being provides the only way for living a meaningful life, which he associates with authentic solidarity, altruism and love. This is in contrast to the other mode of possession-centred having, which he associates with selfishness and egotism. As a mode of existing, being is activity-related and therefore it focuses on verbs rather than nouns – because nouns presume objects and things, which are to be acquired and possessed with little demand upon the receiver to actually change or grow. For example, rather than finding 'love' as a thing or as an 'other' who might provide certain things, or being 'in-love' as a location, the mode of being focuses on the importance of being loving as an aspect of one's intentions and activity. This mode of being draws attention to the interests, desires and will of people, which are central elements of spirituality.

As a person moves away from Kierkegaard's aesthetic and ethical stages of existence characterised by their having mode, she becomes more in tune or attuned to the being mode of the religious stage. This movement involves a conscious rejection of any assumed authority that external sources might claim to have over the individual. This is not to say that she cannot live her life in accordance with particular cultural norms, moral codes or religious doctrine, but what must occur for living authentically is for the individual to actively choose to make such norms, codes and doctrine her own. This means that she will follow the teachings or requirements of a code because she freely chooses and desires to do so, rather than feeling compelled that she must. This affects all aspects of her life from paying taxes, driving within the speed limit and being polite, which are all performed because she wants and desires to do them rather than feel that she needs to do them out of obedience. Becoming more authentic requires that one exercise this freedom of choice – not just for everyday activities but also with regards to choosing what ultimate meanings and purposes to live by. From a heightened sense of personal freedom and responsibility, a more authentic spirituality produces a greater sense of commitment to personally chosen meanings and purposefulness. The effect of this is to further inspire us to invest ourselves in something much larger than the immediate present in order to transcend nihilistic experiences in our lives resulting in making these unbearable situations bearable.

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In his *Upbuilding Discourses,* Kierkegaard represents the importance of being single minded through his notion of a 'purity of heart'. He explained that a singleness of mind is needed to address the weaker double-mindedness which besets those who operate with ulterior motives as is typical with those who live in the first two of his stages of existence. This is demonstrated in his observation "that the person who wills the good for the sake of reward does not will one thing but is double-minded" (Kierkegaard, 1993, p. 37). This is a significant insight for an authentic spirituality if it is to enable one to see purposefulness in a situation which initially might appear to be unbearable. Elsewhere, Kierkegaard (1992, p. 436) argues that "[e]ssentially, the religious address has [the task] of uplifting through suffering …so the faith of the religious is in this, that life lies precisely in suffering …As soon as the religious address casts a side-long glance at fortune, comforts with probability, strengthens temporality, it is a false teaching, is a regression into the aesthetic". To have 'purity of heart' means that one's spirituality consists of desiring and willing only one thing upon which all other purposes, interests and desires are founded. In short, this is an appeal to the whole character of a person involving all the virtues. This single purposefulness seeks to capture one's life as an overall project that necessarily transcends the single event of suffering, which may be experienced in the immediate moment towards a virtuous character as a life-project.

Being purposefully single-minded and having a 'purity of heart' involves one to be actively intending and willing for something understood to be 'the good'. This can usually be demonstrated by one's commitment. A person's commitment, which stems from their will, is intrinsic to their identity. As Frankl (1988, p. 98) explains, identity is made apparent through our "dedication to some cause", and if authentic, is something that we have chosen for ourselves and are responsible for enacting. Similarly, Fromm (1976, p. 111) acknowledges how one's spirituality is intrinsically an aspect of one's identity as he claims that "we are what we are devoted to, and what we are devoted to is what motivates our conduct." So having some spiritual purpose to aspire towards, should not be adopted reluctantly, but ought to be something we actually desire and are motivated by. In addition to being purposeful and having a 'why' to live by, spiritually authentic people will also be sensitive to the consequences of their actions and shall be open to constantly evaluating the consequences of living their commitments in light of their anticipated goodness.

Creating one's own meaning and purpose out of one's freedom can appear rather daunting, especially if a person is currently experiencing some sense of anxiety and feels unable to create an ultimate purpose and meaning to give sense to her existence. However, an important insight on this matter can be gleaned from Kierkegaard. He claims that human existence is a risky business because it must be lived forwards while knowing full-well that we are only able to understand meanings for our lives after certain events are completed, and we can reflect upon the consequences and impacts that they had for us. It is possible therefore, to understand that through such crises of hardships, our very identity of who we are can actually change for the better. We can actually become better people through exercising our spirituality in an authentic sense in the face of suffering and even unbearable situations, even although our physical situation and conditions remain unchanged. This transformation of our being is made possible through our spirituality. According to Kenyon (2000, p. 12), growing through such encounters with existential crises "is less a matter of having a new story and more a matter of being a new story". This indicates that there is the potential for 'good' to emerge from situations that are difficult to bear, whose physical conditions seem to be unchangeable. To demonstrate this, Frankl (1988, p. 57) recounts an incident where a young boy who grew up in a Nazi concentration camp, eventually confessed quite a number of years later that "I really understood the meaning of suffering. It can have a meaning if it changes you

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for the better." This can be very empowering in situations where the individual feels quite powerless to change the actual oppressive physical conditions.

Kierkegaard argues that a certain degree of anxiety is inescapable because anxiety itself is intrinsic to authentic spirituality and freedom (Kierkegaard, 1980). Consequently, Anz (2000, pp. 47-8) suggests that Kierkegaard's notion of "[a]nxiety is our teacher" and it can even transform dying because it provides an opportunity for us to have access to relating in unique ways to it through Kierkegaard's subjective truth. Anz (ibid., p. 47) argues that "If we allow ourselves to be educated by anxiety, then we will come to understand that dying is not a process that happens to us from outside; rather it is our own-most being, which as a not-yet-grasped possibility 'concerns' us in anxiety."

Again, another example offered by Frankl is helpful on this point. He explains that there was a woman who was experiencing great anxiety as she was dying from an incurable disease. Through an encounter with a spiritual teacher – a Rabbi – she then was able to reflect on her situation and accept that while she couldn't change the physical condition that she was in, she could become stronger as a person through the experience and could choose a new way of relating to her inevitable death. This led her to state that "[p]erhaps my single act of immortality might be in the way I face this adversity. Even though my pain at times is unbearable – I have achieved an inner peace and contentment that I have never known before" (cited by Frankl, 1988, p. 50). Attaining this insight through her spirituality enabled her to die with dignity and to be remembered for her courage.

CONCLUSION

It has been argued here that spirituality can undoubtedly have a significant impact upon lives and especially so in times of anxiety and suffering. Particular attention has been given to existential spirituality which is ontological in nature. It refers to the way that individuals relate to their relationships and also to the meanings by which they give sense and purpose for their lives. It therefore clearly pertains to all people – both the religious and the non-religious. By being able to create a greater sense of meaningfulness and purpose for lives, engaging with one's existential spirituality is not just useful in order to survive crises but such an engagement can also provide people with the capacity to grow and become stronger as persons with virtuous character. This is made possible through grappling with the unique opportunities which are provided by confronting even apparently unbearable situations and crises.

The crises which are considered more likely to be unbearable have been identified as initially appearing to be nihilistic because people experience hardship and suffering without such difficulties having any sense or meaning in a grand scheme. On occasion the demise or de-legitimation of a doctrine, worldview or framework for guiding life, such as found typically in religions, customs and traditions, can provide a sense of nihilism. However, by drawing upon Kierkegaard's third existence sphere we can appreciate that one might be able to authentically choose, how one is going to relate to and give meaning to one's life. Nihilism is not to be feared, but existential crises can be accepted as providing opportunities to plumb the depths of one's being to engage with one's life world and to allow some contentment for living for a purpose to be experienced. Such a spiritual way of living can make possible some hope for good to emerge even if there appears to be little possibility of any good in the current physical environment.

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Chapter 87
Prison Education in Nigeria

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ABSTRACT

This chapter explores prison education in Nigeria and examines its history, programs, methods, and challenges. It makes the point that prison services and education are not alien to the Nigerian and African settings. However, whereas traditional African prison education emphasizes restorative justice and learning, modern prison services tend to amplify punishment. While rehabilitation is one goal of incarceration, an all-inclusive prison education in Nigeria is still at a nascent stage. The chapter suggests ways of improving current practices and consolidating gains through specific interventions and researches.

INTRODUCTION

All over the world, there are rules which govern the day to day living in different contexts, which when defied, lead the state to respond in various ways, including sending erring individuals to some forms of confinement, and with varying degrees of punishment. The prison is one such confinement which takes away the occupant's rights and privileges. Prisons serve a major purpose of keeping society out of offenders and criminals' reach. While they predominantly serve a punitive role, prisons' reform and restorative roles are gradually becoming a major focus. One example of this restorative focus is education which identifies the needs of prisoners and helps the latter channel their energies toward a productive existence. Educational experiences of prisoners vary from one context to another, just as the penal systems vary across countries.

Writing on the expectation of the United Nations 2015-30 Agenda for Sustainable Development, Penal Reform International (2016) makes reference to the Doha Declaration which had requested a review of national penal policies with a view to ensuring that prisoners not only get fair trial and proper

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treatment, but that their future life beyond the walls is adequately prepared for, through relevant and appropriate educational and rehabilitation programs. Against this background, the aim of this chapter is to examine the Nigerian prison context, and comment on its prison educational system. The chapter relies extensively on documentary evidence and literature review, and draws the strength of its argument from data garnered from these documents.

BACKGROUND

The background information discusses the state of prisons in Sub-Saharan Africa and in Nigeria.

A prison is a place where offenders are kept for the purpose of restraining their freedom in compliance with correctional law or until satisfactory rehabilitation has been achieved. Ayinde and Opeyemi (2011 p.9) indicate that it is as 'an institution which has been set aside by law for safe custody of people legally confined for anti-social behavior'. They further note that the ultimate goal is to train prisoners to become useful to the society, following incarceration, and to prevent a relapse into further crimes. This is the expectation of various human rights organizations and related bodies interested in the welfare of prisoners. Thus, most prison rehabilitation programs aim to prevent recidivism.

In its report on *Global Trends in Prison*, Penal Reform International (2015), citing the United Nations Office on Drugs and Crime (UNODC) and Jacobson, Heard and Fair (2017:10), has reported that while prison population rates worldwide have remained fairly stable in the last ten years, there has been a decline in all the sub-regions of Africa. Sarkin (2008) has noted that prisons in Africa do not generally meet minimum human rights expectations and that a reform of the prison system in Africa is needed. Among challenges listed by him are those related to lack of resources, inadequate prison governance, overcrowding, poor conditions, and the 'unfulfilled mandate of rehabilitation' (p.23). Perhaps the main challenge, historically understood is that Africa's prison system is 'a European import designed to isolate and punish potential opponents, exercise racial superiority and administer capital and corporate punishment' (p.24). He further notes that 'Africa's earliest experience with formal prisons was not with an eye toward the rehabilitation or re-integration of criminals' (p.24). Thus, in his view, prisons in Africa are for this reason unable to 'pursue rehabilitation' dreams. Digging further into prison practices, he notes that the average number of prisoners who are awaiting trial in Africa is put at 45 to every 100,000 against a global rate of 44 to 100,000. This waiting period is somehow high in West Africa and also Central Africa. Overcrowding is particularly common in such countries as Zambia, Rwanda, Kenya, Cameroun and Burundi (Sarkin, 2008). This problem is also found in Nigeria where the 'awaiting trial' category of prisoners is competing with actual convicts, making rehabilitation something of a nightmare.

A look at the incarceration rate of prisoners in Sub-Saharan Africa reveals that out of every 100,000 inhabitants, Seychelles, South Africa, Gabon and Botswana, Ethiopia, Kenya, Uganda and Cameroun had an incarceration rate of 799, 292, 193, 128, 121, 120 and 114 respectively (UNDP, 2016). Interestingly, Seychelles has the highest Human Development Index (HDI) ranking in sub-Saharan Africa (UNDP, 2016) and in the world. Somehow, Botswana, Gabon, and South Africa with relatively high HDI rankings in the region also had high incarceration rates. This could perhaps be an indication of the level of intolerance for crimes in the countries with high HDIs.

In spite of all these challenges, Africa is being gradually seen as a continent where various innovative instruments as well as institutions which aim to protect prisoner rights are being developed (Sarkin, 2008).

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The Nigerian Situation

Nigeria is a West African country which attained political independence on 1st October, 1960. It occupies a land area of about 923, 768 square kilometers. It is an Anglophone country and it is the most populated Black state-nation in existence, with a population of about 182 million people (UNDP, 2015). It is projected that Nigeria's population would reach 392 million by 2050 (CIA, 2017). Nigeria's population growth rate is put at 2.6% against a global rate of 1.18 (UNDP, 2015). While life expectancy is put at 53.4%, the literacy rate is 59.6% and the unemployment rate among youth aged 15-24 years is 8.1% (CIA, 2017). A look at the demographic structure of the population shows that 42.7% are between 0-14years of age, 19.48% are 15-24 years old, 30-65% are within the 25-54-year bracket while 3.96% and 3.12% are between 55-64 years and 65 years and above respectively. Nigeria's HDI ranking is 152 against Seychelles', South Africa's and Botswana's 63, 119, and 108 respectively (UNDP, 2016).

The Nigerian Prison Service, through its website (www.prisons.gov.ng/history_of_nps) and various other publications, has provided some background on the emergence of the prison system in the country. The account captures the history and various phases of development and transition of the system, from its most indigenous forms, to the current prison system in Nigeria. Based on this, we learn that before the advent of colonialism, various forms of societal response existed in Nigeria, which provided avenues to address those who erred against societal norms and practices. As such, how a tribe responded to insubordination and wrong was determined solely by the tribal groupings in which such offences were committed. In this respect, Shajobi-Ibikunle (2014) provides an extensive discussion on the nature of imprisonment in various parts of Nigeria. Thus, in Northern Nigeria, the justice system was tailored after the Islamic system, through the use of discretionary punishment. The Yorubas on the other hand used 'tubus' (meaning: prison), with reports that various chiefs had their own 'tubus'. But the Yorubas also used the 'Ogboni House' to incarcerate serious offenders. Citing Bradbury (1957), Shajobi-Ibikunle (2014) notes that the Edos used the 'ewedo', for keeping prisoners in custody before their eventual sale into slavery or subsequent release. Other tribal groupings such as the Igbos and Tivs also had various incarceration strategies traditionally.

Writing on the goal of imprisonment in the African traditional system, Sarkin (2008) observes that 'incarceration as punishment' was not the way Africans dealt with offences committed but 'wrongdoing was rectified by restitution rather than punishment' (p.24). As such, 'the goal of incarceration remained to secure compensation for victims rather than to punish offenders' (p.24) and capital punishment or imprisonment only became used for repeat offenders as a last resort (Sarkin, 2008). These traditional arrangements would soon change with the advent of colonialism.

The emergence of a formally organized prisons system in Nigeria started as part of the day to day administration of Lagos by the British Colonial Government. With the establishment of colonial administration in Lagos in 1861, and the appointment of judges and other officials from 1862, the road became clear for a way of managing law and order, to a degree. Subsequently, the Broadway Street Prison was set up in 1872 and the prison accommodated 300 prisoners (Nigerian Prisons Service, 2017). Records also have it that by 1876 the first prison ordinance was promulgated, thus allowing the prison system to formally take off. As expected, the prison system was modeled on the British system, with the expectation that it would help in the running of the new colonial administration.

Early prison administration relied extensively on the existing police force, and by 1910, prisons had been set up in places like Calabar, Benin city, Degema, Sapele and Asaba, Ibadan, Jebba and Lokoja (Nigerian Prison Service, 2017). It should however, be noted that by 1901, the native court proclamation

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had provided for native courts and native prisons which were supervised by the local police. Records have it that while a system of colonial prison was emerging, there was, according to the Nigerian Prison Service (2017), 'no systematic penal policy' in place. As such the prison duties were mostly carried out by the police and later, ex-servicemen. However, with the amalgamation of the Northern and Southern protectorates in 1914, there were published the prison ordinance of 1916 and later, the Prison Regulation of 1917. The aim was to establish a uniform standard prison administration. As later observed the policy was very 'limited in its application' (Nigerian Prison Service, 2017). But modern prison emerged out of the advent of the colonial system, with a specific goal of protecting the merchants in Lagos, the missionaries and of course the colonial masters and administrators.

Thus, the ordinances gave the Governor tremendous power for the establishment of regulation for prison administration in Nigeria. This then, prepared the ground for the appointment of officials responsible for the general management and superintendence of prisons system in Nigeria. These various reforms of the modern prison system did very little to impact positively both the prison and society as all the ills and decay which were associated with modern prison (with its emphasis on punishment) continued un-abated.

Meanwhile, the number of various types of prison grew albeit slowly over the years, whereas government and other specialized sections of society (the judiciary, political class, etc.) remained incapable to supply viable solutions to the challenges facing the prison system and by inference the challenges facing society. Table 1 displays the various types of prison and the number of each of the types of prison currently existing in Nigeria.

Table 1 shows that Adamawa, Borno, Kaduna, Bauchi, Taraba, Katsina, Jigawa, Kano and Kebbi states house the highest numbers of prisons in Nigeria. The numbers of prisons found in each of these states run into a double digit. Specifically, they house 17, 15, 15, 13, 12, 11, 11, 10 and 10 prisons respectively. While every state has at least one main prison or more, the use of satellite prisons appears to be more prevalent in the north. Also, only Kaduna and Plateau states have a camp each while Borstals (youth prisons) exist in Kaduna, Kwara and Ogun states. Two female prisons exist in Lagos and Ondo states.

Over time, the roles of the Nigerian prisons have multiplied to include isolation, punishment, deterrence and prisoner rehabilitation. However, in the view of Agbakwuru and Awujo (2016), Nigerian prisons equally seek to protect the prisoner, provide public safety and induce bail administration. Citing Evawona-Enuku (2006), the authors had submitted that the purpose was custodian, diagnosis, correction, training and rehabilitation. There were other landmarks in the history of prisons in Nigeria. There was a decree number 9 of 1972 which provided direction to the running and administration of prisons in Nigeria and this led to the setting up of specialized divisions. These were the Technical, Inspectorate and the Welfare divisions. These two divisions were later broken up into six directorates. There have been other major developments in terms of the growth and development of the prison system. In addition to the information displayed in Table 1, Table 2 provides a list showing prisoner numbers and incarceration rates over the years in Nigeria.

Table 2 indicates that between 1982 and 2015, the lowest population of prisoners was recorded in 2004 (38,999) and the highest population of prisoners was recorded in 2015 (68,259). Table 2. also shows that the lowest and highest incarceration rates were recorded in 2008 (27) and 1996 (64) respectively. With a population of over 180 million people, Nigeria managed to have a surprisingly low incarceration rate of 27 in 2008. A probable reason for the situation appears to be clearer when one considers the view of Ifediorah Orakwe, in an interview he granted Nigeria's Prime Times reporter Ben Ezeamalu on 12 March 2017. Orakwe had served the Nigerian Prisons Service for 34 years, and was the Controller of Prisons in charge of Planning, Research and Statistics for many years, before retiring. When Orakwe was asked

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Table 1. Prison locations and types in 36 states and the federal capital territory of Nigeria

S/N	States	Main Prison	Satellites	Camps	Borstals	Farms	Female [Main]	Total
1	Abia	3		-	-	-		3
2	Adamawa	6	11	-	-	-		17
3	Akwa Ibom	5	-	-	-	-		5
4	Anambra	5	-	-	-	-		5
5	Bauchi	5	8	-	-	-		13
6	Bayelsa	1	-	-	-	-		1
7	Benue	3	-	-	-	-		3
8	Borno	5	9	-	-	1		15
9	Cross River	5	-	-	-	1		6
10	Delta	5	-	-	-	-		5
11	Ebonyi	2	-	-	-	-		2
12	Edo	2	-	-	-	2		6
13	Ekiti	1	-	-	-	-		1
14	Enugu	3	-	-	-	1		4
15	FCT	2	-	-	-	1		3
16	Gombe	2	3	-	-	-		5
17	Imo	2	-	-	-	1		3
18	Jigawa	3	7	-	-	1		11
19	Kaduna	4	8	1	1	1		15
20	Kano	3	7	-	-	-		10
21	Katsina	4	7	-	-	-		11
22	Kebbi	5	5	-	-	-		10
23	Kogi	6	-	-	-	-		6
24	Kwara	4	-	-	1	-		5
25	Lagos	4	-	-	-	-	1	5
26	Nasarawa	5	-	-	-	-	-	5
27	Niger	8	-	-	-	-	-	8
28	Ogun	6	-	-	1	-	-	7
29	Ondo	4	-	-	-	-	1	5
30	Osun	2	-	-	-	-	-	2
31	Oyo	2	-	-	-	1	-	3
32	Plateau	6	-	1	-	1	-	8
33	Rivers	3	-	-	-	1	-	4
34	Sokoto	1	3	-	-	1	-	5
35	Taraba	4	8	-	-	-	-	12
36	Yobe	3	5	-	-	-	-	8
37	Zamfara	1	4	-	-	-	-	5

Source: The Nigerian Prisons Service (2017)

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Table 2. Prison trends in Nigeria

Year	Prison Population	Incarceration Rate (Prisoner per 100, 000)
1982	40, 034	36
1985	53, 786	47
1990	54079	40
1993	41482	57
1996	52,000	64
2000	44,450	53
2002	40, 048	31
2004	38, 999	29
2006	40,953	29
2008	41, 143	27
2010	46, 586	29
2012	51560	31
2015	68259	35

Source: The Nigerian Prisons Service.

on what his thoughts were on Nigeria's prison population as a ratio of the total population, he responded by saying: 'It's very low, very low, and it is as a result of the criminal justice system that is not performing' (Orakwe, 2017). Then the former Controller added, hinting at a needed solution to the problem:

When you see a population of 180 million in this modern world with a prison population of 68,000, it would have indicated one thing; that this place is without a crime. I leave you to judge whether we are without a crime or not (Orakwe, 2017).

Against the background that Nigeria has often been cited for its corruption and related social challenges (Transparency International, 2014), Orakwe's submissions are worth noting. However, all is not gloom and doom in and around the Nigerian prisons. Despite the fact that the Nigerian Prison Services has lost many of its staff through encounters with Boko Haram insurgents (Jacobson, Heard and Fair, 2017), the Government of Nigeria *released 25000 prisoners, some of whom had been waiting trial for a decade* (Sarkin, 2008, p.28). Sarkin (2008) has also noted prison boards including human rights have been formed and a position of Chief Inspector of Prisons who reports to the President of the Republic has been established.

Prison Education Practices

Various instruments of the United Nations, especially many specific to UNESCO, highlight the importance of education and the need for it to be accessed by all, from the basic to tertiary levels. The provisions in Nigeria's National Policy on Education (Federal Republic of Nigeria, 2004) recognize the right of every Nigerian to education at all levels. Two goals of a just and egalitarian society (p.6) and one in which the country is seen as a land full of opportunities for all its citizens (p.6) are notable, and provide a platform

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for prison education. Apart from education being for personal and national development, the philosophy guiding the National Policy on Education also makes room for the full integration of the individual into the community (p.7). It additionally provides for equal access to educational opportunities for all citizens of the country at the primary, secondary and tertiary levels, both inside and outside of the formal school system (p.7). In particular, Section 6(32) i, Section 7 and Section 9 of the Policy make provisions respectively for adult, vocational and distance education interventions in the lives of Nigerian citizens. While Section 10 of the policy deals with special education, these various provisions have served as a basis for prison education intervention in Nigeria. It should be noted that prison education and training is not mentioned at all in the National Policy of Education, a point we shall return to later in this chapter.

Following various developments over the years, the Nigerian Prisons Service currently has six major directorates that attend to the various aspects of operation of the Service. Of these, two directorates, the Health and Social Welfare, and the Inmates' Training and Productivity directorates jointly handle matters of prisoners' education, training and rehabilitation. While the former focuses on counseling inmates, helping organize group work, engaging in case work services, religious and recreational, adult and remedial education activities, the Inmates' Training and Productivity section focuses on the provision of skills for prisoners through the prison workshops, farms and garden centres. The goal is to adequately help the prisoners prepare for life after prison, and address various social and psychological issues which may hinder full rehabilitation. A major part of the prison mandate in Nigeria is to address the vocational skills of inmates as part of the rehabilitation efforts of preparing them for life after prison. Some of the vocations include tailoring, soap manufacture, carpentry, shoe making, shoe cobbling, electrical and electronic repairs and others. Upon discharge, the prison also buys equipment for those being released to prepare them for life after prison to enable them to do the work for which they have been trained.

A look at actual practices shows that prison education and training initiatives in Nigeria have been addressing the basic education needs (including primary and early secondary), secondary education, adult education and especially, the vocational needs of its inmates. Tertiary education needs are also being addressed to some degree. In the northern part of Nigeria, a lot of needs arise for many of the inmates at the basic education level while in the south, it has been reported that most prisoners have completed their primary education. It has also been reported that in Abakaliki, Enugu, Port Harcourt prisons, the state government has built secondary schools for inmates and ensured that teachers were allocated to such. This has resulted in inmates sitting for their West African School Certificate examinations (Nigerian Prison Services, 2017). Also, non-governmental organizations and churches have been involved in sponsoring inmates' education.

For those who teach the inmates, Government rules are followed to ensure that required qualifications are utilized, except in vocational skills areas where the knowledge of the trade is considered often sufficient to allow trainers to provide vocational training to prisoners. However, many studies have shown that the various workshops and equipment used for vocational training have become obsolete and require replacement. This situation was confirmed by the Controller-General of the Nigerian Prisons Service, Mr Jaafaru Ahmed in an interview he gave to one Ewache Ajefu (Ahmed, 2017) on March 6 2017. In excerpts from the interview, he indicated that 'we have issues with dilapidated infrastructures across the prisons in the country' (para.3), and commented that some of the prisons 'are over a hundred years old', with mud buildings and wooden doors. He commented on the state of the farm centres and industries, noting that they are in their current state, 'choked up'. However, he later highlighted plans aimed at rebuilding and establishing various initiatives aimed at improving the situation nationwide, which plans include focusing on maize production in Kujama, using the Lampushi Farm Centre for rice production

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and using the Ozalla Farm Centre for palm oil production (Ahmed, 2017). To enable this, he made reference to the Service's purchase of new farm machineries, facilitated by the 2016 budgetary provisions.

Various studies have been carried out on the Nigerian prison system, covering states such as Abia, Anambra, Edo, Oyo, Rivers, Imo, Delta, Kano, Lagos and the Federal Capital Territory. Through these studies, themes such as information needs, psychological well-being, adult and non-formal education, age levels and vocational interests, basic education and career placement, rehabilitation services, inmates' welfare, and issues of rehabilitation and re-integration of prisoners, have been covered. Through an examination of these and related international studies, a few observations have been made.

Omoni and Ijeh (2009) in their work on prison education in Edo State have highlighted the need for prison education, noting that it can serve as 'panacea for effective rehabilitation and integration into society' (p.28). In a related study by Asokhia and Agbonluae (2103) on Edo state, a list of the various types of educational intervention obtainable and tailored toward rehabilitation in prisons was provided. The groupings include educational programs, skills acquisition programs, counseling services, religious service, mid-range industrial production, recreational activities, agricultural skills and group work programs. Under educational programs are adult and remedial programs as well as educational development projects. Under skills acquisition are carpentry, tailoring, printing, building and masonry. Under counseling are educational/academic, vocational/career and socio-personal services. Under mid-range industrial production are furniture making, soap making, toilet roll making, manufacturing aluminum pots, metal work fabrications and shoe making. Table tennis, football, volley ball, badminton and indoor games fall within the recreational programs while farming methods and animal husbandry skills are provided as part of agricultural skills acquisition programs. A major challenge has been the inadequacy of modern equipment and materials needed to ensure full rehabilitation.

In a study carried out by Tenibiaje (2012) on literacy and communication tools for prison inmates in 21 prisons in 12 states of the federation, it was reported that over 90% of the prisoners surveyed said they had no access to literacy. 62% of the same group agreed to having vocational skills provision noting that this was insufficient. In short, the study confirms a high level of illiteracy in prisons and the inmates perception of what the literacy could do for them was positive, hinting that it could change their behavior and even serve as a deterrence to crime. In another study carried out by Tenibiaje (2010), it was noted that the increase in the number of prisoners appeared not to have been matched by a corresponding increase in infrastructural facilities, and that no serious effort had been made towards reformation of the prisoners. The writer then made a call for NGOs to come to the rescue. It should be observed that in the United States and a number of developed countries, prisons are actually managed on a private basis. This has been the subject of many papers, including the one on the 'Economics of Private Prisons' (Mumford, Schanzenbach and Nunn, 2016). According to the authors, the emergence of private prisons was as a result of increased incarceration, lengthened sentences, and consequent explosion of prison populations in the USA (Mumford, Schanzenbach and Nunn, 2016). While the morality of privatizing prisons is a subject for debate, such privatization measures, where used, are aimed at checking overcrowding and increasing effectiveness in prison management. It is however the view of Orakwe (2017) that the 'criminal justice system is government business' and anything to the contrary is 'an abdication of responsibility'. He cited the failures of private prison schemes in South Africa, Mozambique and the United Kingdom to back up his case.

Ewelum, Madu and Mbara (2015) have focused on the reformation of prison inmates in Anambra State. The writers report that 1198 prisoners wrote their WAEC GCE examinations in 2006 and this figure increased to 1306 in 2007, an increase of 8% over the previous year. As a result, it was reported

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that WAEC then decided to create a centre for the yearly examinations in Ikoyi Prisons. While Lagos showed some progress, the study observed that Anambra State did not achieve the same success as there was no reformatory program in place. The authors have also suggested that moving forward would require specific actions. These include full funding of the Nigerian Prisons Service, recruitment of professionals, the provision of medical facilities, the training and re-training of staff and administrators and the recognition that visits by men of God to the prisons will help greatly in addressing the moral challenge prisoners faced (Ewelum, Madu & Mbara, 2015).

Emasealu and Popoola (2016) have examined the information needs of prisoners in Nigeria, focusing on two prisons, the Harbor Road Prison in Port Harcourt, and the Aba Prison in Abia state of Nigeria. They observed a dearth of information resources both for recreational and academic use, and that generally, in the view of the prisoners, there is a lot of frustration experienced in this regard. The same authors observe that 'majority of Nigeria's prisons Vocational Training Centres and Skills Acquisition Workshops are in a dilapidated state as training equipment and facilities are broken down, and in some cases non-existent (p.3). On a way out, the authors suggest the provision of adequate information resources as well as the provision of adequately trained staff to ensure good use of such (Emasealu & Popola, 2016).

In Agodi Prisons in Ibadan, Oyo State, prisoners have the opportunity of participating in, among others, religious education, and to this, they seem to be attracted (Ayinde & Opeyemi, 2011). In addition, prisoners are exposed to various forms of adult education intervention, including basic literacy, post literacy, vocational, technical education, and distance learning (Ayinde & Opeyemi, 2011). Concerning the impact of adult education on inmates in Agodi prison, the writers further observe that there is a positive impact as well as a great improvement as illiterates became literate although there was a general lack of inadequate access to computers. The authors note that the methods of instruction include simulation, discussion, problem solving, demonstration and apprenticeship. The study also revealed that learners wanted 'occasional tests and desire to sit for external examinations. The writers also report that funding of adult education in Agodi was inadequate as there were no monthly salaries for facilitators which, prompted the engagement of ad hoc facilitators in lieu of full time facilitators. The study then concludes with the 'need for adult and non-formal education programs in prison yards in order to uplift the welfare of inmates' (Ayinde & Opeyemi, 2011, p. 18).

Uche and Harris-Jenkins (1994) have examined the age, levels of education and training and the vocational interests of Nigerian prisoners, in their work, later published on-line in 2006. Although the research was carried out over two decades ago, the issues raised by the writers are still germane to the discussion around prisoner education in Nigeria. Using a careful determination of actual trades within the Nigerian economy, the authors surveyed the possible interests of prisoners and came up with a set of interesting findings. At the time the study was carried out, the only trades available to the prisoners were mainly in carpentry, joinery and also mat making. Uche and Harries-Jenkins (1994) observed that these were 'mainly arts and crafts which the prisoners rated least attractive' (p. 152).

The trades for which the prisoners were surveyed were grouped as follows:

Group 1: Arts and Crafts.
Group 2: Machine operation.
Group 3: Repair trades.
Group 4: Secretarial trades.
Group 5: Paper-print trades.
Group 6: Unrelated trades.

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Uche and Harries-Jenkins (1994) report that the prisoners' preferences for one trade or the other was tied to age groups and levels of education and training before prison entry. For example, most prisoners with less than 20 years were more interested in machine operation, followed by repairs whereas those between 20-24 years had a preference for the repair trades. Those 25-29 years wanted machine operations trades, a similar feature to those in the 30-34-year bracket, and others over 39 years old. On the education and training experience of prisoners, the ones with no formal education rated Groups 2, 6, 3, 1, 4 and 5 in that order, whereas those with Diploma and equivalent qualifications ordered their choice for Groups 4, 5, 2, 3, 6 and 1.

Generally, Uche and Harries-Jenkins noted that the 'top ten trades' rated highly by the prisoners, from the highest to the lowest were:

- Vehicle driving,
- TV and video machine repair,
- Refrigerator and air condition repair,
- Furniture making,
- Motor mechanic,
- Tractor driving,
- Playing musical instruments,
- Electrical work,
- Wood carving, and
- Radio repair.

The trades most unattractive to them were shoe making, catering, photography, watch repairs, book binding, barbering, fiber and mat-making, sheet metal work, bicycle repairs and masonry.

From the studies analysed, the following preliminary observations are drawn on prison education in Nigeria:

- There is a gap in the present National Policy on Education in its inability to specifically make a provision for prisoner education, as well as provide a clear mandate on its expectations.
- In practice, prison education is currently generally aimed at basic and functional literacy provisions, vocational training and development, secondary schools level academic attainment, and to a low degree, tertiary level provisions.
- The context in which prison education is provided, as seen in the literature, with the overcrowding of prisons and inadequate infrastructure, would go against effective education and training of prisoners.
- There is a growing recognition by key prison management, past and present that Nigerian prisons require reform, and the rehabilitation programmes require improvement. However, there appears to be a growing will to make such improvements.
- A comprehensive needs analysis that captures the education and training needs of prisoners nationwide is lacking, and meeting of prisoner education needs appears to rely on established practices in various prisons.
- While some level of rehabilitation is expected, it is difficult, in the present circumstances, to expect full prisoner rehabilitation and prisoner and restoration due to dilapidated infrastructure and inadequate resources.

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- There appears to be a general level of inadequacy regarding the existence of current learning materials, as attested to by studies relating to information provision through a viable library system.

In summary, Nigeria has over the years grown its prison system in terms of changes made to the goals, the structure, staffing, the training of its staff and the general response to the expectations from both local and international bodies. However, it appears the attempts to pursue prison education have not benefitted from serious and robust intervention in the lives of the prisoner. The educational and rehabilitative interventions have been affected by the challenges of overcrowding, the problem of having many awaiting trial along with convicted ones, the lack of sufficient facilities and workshops for prisoners and the inhuman conditions which the prisoners suffer. There is still a lot required to turn prisons into places where rehabilitation becomes a major goal. A full and comprehensive adult and lifelong educational system is required in the prison system.

RECOMMENDATIONS

A number of recommendations have been made by various scholars on Nigerian prisons and prisons elsewhere. Many of those recommendations are adopted in this chapter, in addition to other recommendations made by the authors.

- The continued promotion of religious activities and relevant vocational education programs and the employment of counseling psychologists and care givers as suggested by Agbakwuru and Awujo (2016) would ultimately improve prison services in Nigeria. It is to be added that efforts need to be made to renew and replace all obsolete equipment currently in use for the implementation of vocational programs.
- The specific establishment of a Directorate of Prison Education as recommended by Ayinde and Opeyemi (2011) is also a step in the right direction. However, instead of limiting itself to literacy and religious studies, this directorate should be proactive in exploring and promoting all new educational ventures that would continually increase opportunities for reintegration and thereby reduce recidivism among former prisoners.
- Government is not able to take up all the material and financial needs of Nigerian prisons. This is one area in which the Prison Education Trust (2017) suggestion comes in handy. That recommendation states that NGOs and related partners in the education and training of prisoners should be encouraged to complement and support government efforts in the domain of prison education.
- As recommended by Orakwe (2017), detainees awaiting trial should be kept in separate facilities from convicted prisoners in order to facilitate easy management of educational provision to prison inmates. The fate of convicted prisoners having been determined, it would be easier to plan an educational scheme for them on the basis of their prescribed length of stay and these convicted prisoners need both space and conducive environment devoid of avoidable distractions to carry out their learning.
- Nigerian prisons should be linked more solidly to the Nigerian National Open University (NOUN) for the purpose of making distance education more readily available to prison inmates. A related linkage with well-established adult education departments of a number of universities is also vital.

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- The cause of prison education would further be helped if subsequent revised editions of the Nigerian Policy on Education specifically and consciously include the terminology prison education or correctional education.

SUGGESTIONS FOR FUTURE RESEARCH

Based on the discussions so far, there are five areas of recommendation for further research.

- The Planning, Research and Statistics Division of the Nigerian Prison Service needs to compile a compendium of all the researches carried out on Nigerian prisons to date. This will help to compile the major findings, determine gaps, and identify challenges of the prisons management system and the education and training of its inmates.
- There is need to determine how much of the research findings have been utilized and used as a basis for improved practice. A careful analysis of this, with timelines for implementation of various suggestions and recommendations will go a long way into improving education and training, as well as the needed rehabilitation of prisoners.
- The need exists for tracer and longitudinal studies to help track prisoners, including noting their stay in prison, the extent of their rehabilitation process and post prison life. Through such studies, necessary mitigation can be provided on how to bridge observable gaps in prison education practice and enhance rehabilitation plans.
- A comprehensive study on the education and training needs of Nigerian prisoners, following from Uche and Harries-Jenkins (1994) is desirable.
- Finally, there is need for studies on alternatives to prisons in Nigeria with a view to exploring innovative rehabilitative programs and procedures by Nigerian prison authorities.

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KEY TERMS AND DEFINITIONS

Distance Education: A system of instruction in which the learner and tutor are separated in time and in space, and for which instruction is mediated through print and electronic media.

Literacy Education: A process of learning that enables an individual to acquire the basic skills of reading, writing and enumerating.

National Open University of Nigeria: A national university whose mandate is to facilitate learning at a distance for people living within and outside Nigeria.

Prison: A place where offenders are kept for the purpose of restraining their freedom in compliance with correctional law or until satisfactory rehabilitation has been achieved.

Prison Education Policy: A set of principles and guidelines on the purpose and plans of prison education and training, with identifiable rehabilitation outcomes.

Rehabilitation: A process of returning an offender to a state of mental wholeness that ultimately allows him or her to reintegrate into society.

Vocational Education Program: A program of learning that equips an individual with skills and knowledge capable of rendering him or her functional and useful within society.

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Chapter 88
Gratitude and Subjective Well-Being:
Cultivating Gratitude for a Harvest of Happiness

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ABSTRACT

In this chapter we review the good of gratitude and recommend various methods for cultivating this human strength. First, we show how gratitude is indeed good. We show how gratitude is important to flourishing and happiness. Gratitude is strongly correlated with various measures of well-being, and experimental studies suggest that gratitude actually causes increases in happiness. If gratitude is good, then it behooves us to investigate how the disposition of gratitude can be enhanced. We suggest that grateful responding can be enhanced by training in noticing the good in one's life, and by encouraging interpretations and appraisals that have been found to promote gratitude. We then present a discussion of unresolved issues in the science of gratitude. This is followed by a discussion of who might benefit most from gratitude. We conclude with a summary of the cultivation of gratitude. Research strongly supports the idea that the cultivation of gratitude should result in a harvest of happiness, but cultivating gratitude is not likely to be an easy process.

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INTRODUCTION

True contentment is a thing as active as agriculture. – -G. K. Chesterton

The epigraph by Chesterton (1986) suggests that true happiness is not an easy pursuit. Like farming, the cultivation of happiness takes time, focus, and effort—one does not simply slide into happiness. We believe that Chesterton's agriculture metaphor is effective for understanding the development of subjective well-being (SWB), and in this chapter we will argue that the cultivation of gratitude may be one of the most effective ways of harvesting happiness. In order to accomplish this goal, we first will establish the foundations of a science of gratitude, discussing basic definitions and means of measuring gratitude. We then turn to the focus of the chapter: the good of gratitude, explaining how gratitude is important for human flourishing. If gratitude is important to well-being, it behooves us to understand how gratitude can be cultivated, and we spend considerable space exploring this issue. We will then discuss unresolved issues in gratitude research, and conclude the chapter by showing who benefits most from gratitude interventions. Our goals for this chapter are to describe gratitude, identify needed areas of gratitude research, and show how one may use gratitude to enhance their happiness.

Foundations for a Science of Gratitude

In order to investigate any phenomenon in science, we must first be able to define and measure it effectively. This is, of course, no less true of gratitude, and in this section, we discuss the definition and measurement of gratitude. As Rosenberg (1998) explained, any emotion may be described at one of three levels: state, mood, or trait. Thus, we will attempt to define gratitude at the level of emotional state (the relatively brief psychophysiological response to the appraisal of an event), mood state (the more enduring emotional state operating in the background of awareness), and affective trait (the enduring disposition for a particular emotion).

Defining and Measuring Gratitude as an Emotional State

Following Emmons (2004), we have defined gratitude as the emotion people experience "when they affirm that something good has happened to them, and they recognize that someone else is largely responsible for this benefit" (Watkins & McCurrach, in press). We take a broad approach to "something good", in that the benefit need not be constrained to a specific place and time, and the "good" of the event may be in the awareness that something bad did not happen (as in one's flight landing safely in the midst of a storm). Although some definitions of the grateful state simply require that the benefit be attributed to an external source, we submit that the external source is explicitly or implicitly perceived as an intentional agent. This personalization of the source of a benefit may not be conscious, and indeed many people are grateful for events that may not be attributed to human cause. Thus, the benefactor may be a human, but it might also be divine, and later we discuss new research related to gratitude to God.

It appears that the emotion of gratitude may be measured in a fairly straightforward manner. The Gratitude Adjectives Scale (GAS; McCullough, Emmons, & Tsang, 2002) simply asks participants to respond to three adjectives (grateful, thankful, and appreciative) on a Likert-type scale, and this appears to be a valid assessment of the grateful state. More recently, another state gratitude measure has emerged

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out of the organizational psychology literature (the State Gratitude Scale; Spence, Brown, Keeping, & Lian, 2014), but it remains to be seen if this is an improvement on the GAS.

Defining and Measuring Gratitude as a Mood State

Of the three levels of analysis, the least amount of work has been devoted to studying gratitude as a mood state. By definition, gratitude as a mood state is more enduring than gratitude as an emotional state, and although it would be more in the background of awareness than the emotional state, potentially, it could have a greater impact on cognition and behavior (Rosenberg, 1998). Measuring gratitude as a mood state has proved to be difficult (but see McCullough, Tsang, & Emmons, 2004), but we believe that considerable progress could be made in the science of gratitude if we could effectively measure grateful moods.

Defining and Measuring Gratitude as an Affective Trait

Very simply, gratitude as an affective trait refers to the disposition for gratitude; people high in the trait of gratitude should have a low threshold for gratitude and thus should experience gratitude more frequently in a wider variety of circumstances. Considerable psychometric work has been devoted to trait measures of gratitude, and the two most utilized instruments are the GQ-6 (Gratitude Questionnaire-6; McCullough et al., 2002), and the GRAT (Gratitude, Resentment, and Appreciation test; Watkins, Woodward, Stone, & Kolts, 2003). Both of these measures have excellent psychometrics, but the GQ-6 has more research supporting its use. The GQ-6 is a more descriptive, theoretically neutral measure, whereas we attempted to develop the GRAT based on a theory of grateful people. We surmised that grateful individuals have an appreciation for the giftedness of all of life, and this higher order trait is based on three lower order traits: sense of abundance (or negatively, a lack of a sense of deprivation), appreciation for simple pleasures, and an appreciation of others. Some evidence supports this 3-factor structure of dispositional gratitude (Hammer & Brenner, 2017; Watkins et al., 2003), and we have now developed a shorter measure (GRAT-S; Thomas & Watkins, 2003), that may be more useful for researchers.

Recently measures have been developed to tap more specific facets of gratitude, and one of the more interesting instruments is the Multi-Component Gratitude Measure (Morgan, Gulliford, & Kristjánsson, 2017). This measure aims to assess four distinct components of gratitude: grateful emotions, one's conception of gratitude, one's attitude toward gratitude, and gratitude-related behaviors. This measure appears to be more comprehensive than other gratitude measures, has good empirical support for its use, and may be valuable to researchers for specific gratitude research questions. Whereas all of the gratitude questionnaires described above appear to be good instruments, one issue plagues them all: self-report bias. These instruments suffer from negative skew: people like to think of themselves in a positive fashion, and thus the distribution of the scores for these scales are clustered toward the higher end of these measures, and in some cases the modal score is very close to being the maximum score. Thus, gratitude measures that are not as prone to response bias are needed, and in this context we recommend the development of implicit measures of gratitude.

The Good of Gratitude

Is gratitude indeed good? Is gratitude an important facet of the good life? Most gratitude researchers began their investigation of gratitude with the idea that gratitude is important to happiness, and in a

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nutshell, their hope was fulfilled. In our review we will follow the well-established approach in happiness research to date, taking the subjective well-being method to defining happiness. Although the hedonic definition of happiness certainly has its issues (see Watkins, 2016; Wong, 2012), most of the research on the good of gratitude has been conducted with hedonic happiness measures, and questions remain regarding whether eudaimonic happiness—particularly as it is currently measured—represents a distinct form of happiness (Biswas-Diener, Kashdan, & King, 2009; Disabato, Goodman, Kashdan, Short, & Jarden, 2016).[1] In this section we will briefly review correlational, prospective, and experimental evidence for the good of gratitude. First, multiple studies have found that gratitude is strongly correlated with a number of different happiness measures, and this relationship has been demonstrated in diverse populations (e.g., McCullough et al., 2002; Watkins et al., 2003; for a more comprehensive review, see Watkins, 2014). Moreover, recent research suggests that gratitude may be more strongly linked to eudaimonic than hedonic well-being (Watkins, McCurrach, & Timbrook, 2016). Demonstrating the importance of gratitude to happiness, Kaufman (2015) conducted a multiple regression analysis and found that of the 24 VIA strengths, only gratitude and love of learning uniquely predicted well-being after controlling for age and gender.

Although these results appear compelling, the cross-sectional correlational nature of these findings leaves open a number of alternative interpretations. Correlations between gratitude and happiness may be because gratitude enhances SWB, but it is just as likely that this result is the *consequence* of happiness causing gratitude, or third variables could explain this relationship. Prospective results offer stronger support for the theory that gratitude causes happiness because it removes the problem of temporal sequence and third variable issues such as operational confounds and self-report bias. In prospective studies researchers administer gratitude and happiness variables in at least two time points. Indeed, a number of studies have found that trait gratitude predicts subsequent increases in happiness, but perhaps the best of these studies was conducted by Wood, Maltby, Gillett, Linley, and Joseph (2008). They found that trait gratitude predicted increased happiness six months later. Interestingly, the reverse relationship was not found: initial happiness scores did not predict enhanced gratitude over time.

The most powerful evidence for a cause and effect relationship between gratitude and SWB would come from experimental designs. By our count, there are now over forty experimental studies that have found evidence for gratitude exercises enhancing happiness. Studies have demonstrated that gratitude exercises enhance emotional well-being both in one session interventions (e.g., Watkins et al., 2003, Studies 3 and 4), and long-term interventions have been shown to enhance SWB as well (e.g., Emmons & McCullough, 2003; Seligman, Steen, Park, & Peterson, 2005; Watkins, Uhder, & Pichinevskiy, 2015; for reviews, see Davis et al., 2016; Watkins, 2014; Wood, Froh, & Geraghty, 2010). Thus, considerable evidence now exists for the theory that gratitude actually causes increased happiness.

Later we will consider in more depth how gratitude enhances well-being, but here we would like to highlight one possible mechanism: the experience of joy. Although joy is perhaps the most frequently experienced positive emotion, very few studies have been devoted to the investigation of joy. Perhaps this is because joy has often been used as a synonym for happiness, and thus has been treated as a general non-specific positive affect. Recent results however, suggest that joy is a discrete positive emotion in its own right (Watkins, Emmons, Greaves, & Bell, 2017). Recent integrative formulations of joy have emphasized that the trait of gratitude may prepare one for experiences of joy (Volf, & Crisp, 2015). Indeed, in Studies 1 and 2 of Watkins et al. (2017), we found that our joy measures were strongly correlated with gratitude, and in Study 3 we showed that trait gratitude prospectively predicted increases in the

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frequency of experiences of joy over a two-month period. Thus, one way that gratitude might contribute to the good life is by increasing the experience of other positive emotions such as joy.

Questions About the Good of Gratitude

Although the evidence supporting the idea that gratitude is important to flourishing appears to be strong, recently several reviews have questioned the effectiveness of gratitude interventions (Wood et al., 2010; Davis et al., 2016). Wood et al. (2010) pointed out that the "control" conditions (counting one's hassles) used in early grateful recounting studies may have actually decreased SWB, thus not providing for an adequate comparison condition. Although this was an important observation, their recommendation that we use wait list groups for the control condition also presents problems, most importantly in not controlling for placebo effects and demand. Davis et al. (2016) reported that the effect size of gratitude treatments was comparable to placebo effects, with the apparent implication that gratitude interventions induce little more than placebo. There are a few issues we would like to highlight with this review. First, the authors admirably included non-published gratitude intervention studies, but because these studies have not gone through the peer review process, there are often significant problems with these studies that may have resulted in non-significant results. For example, many of these studies lack treatment integrity; there is no report for whether the participants actually did the gratitude intervention. In some cases, the researchers asked the students if they had completed the gratitude exercises, but when students are receiving credit for their participation, we cannot have confidence in their self-report. Furthermore, placebo effects with a clinical population are likely to be much larger than placebo effects in a normal population, so to compare positive psychology intervention effect sizes to clinical placebo effects may not be an appropriate comparison. Finally, in the two studies of which we are aware that used effective placebo conditions (Seligman et al., 2005; Watkins et al., 2015), both studies showed that the gratitude intervention enhanced SWB significantly more than the placebo treatment.

Nonetheless, we believe that these reviews provide for a more balanced view of gratitude. Indeed, in a recent gratitude intervention study in our lab involving over 120 participants, we found no evidence for grateful recounting enhancing well-being. Although this is the first of seven gratitude intervention studies conducted in our lab where we failed to find a significant impact on SWB, these results should help to curb our enthusiasm about gratitude. Although gratitude appears to be one of the most important factors contributing to happiness, it is not an simple magic formula for producing well-being. As we will emphasize later in the chapter, it is the grateful lifestyle that is likely to be important to happiness, and this cannot be simply produced by a few episodes of counting one's blessings. In short, research strongly supports the supposition that gratitude is indeed good, but gratitude may take considerable cultivation for it to produce a harvest of happiness.

How Does Gratitude Enhance Well-Being?

We believe that one of the most important research questions currently facing the science of gratitude is the question of the mechanisms of the gratitude and happiness relationship. In short, how does gratitude promote SWB? Unless we identify the psychological mechanisms that mediate the gratitude and happiness relationship, we cannot really understand how gratitude functions to enhance human flourishing. Unless we understand how gratitude supports human flourishing, we cannot improve our gratitude interventions and we cannot understand when and for whom these interventions will be most effective. First, it is

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important to acknowledge that different gratitude interventions may impact happiness through different mechanisms, and below we will review the various gratitude interventions and offer putative mechanisms for each treatment. A recent theoretical review of gratitude suggested that gratitude enhances well-being through two distinct paths: cognitive/emotional and social (Alkozei, Smith, & Killgore, 2017), and we believe this is a helpful heuristic for understanding how gratitude impacts well-being.

Theories Explaining How Gratitude Enhances Well-Being

As we consider the mechanisms of gratitude, we first review two theories that have attempted to explain how gratitude enhances well-being: Fredrickson's Broaden and Build theory of positive emotions (Fredrickson, 2001, 2004), and our amplification theory of gratitude (Watkins, 2008, 2014; Watkins & Bell, 2017). Fredrickson's Broaden and Build theory of positive emotions has been influential in the development of positive psychology, and we find that her application of this approach to gratitude has also been very helpful (Fredrickson, 2004). In short, she argues that positive emotions broaden one's thought-action tendencies so as to enhance long-term survival; They enhance human flourishing by building one's physical, cognitive, and social resources. As a positive emotion, when one feels grateful this promotes creative cognition that results in a wide array of possible prosocial responses toward one's benefactor. For example, when one responds in gratitude for being invited over for a meal, one might consider a wide variety of responses, rather than the simple tit-for-tat response of hosting a meal for one's benefactor. In this way, gratitude should be important for building social resources, and Algoe's "find, remind, and bind" theory of gratitude nicely elaborates on the social benefits of gratitude (2012). In applying Fredrickson's theory to gratitude, Algoe argues that gratitude helps people *find* new relationships, *remind* of current important relationships, and *bind* developing relationships—all factors that are likely to be important to one's happiness. Indeed, Algoe has conducted a research program that has garnered considerable support for this theory (e.g., Algoe, Gable, & Maisel, 2010; Algoe, Haidt, & Gable, 2008; for a review, see Algoe, 2012). Thus, gratitude is likely to be important in relationships, and Fredrickson (2004) made the interesting suggestion that this should also apply to one's relationship to God—an idea we will explore later. In short, Fredrickson argues that gratitude should enhance well-being because in broadening one's thought-action tendencies, it enhances resources important to living well.

We have developed a complementary theory for how gratitude enhances well-being that relies on an amplification analogy (Watkins, 2008, 2014; Watkins & Bell, 2017). We proposed that gratitude enhances happiness because it amplifies the good in one's life. As an amplifier enhances the signal strength of sound, so too gratitude "turns up the volume" of what is good in one's life. In enhancing the awareness, importance, and meaning of the people and things that actually contribute to one's SWB, this should help one to more effectively pursue happiness. We proposed that gratitude not only enhances our awareness of the goodness of others, it also amplifies the good in ourselves, enhancing prosocial tendencies. As argued in a compelling review (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001), in terms of psychological processes, "Bad is stronger than good." We attend to and spend more energy on bad feedback than good, bad interactions than good, bad memories than good, bad experiences than good. Even though most all of us have many more good than bad experiences, it is easy to let the bad drown out the good in our life. Thus, we need some psychological process that amplifies the good in our life, and we propose that the reason gratitude appears to be so effective at enhancing happiness is because it amplifies the good in our life.

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Gratitude Interventions and How They Work

As we hinted at earlier, we believe that one of the most important questions facing gratitude research is how gratitude interventions enhance SWB, and we now explore the different gratitude exercises and discuss possible mechanisms that help us understand how gratitude increases one's happiness. We explore three different forms of gratitude exercises: grateful recounting, grateful reflection, and grateful expression. We first discuss the treatment that has the large share of research support: *grateful recounting*. Also referred to as "counting blessings" and "gratitude lists", in this intervention participants simply list things that they're thankful for. This has been accomplished in several different formats, e.g., "list up to five things you're grateful for" (Emmons & McCullough, 2003), "recall three good things (things that have gone well) that have happened in the past 24 hours" (Seligman et al., 2005). We modified the Seligman et al. "3 blessings" technique to make it more specifically focused on gratitude by asking participants to write about how each thing made them feel grateful (Watkins et al., 2015). Studies have also varied as to how often this exercise is practiced, varying from once per week (e.g., Emmons & McCullough, 2003) to every day (e.g., Seligman et al., 2005; Watkins et al., 2015). This technique has been shown to enhance SWB in a number of studies across diverse populations (Watkins, 2014).

How does grateful recounting improve happiness? We believe that an exploration of the mechanisms of grateful recounting nicely explicates the importance of understanding the mechanisms of gratitude. Some have proposed that grateful recounting improves happiness simply because it boosts one's mood following the exercise. If this is the case, then we should do whatever we can to make the exercise more enjoyable. This might entail asking for shorter gratitude lists, doing it less frequently, or even asking people to simply imagine the benefit rather than writing about it (Lyubomirsky, Sousa, & Dickerhoof, 2006). Several studies have shown that gratitude mediates the effectiveness of grateful recounting (e.g., Watkins et al., 2015; Watkins, McCurrach, Schiebe, & Mathews, under review). But is it simply the case that grateful recounting enhances long-term SWB because it makes one momentarily feel better? Several pieces of evidence appear to speak against this theory. In both Seligman et al. (2005) and Watkins et al. (2015), SWB continued to climb well after the intervention phase, and this did not appear to be due to people continuing the gratitude practice. It is difficult to imagine that simply activating momentary positive emotions caused continued improvements in SWB well after the treatment phase. We also found that people did not benefit because they found the treatment enjoyable. Indeed, participant's report of how much they enjoyed the grateful recounting exercise at the end of the treatment phase showed a small negative correlation with gains in SWB ($r = -.18$). Thus, the limited evidence we have suggests that grateful recounting does not enhance happiness simply by momentarily making one feel better.

Another possibility is that grateful recounting improves SWB by training cognitive processes important to happiness (Watkins & McCurrach, 2016). We initially proposed that grateful recounting might encourage attending to benefits in one's life, and help one habitually interpret social benefits in a positive manner. We conducted a study to evaluate this theory (Watkins et al., under review), and although there was some evidence that grateful recounting helped train people to look for the good, there was no evidence that this gratitude exercise encouraged a positive interpretation bias. Even though we found that positive benefit interpretation bias was significantly correlated with trait gratitude, we found no support for the idea that grateful recounting trains individuals to interpret social benefits in a positive manner. In retrospect this makes some sense; it is unlikely that writing a few sentences about a benefit should change one's habitual and automatic pattern of interpretation bias. Nonetheless, the evidence did point to the importance of positive interpretation bias for dispositional gratitude, and we will return to this

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issue when exploring how trait gratitude may be enhanced. We concluded that grateful recounting likely trains cognitive processes closely related to appreciation (see Watkins & Bell, 2017). Janoff-Bulman defines appreciation as noticing and increasing the psychological value of some benefit (Janoff-Bulman & Berger, 2000; Janoff-Bulman & Frantz, 1997). When a house appreciates, it increases in monetary value; when we appreciate something, its value is enhanced for us. We believe that investigations into the cognitive processes of appreciation are warranted, and this research should enrich our understanding of gratitude at several levels. In sum, we propose that one way that grateful recounting improves happiness is through training cognitive processes related to noticing and appreciating the good in one's life. If future research supports this theory, it would follow that grateful recounting exercises could be improved by having these exercises oriented more to noticing and appreciating the good in one's life. For example, if grateful recounting is successful in enhancing happiness by training cognitive processes, it would seem that this would call for daily exercises for a limited amount of time (one or two weeks), rather than more intermittent frequency of exercises (such as once per week). Indeed, we believe that one reason our most recent study failed to significantly improve SWB was because our participants completed the gratitude exercise every other day, rather than every day.

It is also possible that the mechanism for grateful recounting is some ideal combination of improving mood (particularly gratitude) and cognitive training. Although it does not appear that participants must enjoy the exercise in order for it to be successful (Watkins, Pereira, Davidson, & Davidson, 2013), if the exercise is too aversive, it's unlikely individuals will be motivated to continue the exercise or fully engage with the practice. Counting six blessing per day may more effectively train individuals to look for the good in their life, but it may prove to be so difficult and frustrating that it actually works against the effectiveness of the exercise. Whatever turns out to be the case, it is clear that grateful recounting is an effective exercise, but that there are many questions remaining regarding how it works and how to best use this treatment to enhance happiness.

Grateful reflection is an exercise that has been shown to improve one's emotional state (see Study 4 of Watkins et al., 2003). By grateful reflection we refer to simply contemplating benefits or benefactors in one's life. In our version of this exercise, we simply asked participants to first identify, and then to think about someone who was alive for whom they were grateful. This five-minute exercise resulted in reliable increases in positive affect, and we found that simply thinking about the person produced greater increases in positive affect than writing about them (cf. Lyubomirsky et al., 2006). We found that this exercise sometimes resulted in powerful emotional responses, but somewhat surprisingly, to our knowledge this approach has not yet been investigated in a more long-term treatment outcome design. Considerable thought would need to be put into a long-term treatment protocol for grateful reflection (e.g., it is unlikely that people could meaningfully engage in this exercise everyday), but we believe that grateful reflection has promise for enhancing long-term happiness. If this exercise is found to enhance SWB, what would be the likely mechanism? In this case, we speculate that it would be effective in so far as it enhances positive emotion. Again, we should be quick to note that these suppositions are highly speculative at this point, but the promising early results suggest that grateful reflection might be a fruitful target for gratitude researchers.

Because of the success of gratitude research, quite naturally there has been much popular interest in gratitude. However, one of the things that has concerned us about some popular approaches to gratitude is that they tend to emphasize the experience of gratitude at the expense of the expression of gratitude. Grateful recounting, for example, can be accomplished in a very private manner without having to interact with anyone. There does not seem to be much that emotion researchers agree about, but one

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thing they do tend to agree on is that emotions adaptively activate thought-action readiness. Emotions prepare us to think and act in a way that enhances our ability to live well. Thus, when we experience gratitude, the function of that experience is to prepare us to express our gratitude, and an emphasis only on the experience of gratitude is only half of the gratitude story. Thus, recent research has investigated and indeed shown the adaptiveness of expressing our gratitude to others.

The classic gratitude expression exercise was first investigated by Seligman et al. (2005). In the so called "gratitude visit" individuals first choose someone who has made a significant contribution to their life that they feel they have not properly thanked. They spend some time writing a gratitude letter to this individual, and then express their gratitude by reading their letter to their benefactor in person. This treatment showed large increases in happiness—indeed, the gratitude visit showed the largest increases in happiness compared to all of the positive psychology interventions that they tested. Three months after the end of treatment however, the happiness of those in the gratitude visit condition had returned to baseline. Although this may seem to be a discouraging result, we should not expect one gratitude expression to result in permanent increases in happiness. More permanent increases of happiness should result from a more consistent practice of grateful expression, and this should serve to highlight our theme that the cultivation of gratitude will not produce a harvest of happiness unless a more effortful and consistent gratitude practice is established. What research has yet to determine however, is how frequently one should engage in this practice, and again, it is likely that this would be determined from identifying the mechanisms of grateful expression. We are aware of one study that asked participants to text "gratitude letters" to friends several times a day for several weeks. Not surprisingly, this treatment produced no impact on SWB. If one is writing gratitude letters to significant benefactors in their life, this cannot be an exercise that one could meaningfully practice several times a day. How often should one engage in the "gratitude visit" to see more permanent increases in happiness? Research has yet to answer this important question.

Sara Algoe's research program has most consistently investigated the impact of grateful expression, and in a nutshell, she has shown that expressing one's gratitude—particularly to significant others in one's life—is very beneficial to social well-being (Algoe et al., 2010; Algoe et al., 2008; Algoe, Kurtz, & Hilaire, 2016; for reviews, see Algoe, 2012; Watkins & Scheibe, in press). Thus, not only experiencing, but also expressing gratitude enhances human flourishing, and ultimately, experiencing without expressing gratitude is unlikely to be very fulfilling. How does expressing gratitude enhance well-being? Perhaps this is somewhat obvious, but we propose that the mechanism of grateful expression is through enhancing one's relationships, perhaps one of the more important foundations of SWB (Lakey, 2013). In sum, we have seen that various gratitude interventions have been shown to reliably improve one's happiness, and the important question we now face is: how do these exercises enhance SWB? It is likely that various interventions enhance happiness through different mechanisms, and research that identifies these mechanisms will go far to advance the science of gratitude.

Finally, we suggest that gratitude might enhance happiness by increasing meaning in one's life. Meaning is a strong predictor of SWB (Wong, 2012), and it is possible that when individuals process events with gratitude, this gives them the perspective that their life is indeed good, which enhances the meaning of the event and results in increased happiness. This might be a particularly powerful mechanism when individuals process painful events with gratitude, and is perhaps best illustrated through the gratitude intervention called grateful reappraisal (Watkins, Cruz, Holben, & Kolts, 2008). In the grateful reappraisal treatment participants first recall a painful memory that is still "open" for them—a memory they feel that they do not really understand and consistently intrudes into their consciousness. They then

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write about this memory for three consecutive days for 20 minutes each day. While acknowledging that the event was truly bad, they are instructed to write about the consequences of this bad event that they might now feel grateful for. When comparing this treatment with emotional disclosure writing and a control condition that did not write about the memory, we found that at one-week follow-up those in the grateful reappraisal condition reported more closure and less negative affect associated with the memory, and the memory was also less intrusive (Watkins et al., 2008). We believe that one reason those in the grateful reappraisal condition showed more healing of the memory is that the event took on more meaning to them, and they were able to better fit the memory into a coherent life story. Unfortunately, we did not directly assess the meaning of the memory, but subsequent text analysis of the journaling samples showed that insight into the memory combined with positivity helped explain why this intervention was effective (Uhder, Kononchuk, Sparrow, & Watkins, 2010). In other words, if individuals were able to gain positive insight into why this unpleasant event happened, they were better able to bring the memory to closure. This seems to us to be closely related to enhancing the meaningfulness of the event. Thus, one way that gratitude enhances well-being might be through increasing the meaningfulness of events, and we look forward to future research that investigates this mechanism.

How Can Gratitude Be Enhanced?

We have seen that research strongly supports the supposition that gratitude is one of the more important strengths for human flourishing. If gratitude is indeed important to the good life, it is critical for us to learn how to enhance the grateful disposition. Not surprisingly, research supports the supposition that trait gratitude is more important to SWB and prosocial behavior than isolated grateful experiences (Ma, Tunney, & Ferguson, 2017). It is unlikely that a few gratitude exercises will result in stable increases in SWB; rather, developing the disposition of gratitude—a lifestyle of gratitude—is likely to be more important to consistent elevation in one's happiness. In this section we explore how the grateful disposition may be developed.

As we begin this discussion we should be quick to note that there is very little research on how the trait of gratitude may be developed. The major exception to this however, is the work of Jeff Froh and Giacomo Bono (2013; Froh et al., 2014). Working from Wood, Maltby, Stewart, Linley, and Joseph's (2008) social-cognitive theory of gratitude, they developed a gratitude training program for youth that encouraged students to increase appraisals to benefits that are known to enhance gratitude responses. In this program, children were taught to appreciate the benevolent intentions of their benefactors, the cost of benefits to their benefactors, and the value of the benefits. In two studies Froh et al. (2014) showed that their gratitude training program enhanced gratitude, positive affect, grateful appraisals, and grateful expressions, compared to an attention control group. Because recognizing benefits is of first importance for enhancing grateful responding, it would seem that the program could be improved by more explicitly attending to this aspect (see Watkins, 2014). If one of the primary mechanisms of grateful recounting is to enhance the awareness of benefits, then perhaps adding grateful recounting to Froh and colleagues' program might enhance its effectiveness. Although this program was developed for youth, it would seem to be easily adapted for adults. Investigating how the grateful disposition can be enhanced is an important issue to the science of gratitude, and we believe that the work of Froh and Bono offers an important framework for researchers to follow.

An essential aspect of Froh and associates' gratitude program emphasized recognizing the personal value of benefits. Indeed, in research evaluating the appraisals important to grateful responding, the

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value appraisal appears to be most important. For example, in a recent study where we investigated the appraisals important to gratitude for a significant raise (Watkins, Wood, & Shields, 2016), we found that the personal value of the raise was by far the most important predictor of gratitude for the raise. Moreover, the personal value of the raise mediated the contribution of the actual value of the raise to gratitude. Thus, programs that seek to enhance the grateful disposition should focus on how we can encourage individuals to appreciate the personal value of benefits.

Understanding and Enhancing Psychological Processes of Appreciation

We have seen that appreciating the value of benefits is perhaps one of the most important cognitive tendencies for grateful responding. This highlights the importance of appreciation as a cognitive process fundamental to gratitude. We believe that Janoff-Bulman and Berger have provided the most helpful definition of appreciation (2000; see also Janoff-Bulman, & Frantz, 1997), and we will work from their conceptualization. According to Janoff-Bulman and Berger, when we appreciate something there is an "Appraisal of increased value or worth … We increase its perceived value in our eyes" (p. 32). When our home appreciates, its monetary value increases. When we appreciate something, the psychological value of the object increases. Thus, we believe that in order for the science of gratitude to progress, it is important to investigate how we can enhance the appreciation of benefits.

How can we increase the appreciation of benefits? First, it is important that individuals are trained to recognize benefits in their lives. As Janoff-Bulman and Berger (2000) rightly note, to appreciate something you must first notice it. "Attending and noticing" are necessary but not sufficient for appreciation to take place. Why don't we notice things that are valuable to us? Janoff-Bulman and Berger explain that often we don't notice things because of automatic processes. Many benefits in one's life "fly under the radar" so to speak because they are so regular and we adapt to them (Frijda's law of habituation, 2007). So, the first step to enhancing the appreciation of benefits is simply to recognize the many benefits that come one's way. One way of doing this is to first recognize our tendency to let faithful benefits pass beneath our awareness, but once again a practice of grateful recounting might help establish the cognitive habit of noticing the good in one's life. Recently, researchers in the Cognitive Bias Modification paradigm have shown that people can be trained to attend to positive things, and we believe that this technique has great potential for helping people develop the cognitive habit for attending to benefits in their life (e.g., MacLeod & Clarke, 2015).

Once individuals have developed the skill of becoming more aware of the benefits in their lives, research suggests that training in several other cognitive processes may enhance the appreciation of benefits. First, when one understands the giftedness of benefits, this should enhance their appreciation. When one recognizes that they are not entitled to most benefits, and many good things are intentionally given for one's benefit, this should enhance appreciation for these "gifts." Here again is where gratitude to God may come into play; individuals who believe in a benevolent God may be more inclined to see the giftedness of the benefits where a human benefactor is not evident.

Research also suggests that when we understand how benefits specifically fulfill our needs, we're more likely to appreciate—and feel grateful—for these benefits. When we see that a gift was given specifically with us in mind—a gift given to fill my unique individual needs—we're more likely to feel grateful for that benefit. Sara Algoe's work perhaps best demonstrates this principle. In one study (Algoe et al., 2008), she used a gift giving tradition in sororities to investigate gratitude and how it impacted the development of relationships within the sorority. In this tradition, big sisters shower their new sis-

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ters with anonymous gifts until a "revelation" ceremony reveals to the younger members the identity of their anonymous benefactor. In this study she found that one of the best predictors of gratitude was the perception of "benefactor responsiveness": how much the beneficiary felt that her benefactor was responsive to her individual needs. Thus, if one can be encouraged to see how benefits fill one's unique needs, this should enhance appreciation for benefits.

Another way that the appreciation of benefits can be enhanced is suggested by the so-called "George Bailey effect" (Koo, Algoe, Wilson, & Gilbert, 2008). Named after the character played by Jimmy Stewart in the classic Christmas film *It's a Wonderful Life*, this refers to the finding that we tend to be more grateful for something when we imagine what it would be like if we didn't have that benefit, rather than imagining the presence of the benefit. For example, when one imagines what their life would be like without their spouse, they will probably feel more grateful for their spouse. We propose that when we imagine the absence of some benefit this makes us more aware of heretofore unseen aspects of the benefit, in essence providing for the appreciation of the benefit. In a related finding, we found that when students vividly imagined their own death, this enhanced their gratitude (Frias, Watkins, Webber, & Froh, 2011). Following Chesterton, we reasoned that when we recognize what might not be, this increases our appreciation and gratitude for what we have, in this case, life itself. Might a regular practice of imagining the absence of faithful benefits in our lives enhance the disposition of gratitude? This would appear to be an important research question.

Gratitude is a cognitively imbued emotion—there are a number of cognitive processes that appear to enhance the emotion of gratitude. Several interpretation biases appear to be important to grateful responding, such as perceiving the goodness of the gift, the goodness of the giver, and the gratuitousness of the gift (Watkins, 2014). Using a non-self-report measure of online interpretations of social benefit scenarios, we found that grateful people tend to have these interpretation biases (Watkins et al., under review). Thus, if these interpretation biases can be trained, the disposition for gratitude should be enhanced. Here again, we believe that gratitude researchers may find guidance from the Cognitive Bias Modification approach (Hertel & Mathews, 2011). It might seem difficult to change habitual interpretation biases, but in fact researchers have developed creative computer tasks that change interpretation biases that result in emotional consequences (e.g., Mackintosh, Mathews, Eckstein, & Hoppitt, 2013; Mathews & Mackintosh, 2000). Could such tasks be modified so as to develop interpretation biases that are known to be important to grateful responding? We believe that cognitive biases important to gratitude may be trained in such a way, and that this might be important to cultivating the disposition of gratitude.

A few other recent studies offer hints as to how gratitude might be cultivated. Gilovich has directed an impressive research program showing that experiential purchases (e.g., concert tickets, vacation) enhance happiness more than material purchases (e.g., jewelry, furniture). Across a number of studies, Gilovich and associates have shown that experiential purchases (buying something for the purpose of doing) produce more enjoyment and longer satisfaction than material purchases (buying something for the purpose of having, for a review, see Gilovich & Kumar, 2015). Recently, Walker, Kumar, and Gilovich (2016) have shown that one of the reasons that experiential purchases are advantageous to happiness is that they tend to produce more gratitude than material purchases. Across a series of studies, they showed that reflecting on experiential purchases produced more gratitude than thinking about material purchases. We believe that this is an important finding and it suggests an important route to cultivating gratitude: when we choose to allocate more of our resources to experiential than material purchases, this should foster more gratitude (and less materialism). Moreover, the authors suggested that this might result in a cycle of virtue where experiential purchases enhance gratitude that then increases the likelihood of

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experiential purchases. This should in turn should produce more gratitude. Future research might show that this upward spiral is not only important to cultivating gratitude, but also important to producing a harvest of happiness.

Recently we investigated the relationship of joy to gratitude, and our findings might offer another suggestion as to how one might cultivate gratitude (Watkins et al., 2017). Across three studies we showed that joy and gratitude were strongly related, but Study 3 provided the strongest evidence for this relationship. In this study we used a prospective design where we administered measures of state and trait gratitude and joy at two time points about two months apart. As we predicted, we found that Time 1 trait gratitude predicted increased state joy two months later. Somewhat surprisingly however, we also found that Time 1 joy predicted increases in Time 2 state gratitude. Not only do these findings suggest another cycle of virtue between gratitude and joy, this also suggests that if one could foster joy in their life, this should cultivate gratitude. At this point, very little is known about joy and how it might be encouraged, but the fact that we found that joy is a discrete positive emotion (not simply a diffuse positive affect), suggests that it would be prudent for positive psychology researchers to engage in focused research on joy and how it might be fostered. In short, the cultivation of joy might be one important avenue for enhancing the disposition of gratitude.

Understanding the Thieves of Thankfulness

We have discussed several ways by which the trait of gratitude might be enhanced. As we discuss the cultivation of gratitude however, it is also important to explore what might inhibit gratitude. In short, what are the thieves of thankfulness? Recently we conducted a two-month prospective study where we investigated four putative inhibitors of gratitude (Solom, Watkins, McCurrach, & Scheibe, 2017). As predicted, we found that narcissism, cynicism, and envy predicted declines in the experience of gratitude over time (the evidence regarding trait indebtedness was mixed). Moreover, we found that narcissism and cynicism operated in a vicious cycle that might be particularly damaging to gratitude. These results suggest that there might be some important barriers to cultivating gratitude, and narcissism and cynicism might be two of the most important "thieves of thankfulness."

A subsequent study suggested that there might be good news for narcissists, however. Based on the Solom et al. (2017) results, we utilized a quasi-experimental design to build on these findings (Bell, 2017). Two days after assessing individuals' levels of narcissism and cynicism, individuals were randomly assigned to a gratitude, pride, or neutral emotion induction. We predicted that narcissism would inhibit gratitude responses. Although we did find that narcissism significantly moderated the response to the gratitude induction, results were the opposite of our predictions: narcissists actually showed a greater increase in gratitude in response to the gratitude induction. While this might have simply been narcissists trying to show that they were the most grateful person in the room, the negative correlations of narcissism with our gratitude measures in the first session speaks against this interpretation. We believe that one possibility is that it's not that narcissists can't experience gratitude, rather, most benefits that narcissists could feel grateful for fly under their radar. Because they believe that they are entitled to benefits and favors from others, more than likely most of the benefits that they could feel grateful for go unnoticed, and thus their experience of gratitude is decreased. The fact that narcissists can in fact experience gratitude when encouraged to reflect on benefits from others suggests that gratitude interventions might be particularly effective with narcissistic individuals (and this has the potential to decrease their narcissism as well).

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In sum, although research on how the disposition of gratitude may be enhanced is sparse, there are a few promising directions that have been suggested by the extant literature. First, training in the appraisals that promote gratitude has the potential for cultivating trait gratitude. In particular, it appears that if individuals can be trained to appreciate the value of benefits, the disposition of gratitude should be enhanced. Of course, this requires that individuals are first able to recognize the benefits that come their way, and grateful recounting might be effective because this is exactly what it accomplishes. Understanding the giftedness of benefits, how benefits specifically fill our personal needs, the value of benefits we tend to take for granted, all appear to be viable means for enhancing the appreciation of benefits. We also suggested that adapting the computer tasks used in the cognitive bias modification paradigm for changing interpretation biases might be used for encouraging interpretation biases known to be important to grateful responses. Finally, recent research suggests that increasing experiential purchases and fostering joy might also be effective means for cultivating gratitude. Clearly, however, more research needs to investigate how the disposition of gratitude may be enhanced. Whatever future research ends up concluding on this matter, one thing seems clear: the cultivation of gratitude will not be easy. In order to become a more grateful person, considerable time and effort will need to be invested in this process. One does not simply slide into a grateful lifestyle or a grateful orientation toward life.

Unresolved Issues in the Science of Gratitude

Clearly, one of the most important issues facing the science of gratitude is the need for research that investigates how the trait of gratitude can be enhanced. Other unresolved issues are also important. Although we know fairly conclusively that gratitude exercises enhance well-being, we do not clearly understand how they encourage happiness. This is an important issue that needs to be pursued, but we would caution researchers that it is likely that different gratitude exercises involve various mechanisms. Grateful recounting may enhance happiness by encouraging the habit of noticing and appreciating benefits, but grateful expression may increase well-being by enhancing one's relationships. Clearly however, it will be important for gratitude researchers to continue to investigate the "how" of gratitude.

How Is Gratitude Related to Other Positive Emotions?

Another important unresolved issue that we see as critical to the science of gratitude revolves around the question of how gratitude is related to other emotions. First, we suggest that it is important to investigate how gratitude might activate other positive emotions. This is an important question because it relates to the "how" of gratitude. One way that gratitude might encourage human flourishing is by activating other positive emotions such as joy. We have seen that the disposition of gratitude encourages experiences of joy (Watkins et al., 2017), but how does it relate to other positive emotions? Does gratitude have any unique relationship with specific positive emotions (such as joy or awe), or does it simply activate the positive emotion system and enhance the likelihood of any positive emotion? Perhaps more importantly, how does gratitude relate to negative emotions? Although we began with the proposal that gratitude would decrease the experience of resentment and anger, subsequent research has shown that gratitude appears to have even stronger negative relationships with sadness and depression (Watkins, Grimm, Whitney, & Brown, 2005; Watkins et al., 2003). Although these were strong relationships, we still do not know whether gratitude actually inhibits negative emotions. The preliminary results however, offer

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the intriguing suggestion that gratitude exercises might be particularly effective in reducing depression, and we await more research that investigates this possibility.

How Is Gratitude Related to Spirituality?

Finally, we believe that there are many issues surrounding the spirituality of gratitude that call for further investigation. How is gratitude related to spirituality? A number of studies have shown that grateful people are more likely to be religious and spiritual (e.g., McCullough et al., 2002; Watkins et al., 2003), and both gratitude and spirituality are associated with greater happiness. Thus, one reason that spirituality enhances happiness might be in that religiosity encourages gratitude, and we have found some evidence to that effect (Budde, Kindred, Pray, & Watkins, 2016). The assumption by most researchers is that because religions promote the importance of gratitude, it is religion and spirituality that enhance gratitude. It is worth considering however, that the opposite might also be true: it is possible that gratitude enhances religiosity. Indeed, in G. K. Chesterton's account of his conversion, he seems to suggest that it was his gratitude that pushed him from atheism to theism (1986, p. 258):

Here I am only trying to describe the enormous emotions which cannot be described. And the strongest emotion was that life was as precious as it was puzzling. …The test of all happiness is gratitude; and I felt grateful, though I hardly knew to whom. Children are grateful when Santa Claus puts in their stockings gifts of toys or sweets. Could I not be grateful to Santa Claus when he put in my stockings the gift of two miraculous legs? We thank people for birthday presents of cigars and slippers. Can I thank no one for the birthday present of birth?

Thus, although it is likely that religiosity encourages gratitude, it is altogether possible that gratitude encourages spirituality as well, and we look forward to new research that investigates this aspect of the spirituality of gratitude.

Gratitude to God

As we discuss the spirituality of gratitude it is important not to neglect gratitude to God. Because most people believe in a benevolent deity, this would seem to be an important concern for gratitude researchers, but unfortunately only a handful of studies have investigated this issue (but see the work of Neal Krause, e.g., Krause, 2006; Krause, Emmons, Ironson, & Hill, 2017; Krause & Hayward, 2015). Studies have shown that gratitude to God might be an important buffer to the effects of stress on health (Krause, 2006) and it also might be important to SWB (Rosmarin, Pirutinsky, Cohen, Galler, & Krumrei, 2011). We have developed a reliable measure of gratitude to God and have found that it is indeed associated with subjective well-being, but gratitude to God appears to have much stronger relationships with spiritual well-being (Scheibe, Watkins, & Uhder, 2017). Indeed, in several prospective studies we found that gratitude toward God predicted increases in spiritual well-being over time (Scheibe et al., 2017). This raises the intriguing possibility that a grateful recounting exercise that is adapted to focus on gratitude to God might improve the spiritual well-being of religious people. Why does gratitude to God appear to be so important to spiritual well-being? For us, this is an important issue for the spirituality of gratitude, and we hope that more investigators will pursue this question.

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Who Benefits From Gratitude?

As we conclude this chapter we would like to consider the important question of who might benefit most from gratitude. As others have emphasized, personal fit is probably going to be an important issue in positive psychology interventions. More than likely, different positive psychology interventions benefit different people. So who stands most to gain from gratitude exercises? Here we will consider some of the moderators of gratitude interventions. Gender differences in gratitude have become an important issue in gratitude research. Because women are generally higher in trait gratitude than men, and because women seem to value gratitude more and are less likely to see the costs of gratitude than men (e.g., Kashdan, Mishra, Breen, & Froh, 2009), some have suggested that gratitude exercises would provide a better fit for women than men. We also expected that this might be the case, and although we found that gender did moderate the impact of grateful recounting, our results were actually the opposite of what we expected (Watkins et al., 2015): men actually gained more from grateful recounting than women. Although women also gained from counting their blessings, there was a greater impact on the well-being of men. Thus, if anything, it appears that men might have more to gain from gratitude interventions.

Because women tend to be more grateful than men, this raises the interesting question of how trait gratitude might moderate the impact of gratitude interventions. We thought that because grateful people would more easily and willingly recall blessings and process them gratefully, those high in trait gratitude would gain more from grateful recounting. Once again however, contrary to our predictions it was those who were low in trait gratitude that gained most from grateful recounting (Watkins et al., 2015), and others have demonstrated this effect as well (e.g., Rash, Matsuba, & Prkachin, 2011). Similarly, although narcissism appears to inhibit gratitude, our findings from the gratitude induction quasi-experiment described earlier (Bell, 2017) suggest that those high in narcissism might actually gain more from gratitude interventions. In short, the proud may have more to gain from gratitude than the humble.

Some positive psychology scholars have assumed that people need to enjoy positive psychology interventions for them to be successful; the more you enjoy an exercise, the more beneficial it's likely to be. If you don't enjoy a positive activity, then "it probably isn't for you," and you'd best try another activity to improve your happiness. Again however, the picture that emerges is that at minimum, enjoyment of grateful recounting exercises is not required for it to be effective. Indeed, in our study, although women enjoyed the exercise more than men and grateful people liked counting their blessings more than their less grateful counterparts, men and those less grateful gained more from the exercise in terms of their happiness (Watkins et al., 2015). At the end of the one-week daily recounting phase, we asked our participants how much they enjoyed the exercise. Contrary to our expectations, people's reports of how much they enjoyed the exercise was actually negatively correlated with their improvement of happiness at the five-week follow-up assessment ($r = -.18$). Although this correlation was small and only marginally significant, it is in direct opposition to the idea that you need to enjoy a positive exercise in order for it to be effective for you.

Who benefits most from gratitude interventions? Although there is much more research that needs to be done on this question, a fairly clear picture is emerging: men benefit more than women and those less grateful benefit more than grateful individuals. Moreover, it does not appear that one need enjoy the exercise in order for it to be effective. Indeed, some minor frustration with the exercise may suggest that it is what is needed for the person's happiness. So how can we characterize these results? In a nutshell, it appears that those who need gratitude most, benefit most from gratitude interventions. Women probably do not gain as much from the exercises as men because they're already noticing and appreciating the

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good that others provide to them. Similarly, grateful people already have the habit of attending to and appreciating blessings in their life, thus, grateful people do not gain as much from gratitude interventions as less grateful people. Although this conclusion seems to be almost too obvious, it was not initially apparent to us, and it seems to be opposed to what some positive psychologists are suggesting. If a "good personal fit" of positive activities means that we have to enjoy the activity, this might be opposed to what exercises should be recommended to improve our happiness. If, on the other hand, by "personal fit" we mean the exercise that is most likely to bring the person long-term happiness, the exercise might prove to be somewhat difficult because it is exactly the exercise that they need to overcome the obstacles that are thwarting their happiness. Once again, through this discussion we see that the road to happiness through gratitude may not be an easy journey full of pleasure. Cultivating gratitude—particularly if that is what we most need—is likely to be a difficult venture.

CONCLUSION

In summary, we have seen that gratitude is indeed good: Gratitude is strongly correlated with well-being and a number of experimental studies have shown that gratitude exercises enhance happiness. Because gratitude appears to be valuable to the good life, it is important that we continue to investigate how gratitude might be cultivated. Research strongly supports the suggestion that cultivating gratitude should result in a harvest of happiness. Who benefits most from gratitude? It appears that those who need gratitude most are most likely to benefit from gratitude interventions. In terms of improving their happiness, men benefit more than women and those less grateful benefit more than the grateful. And in this observation comes the rub: If gratitude is lacking in your life, research suggests that it is probably what you should pursue to improve your well-being, but research also suggests that this will not be an easy pursuit. Of course, this is true in other aspects of life as well. People who most need physical exercise are those who are out of shape—those who might be somewhat overweight. Exercise is going to be more difficult for those of us who are overweight—but it's exactly the thing we need to pursue to improve our life. It would clearly be wrongheaded advice if we were to recommend to an overweight person, "If exercise doesn't feel good for you, then it probably isn't for you." If a lack of gratitude is the thing that is the obstacle preventing us from lasting happiness, it is probably going to be a difficult thing to gain. To use Chesterton's analogy from the epigraph, just as it is difficult to farm in a way that produces a fruitful harvest, so too gratitude will require significant time and effort to produce a harvest of lasting contentment. And here, we think it helpful to provide the full context of Chesterton's quote from the epigraph:

True contentment is a thing as active as agriculture. It is the power of getting out of any situation all that there is in it. It is arduous and it is rare. The absence of this digestive talent is what makes so cold and incredible the tales of so many people who say they have been "through" things; when it is evident that they have come out on the other side quite unchanged. A man might have gone "through" a plum pudding as a bullet might go through a plum pudding; it depends on the size of the pudding—and the man. But the awful and sacred question is "Has the pudding been through him?" Has he tasted, appreciated, and absorbed the solid pudding, with its three dimensions and its three thousand tastes and smells? Can he offer himself to the eyes of men as one who has cubically conquered and contained a pudding? (Chesterton, 1986)

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You probably aren't going to become permanently happier from one gratitude visit, one grateful reflection, or one week of counting your blessings. In order for gratitude to produce lasting contentment, it must become a lifestyle, a life orientation.

And now we conclude with some bad news and some good news. The bad news is that the pursuit of gratitude will not be easy. It will require time, intentional effort, and perhaps even some frustration. You will not simply slide into a grateful attitude toward life. Because psychologically "Bad is stronger than good" (Baumeister et al., 2001), it will be difficult to develop a practice of intentionally and mindfully appreciating the good in your life. But there is good news too: Gratitude is a well-tested path to well-being, and the research strongly suggests that although it may be a difficult journey, it is a road that is well worth traveling. If it is a lack of gratitude that is blocking your pursuit of happiness, cultivating gratitude is not likely to be easy, but it is likely to produce a harvest of happiness. As St. John of the Cross wisely observed (cited in Foster, 1992, p. 17): "To come to the pleasure you have not you must go by a way in which you enjoy not."

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ENDNOTE

[1] We believe that the eudaimonic approach to happiness offers significant insights to positive psychology, such as the importance of meaning to happiness (e.g., Wong, 2012). One of the significant issues with this approach however, is that it often conflates the independent with the dependent variables in happiness research (see Watkins, 2016). For example, we believe that having a meaningful life (the independent variable) contributes in an important way to happiness (the dependent variable). However, when meaning is incorporated into the very definition of happiness, this creates significant conceptual and empirical issues.

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Chapter 89
Attitude towards People with Intellectual Disabilities (PWID)

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ABSTRACT

History on PWID indicates influence of various psycho-social, biological, religious and educational factors for the existence of stereotypical attitudes towards PWID. Across the world until the mid-80's they were a marginalized group of people who were discriminated from others' who considered themselves as "normal". But since the early part of the 21st century significant efforts have been reported across countries in integrating and mainstreaming the PWID in the community at large. To attain this challenging milestone attitude plays a very significant role. Families of PWID undergo high levels of stress and emotional reactions resulting from daily care demands, emotional distress, interpersonal difficulties (family discord), financial hardships as well as social isolation which call for intervention not just for the intellectually disabled but also with the family members. Positive attitude among the health and all professionals with humane qualities such as empathy, genuineness, unconditional positive regard towards the PWID leads to positive expectation and better outcome. Interestingly in developing countries stereotypes are based on ignorance and families find it extremely difficult to disclose the presence of Intellectual Disability (ID) as it is considered to be a 'loss of face'' and is believed to tarnish the family reputation. Hence, families often adopt strategies to hide the existence of a disability, which in turn delays the treatment, and rehabilitation of PWID. Along with parents and family members other stakeholders like siblings and relatives, teachers, educationists, health professionals and general public's attitudes towards them are highly influential factors for their rehabilitation and integration in the mainstream community. Hence, this chapter is an attempt to focus on the importance of attitude that determines the course towards acceptance of PWID. The authors' focus is on the various perceptions towards intellectual disability and the implications of the favorable and unfavorable attitudes towards PWID since

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the Egyptian era in developed and developing nations. Further, the recommendations provided are for the policymakers and stakeholders to design intervention programs to alter people's attitude towards acceptance and compassion towards PWID. This is believed to help in their rehabilitation, and integration into the society at all levels and thereby reduces the prejudice and discrimination towards them.

BACKGROUND

Intellectual disability (ID) is one of the most common disabilities across countries. Braddock and Parish (2002) have defined disability as socially determined interpretation of impairment by others. Therefore the whole concept of ID or how to define or categorize people with ID (PWID) has been always affected by how people in different places, cultures at different periods of time have defined it and perceived it. Rehabilitation of PWID has largely been affected by changing concepts and attitudes. Attitudes are learned pre-dispositions to respond in a favorable or unfavorable manner to a particular person, behavior, event, thing, belief or situation in a direct or discreet manner. According to Charles Osgood, an attitude has three dimensions i.e. Moral (good or bad), potency (strong or weak) and activity (active or passive). These dimensions classify people's attitude towards ID. As relationships with significant others as well society are important determinants for the quality of life of individuals with ID our chapter is focused on attitudes towards them and their various dimensions of life which are significant factors for their adaptation and assimilation in the society.

The authors would focus on attitude towards persons with intellectual disabilities (PWID) worldwide and the review of literature will give an overall insight about this population. The terms mental retardation (MR) and intellectually disabled (ID) is used interchangeably in this chapter.

ATTITUDES TOWARDS PEOPLE WITH INTELLECTUAL DISABILITIES (PWID) IN THE EARLIEST CENTURIES

Egyptian Papyrus of Thebes in 1552 B.C. (Harris 2006) was the first to refer to ID. Attitudes in the earlier times were delimited by religious and spiritual explanations. The ancient Greeks and Romans before 18th century believed children with ID are the cause of curse by god who were allowed to die while some societies in Rome did allow some form of protection to children with ID who were born to the wealthy, by allowing them with right to property and also to have guardians (Beirne-Smith et al. 2006; Harris, 2006). Traditionally, in Indian context mental retardation (MR) or intellectual disabilities (ID) has been referred by Charaka and Susruta in Ayurvedaas as 'manasmandyam' (weak head) caused by genetic, nutritional and environmental factors and is influenced by 'Graha' (planetary influences). In the current scenario the past, present and future are attributed to supernatural powers and there is a strong belief in 'karma'. Hence, disabilities have been considered punishments for sins committed in a previous life by the individual or their family members (Schlossar, 2004). Interestingly before the 18th century, societies differed in conceptualization of intellectual disability. Those with mild ID who were socially competent never received special identification or treatment, and those with more severe conditions received protective care from their families or in monasteries while few societies believed people with more severe ID to be capable of receiving divine revelation (Beirne-Smith et al. 2006; Harris 2006).

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Jean-Marc Itard in 1799, first developed systematic and documented program of intervention for ID in France. Seguin elaborated on Itard's methods and formulated a systematic program to educate the "feebleminded" at Salpetrière Hospital in Paris. Henceforth, the stakeholders in Europe worked towards educating PWID which received recognition and subsequently began to spread to other developed and developing countries. In the U.S., and other developed countries there was an initial optimism about rehabilitating, training, and reintegrating PWID into "normal" life. Positive attitudes prevailed and reformers like Dorthea Dix advocated improving treatment of people who were living in asylums, poorhouses, country homes, and almshouses in the mid-1800s. Samuel Howe in 1848 established the first public training facility in the U.S. for PWID and in the same year Hervey Wilbur established in his home the first private institution for PWID (Beirne-Smith et al. 2006) at Massachusetts. There were favorable attitudes during those times towards the PWID as mainstream education was the goal.

However, in the latter half of the 1800s US population became more urbanized and the early optimism about the curability of ID waned. It became highly apparent that people with more severe ID were less able than those without ID to adapt to a developing nation where employment depended on intellectual ability and less so on physical ability in most cases. Furthermore, the ideal of training, rehabilitation, and reintegration of PWID proved to be an illusion as with time it was noticed that people although learned skills but failed to attain "normalcy" as they couldn't pace themselves with the progressive society. Hence, eventually residential institutions were established after the systematic programs were not found to be quite effective. People's attitude towards ID became less favorable and they were called "feebleminded," and were blamed for the poverty, illness, and crime that accompanied urbanization creating a fearful and hostile attitude toward PWID. In those days again the anti-social behaviors and ID, as well as mental or psychiatric illness, tuberculosis, prostitution, and poverty were thought to be heritable. Negative attitudes prevailed to such an extent that great attention was focused on eliminating the possibilities for PWID and others to reproduce so as to control the undesirable heritable traits from passing on to their offspring (Beirne-Smith et al. 2006; Radford 1991; Reilly 1987).

The Eugenics movement started with the publication of the first book on *Hereditary Genius* in 1869 by Sir Francis Galton, a cousin of Charles Darwin, which established a theoretical basis for the heritability of ID (Beirne-Smith et al. 2006). The eugenists rightly concluded that only nature (not characteristics of nurture, like socio-economic status, education, nutrition) determined personality and intellect, so breeding had to be brought under supervision to prevent the degeneration of the human species (Radford 1991; Bachrach 2004). This social myth of heritability and ID was reinforced by the publication of two popular books in 1877 namely The Jukes: A Study in Crime, Pauperism, Disease and Heredity by Richard Louis Dugdale, and The Kallikak Family: A Study in the Heredity of Feeble-Mindedness in 1912 by Henry Goddard. Moreover, Goddard published from his research that many of the immigrants to the US were "*feebleminded*" (Beirne-Smith et al. 2006). Heritability factors in ID dominated the attitude towards them which was not favorable. This led to the belief among the supporters of the eugenics movement that medicine interfered with Darwinian natural selection and kept the weak alive and that people with MR and mental illnesses reproduced faster than intellectual and productive people (Bachrach, 2004).

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ATTITUDES TOWARDS PEOPLE WITH INTELLECTUAL DISABILITIES (PWID) IN THE 20TH CENTURY

Following the Eugenics movement of the 19th century, US states like Indiana, Virginia, North Carolina, Georgia, and California enacted sterilization laws (Sofair and Kaldijian 2000). Indiana passed the nation's first sterilization law in 1907 for the "imbeciles" and they have been diagnosed as "unimproveable" (Reilly 1987). Between 1907-1944, more than 42,000 people in US and 22,000 people in 27 states were sterilized in an attempt to eliminate the presumed genetic sources of diseases including ID (Radford, 1991; Sofair and Kaldijian, 2000).In the UK, the Mental Deficiency Act of 1913 emphasized segregation of males and females over sterilization which was active till 1959. Unlike in the U.S., British practitioners preferred to implement educational programs for PWID and used a social definition of mental deficiency as "those individuals who could not fit in to the modern world" (Radford 1991; Reilly 1987). In Germany, compulsory sterilization law was passed during 1933, under which people with "congenital feeblemindedness" which was a very subjective diagnosis could be forcibly sterilized (Bachrach, 2004; Sofair & Kaldijian, 2000).

Further, the most common method of controlling reproduction by PWID was segregation in the U.S., Canada, and Great Britain, through limitations on marriage, immigration controls, sterilization, and, most importantly, custodial institutionalization (Joseph 2005; Radford 1991; Reilly 1987). The reason for the segregation was to protect the so-called "normal" people from the PWID and also to control their reproductive lives. "Custodial institutions were the means by which the feebleminded were removed from a society in which they were perceived as a genetic threat and they were placed in isolated environments, completely segregated by gender" (Radford 1991). Within institutions "feebleminded" men and women were kept strictly apart from each other and lot of them was forcefully sterilized. Medical literature supported sterilization in the 20th century. Unfortunately "euthanasia" of "idiot" children was advocated by some professionals in the US so as to avoid passing on their genes and thereby to reduce the burden on the society (Joseph 2005; Reilly 1987).

ATTITUDES TOWARDS PEOPLE WITH INTELLECTUAL DISABILITIES (PWID) IN THE PRESENT CONTEXT

The 20th century marks the beginning for the search of the cause and cure of PWID in a scientific manner for which the psychological tests were developed leading to early identification of PWID. Tests identified mild intellectually disabled who were otherwise not been given a diagnosis (Beirne-Smith et al., 2006). Although there has been a positive transformation with the development of qualitative methods in social sciences in Britain and in the U.S. but institutionalizing them still continued (Radford, 1991).

Favorable attitudes towards PWID prevailed slowly when heritability as the only cause was refuted in 1928 by Penrose and contemporaries, when they revealed multiple etiologies for ID (Radford 1991). Various non-genetic factors such as metabolic disturbances or PKU (phenylketonuria) and environmental factors, such as infection, trauma, and endocrine disturbance, were recognized as having an association with ID. Though there were mixed reports about genes vs environment on the development of feeblemindedness still social policies reflected deterministic and largely inaccurate hereditarianism views of mental deficiency until after World War II (Radford 1991). Eugenic sterilization in Germany and in the

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U.S. was opposed by the Catholic churches and the Holocaust discredited eugenics practices (Bachrach 2004; Sofair and Kaldijian 2000; Reilly 1987).

By the early 1960s most state sterilization programs had ended in the developed countries (Reilly 1987).Legal rights, protection and services for PWID revolutionized the attitudes towards them in developed as well as in underdeveloped countries. In 1911, first time New Jersey mandated that education be provided for students with intellectual disabilities (Beirne-Smith et al., 2006).

With the formation of The National Association of Parents and Friends of Mentally Retarded Children in 1950 in US there was the transformation towards tolerance and compassion among the children and families with ID, along with the availability of financial support and formulation of new legislations and community services.

The world has undergone tremendous alterations in attitudes towards PWID in the last four decades with an increased focus on early intervention, community-based rehabilitation (CBR), definition and diagnosis, human rights, and legislation, with particular stress on deinstitutionalization leading to better quality of life and improved choice making (Beadle-Brown et al. 2007). The institutionalized ID population has declined at a significant rate in England, Canada, and Norway, and there is no report of anyone living in an institution in Sweden. Scandinavia was the first country to introduce the concept of "normalization" in 1950s, and suggested access to supports to ID so that they can experience patterns and conditions of everyday life that are as similar to those in the mainstream society (Beirne-Smith et al. 2006). In the US there has been an increase in the trend for individuals with ID to live in inclusive community settings, with appropriate supports to facilitate their experience. Since the 1980s the number of children diagnosed as intellectually disabled has dropped, partly as a result of increased early intervention, and also because of a more cautious professional outlook on definition and diagnosis (Beirne-Smith et al. 2006). The rate of institutions had declined in Australia and Ireland though both countries still have substantial portions of their PWID housed in institutions (Beadle-Brown et al. 2007). Though in Germany, Spain, the Netherlands, Greece, and Belgium deinstitutionalizing was but institutional care continued to dominate. Reports suggests that deinstitutionalization has just begun in countries like France, Poland, Romania, Hungary, and the Czech Republic while many PWID live in poor quality group settings (Beadle-Brown et al. 2007). Argentina continues to institutionalize a large proportion of its people with mental disabilities including ID (MDRI 2007) though mental health care providers are present unlike some developing countries like India where the mental health service providers for PWID in some states are absent.

Interestingly, according to a survey conducted by the World Health Organization's Atlas on 2007 among ID reported that institutional settings still continue to be prevalent in the middle income countries .It is insightful that though education, health, disability, and social welfare were the key governmental sectors involved in programs and policies related to ID, but the availability or the accessibility of such services were more widespread in high income countries with almost 90% reported of having high levels of access compared to only 10% of similar levels of access among low income countries. Special judicial laws for offenders with ID were prevalent in only half of the countries indicating under-development in many of the sectors

Though taxes accounted for the largest source of finances for services of the PWID but only 60% of such services were covered in low income countries compared to 90% in high income countries. Hence, the financial burden incurred for PWID is quite high in the societies of low income countries due to out of pocket expenditure with no favorable returns from PWID.

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Across the world there has been a relentless effort for community care of the individuals with ID. Worldwide voluntary disability organizations have been providing community-based supports and services for decade, which are now evolving as 'mainstream disability specialists'. The intrinsic features which make the organizations a vital community resource include: they are naturally person-centered; they have specialist knowledge and skills; they can innovate and adapt to change; and they have forged strong connections both within communities and beyond (National disability survey, 2006). Social inclusion in the community requires active support to establish and maintain connections with family, friends, carers and community members. Successful campaigns carried out in Scotland and New Zealand influenced public attitudes towards PWID which involved a combination of strategies, like information, training and media portrayal (NSW Consumer Advisory Group). While in India and other developing countries the concept of community care needs a very different conceptualization because informal support is the norm and support by untrained non-professionals in non-institutional settings without any responsibility and accountability is apparent. The major program of the United Nations Development Programs (UNDP) is the community–based rehabilitation (CBR).In a very short time CBR has become very popular among the masses in India and integration of the people with ID into the societal mainstream has been the main focus. The goals of CBR would be fulfilled if people with disabilities, their families, and the local community join in this program and work together for realization of the goals (Dalal, 1998) but the efforts would fail if the attitude towards individual with intellectual disability is not favorable.

There has been a "strong awakening of interest in humane treatment of the mentally retarded" (Anastasi, 1982) in the 19th century in developing countries like but the common perception exists that intellectually disabled children are social outcasts, due to the stigmatizing consequences of the process of labeling (Parekh and Jackson, 1997). Throughout the 1990's, the government of India has been developing acts and strategies, amendments and laws to cater to the various needs of the disabled people. Apart from the government, the Non-governmental organizations (NGO) too play a major role in supporting the inclusion of individuals with ID in various educational and occupational institutes. Though they have established orphanages, vocational training programs, parental organizations, half way homes, day care centers etc. to increase awareness and to empower individuals with ID there is still a huge gap between needs and services available for them.

The Multinational Study of Attitudes (2003) conducted in Brazil, China, Egypt, Germany, Ireland, Japan, Nigeria, Russia and USA showed cultural differences in the perception and attitudes toward PWID. Worldwide, the public perceives individuals with intellectual disabilities as more capable of engaging in simple activities such as sustaining friendships and washing and dressing, but less capable of complex activities such as understanding a national news event or handling emergencies. Across these countries, the public notion is that ID should "live with their family." In those countries that do not favor placement with the family, they believe that ID should live either in supervised apartments or independently.

Worldwide (more than 60% in the countries) people believe there are significant obstacles to the inclusion of individuals with intellectual disabilities in society. In particular, the public believes the lack of available supports (e.g., the lack of community services, job training and school resources), the negative attitudes of others and the negative attitudes of the media as major obstacles to inclusion (Siperstein et al., 2005).

In developing countries people perceive disability differently. In some studies they are considered as an object of pity, sympathy, and are isolated or rejected in the family and other social institutions while in others they have been looked as special people in need of love and affection. Interestingly in a few cases families regard their children with ID as "cursed" and a burden that they must deal with, which at

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times leads to their neglect, abuse and rejection; and often the child is hidden from the community as the family fears social rejection (Girimaji et al. 2001;Census Bureau, 2001). This leads to social isolation for which the community care fails to reach them. Despite advances in public policy and legislation, significant barriers towards people with ID exists while attitudes held by general public as well significant care givers especially parents are often cited as an important component of the "handicapping" environment by various researchers from time to time. The rigid social structure in India makes it extremely difficult to include individuals with ID into various occupations and institutes as they are perceived as fundamentally "flawed" having diminished capabilities, thereby placing them at the bottom of the social structure (Ghai, 2002).

Detection and identification of mild intellectual disabilities is not simply recognized and the benefits too do not reach them easily because unlike individuals who have genetic disabilities, those with mild ID, is often caused by environmental factors such as malnutrition and under stimulation, and they may have no anomalies in their physical features similarly with individuals with no disability (Reschly, 1996)

In conclusion there is not much change in the perception and acceptance of individuals with ID from earlier to modern times as the stereotypes are based on ignorance and families find it extremely difficult to disclose the presence of disability as they believe disability to be a 'loss of face'' which tarnish the family reputation. Hence, families often adopt strategies to hide the existence of a disability, which could be a source of delay in treatment and rehabilitation services and many times due to lack of knowledge about intellectual disability they do not seek for treatment services as well.

GENERAL PUBLIC ATTITUDE TOWARDS INDIVIDUALS WITH ID

Every individual with or without ID is a part and product of his social environment so one's relationship, attitude and behavior patterns are vitally affected by the nature and extent of the harmony or disharmony of relationship with the family members, relatives, friends, community members, workplace colleagues and employers etc. Tragically enough, the persons with disabilities are comparatively less handicapped by their own disability than by the attitude of the society towards them (Silver, 1957; Shrivastava, 1970).

Moreover, they are not accepted by the society because people's attention is more focused on his/her disabilities rather than on his/her abilities and they are further victimized by the peculiar and irrational prejudice of the society. It has been a well-established fact that the able-bodied people tend to avoid interacting with people with disabilities, because they are uncertain about how to behave in their presence (Yamamoto, 1971; Thompson, 1982). Hence, the common attitudes towards individuals with ID range from curiosity, pity, mild dislike or embarrassment, repugnance, indifference, fear or sympathy.

There has been interesting facts from developing countries where services for ID are lacking. In 2003, Gary N. Siperstein et al. assessed the attitudes of the public in India towards PWID which included questions about perceptions of people with ID, knowledge of Special Olympics (SO) and beliefs about inclusion. Findings indicated that people in urban India were aware of ID as more than 70% had some type of contact with a person with ID like any other countries in the world. Also that people in India interacted with disabled people but majority i.e. more than 54% didn't have any knowledge about SO. United States and Ireland was estimated to have high levels of awareness and involvement with SO but India and all other countries lacked knowledge and were less involved in SO. Indians underestimated the capabilities of the people with ID and viewed them as severely impaired not only in complex independent living skills but also in simple self-help skills. This reinforced the stereotype that exists among the

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Indian public that individuals with ID as less capable than their non-disabled peers and are categorized as problematic comparable to other children (Ghai, 2002). Whereas in a few studies (Hazarika et al., 2014) it was seen that training in special schools helps in the development of self-help skills and social skills in children with ID like any other children without ID.

The importance of language in disability is very significant and so labeling disabled people with negative terms reflect negatively which is detrimental (Gorden & Rosenblum, 2001). Hence, the language used by general public to describe about disability and impairment affects the way society views them. Inappropriate language prove to be disempowering, humiliating and rude and often terms like victim, abnormal, defective, infirm, invalid, idiot, unsound expresses perceptions of helplessness and dependency on other individuals.

FAMILIES AND PARENTS' ATTITUDE TOWARDS THEIR CHILDREN WITH ID

Some people in the neighborhood hate him. They never let their children to play with my son. Even if he tries to play with them their parents stop them. Others are kind, and tell me these children are blessings from God – Father of a 12 year old boy with intellectual disability in a study (Hamdani et al., 2014).

The attitude towards PWID is mixed but more towards negativity. Every child is special to a parent while some children have special needs and others do not and this determines the parental care and treatment services in the developmental stages of life (Ravindranadan, 2007). No parent would like his or her child to have any deficits in intellectual functioning. Intellectual disability typically reflects a misfit between the capabilities of an individual and the structure and expectations of the environment. All prospective parents look forward to a baby free from flaws, deformity and disability, but the birth of a intellectually disabled child comes as a traumatic experience involving strong negative reactions. Often terms such as " disabled", " impaired" or "abnormal" are interchangeably used for the child which itself profoundly influences the parent's opinions and attitudes towards their own children with intellectual disability. It has been noted that mothers undergo a more intense psychological trauma or emotional state as it involves adjustment of the notion of so called "perfect child" and the "death" of the child of parental expectation.

When a child is diagnosed to have ID the early parental reactions include ambivalence, anger, confusion, denial, self-pity, blame, feelings of helplessness, depression, disappointment, grief, guilt, mourning, rejection, shock, impulses to kill the child and suicidal impulses (McConachie, 1986; Mary, 1990; Ntombela, 1991). Parental reactions vary from experience of a state of shock at the initial disclosure with being unable to register or understand the news and thus withdraw. This is usually followed by a reaction stage, during which sudden emotions of denial, sadness, anger evolves and gradually parents enter an adaptation stage when they start inquiring and asking questions about what could be done for the future and finally enters a stage of reorganization when they would seek help and begin to plan ahead. But during all these stages love and sorrow, guilt, high expressed emotions of hostility, criticality, and over-protectiveness were reported. So the people working with individuals with ID need to know at which stage of adaptation the parents of ID are in for adequate treatment and rehabilitation of the child.

In a study by Hazarika et al., 2015 (in press) it was seen that though the parents of children with ID had love and acceptance towards their children but frustration, disappointment and overprotectiveness were significantly high which were considered to be deterrent factors in their growth and adaptive functioning in the society. Hence, the father of attachment theory (Bowlby, 1988) had rightly mentioned

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that the greatest loss and negative consequences of an ID child is lack of adequate nurturing relationship with parents. When parents are critical towards the child's immediate environment it negatively hampers the process of development. The way parents' react to a child with special needs partly depends on how they perceive it and the practical implications the disability or illness has on them (Chaturvedi, 1984). This in turn determines their attitude. Findings have been consistent about families experiencing high levels of stress and research has focused on parental dynamics. One view suggests that the presence of a child with special needs causes a crisis in the family. Hence, the environment in which a child is born and brought up has a huge impact on a child's psychological and physical well-being.

One very significant finding suggests that disability increases stress and negative emotions due to the manner by which they are informed of the child's disability that strongly influences initial reactions by parents (McConachie, 1986). Cunningham & Davis argued that parents who were informed 'well' reported feelings of sadness rather than of anger (as cited in McConachie, 1986). If there is a delay in the news about disability and is told in an impersonal manner than they are unlikely to accept the status easily (Ntombela, 1991).Though "there is no good way of letting parents know that their child is mentally handicapped, but there must be ways of not making a bad situation worse" (Hannam, 1975) and this is to be always kept in mind while dealing with children with ID and their parents for comprehensive management.

It has been suggested that negative reactions hampers ones emotionality with more of pessimistic and self -blaming attitude leading to family disharmony. Positive reaction combined with valued support, love, acceptance and contentment with one's own situation increases ones coping efforts. Problem focused coping strategies such as gathering information to deal with the underlying problem, planning, making decisions, resolving conflicts and making realistic goals acts as a booster to the psychological and physical resources during stress. Adverse consequences of stress further deteriorates the child's growth and development. (Gupta & Singhal, 2004)

In a study done by Lakhan & Sharma (2010) among 55,366 people on knowledge, attitudes and practices related to intellectual disability among families in Barwani, India it was found that a large number lacked knowledge and information about ID for which misconceptions and misperceptions were evident. Parents believed that birth of these children has taken place only due to sins of their previous life and not because of poor nutrition, improper delivery, or other birth related problems. This was reinforced by Persha and colleagues study in 2007 where in parents were convinced that their offspring could be cured if they could remove the effects of "God's punishment" by prayers. They paid money to faith healers to conduct worship rituals. However, many of these faith healers used practices like beating, burning on stomach, and not giving food for days in the name of treatment. In some studies the community believed that the intellectual disability is contagious, and can infect other children (Madhavan & Menon, 1988). Another belief was that marriage cures disability so many respondents wanted their disabled children to get married early in life (Peshawaria, 1994)

Grebler (1952) believes that the parent's attitude towards their child impacts greatly on the child's sense of self while Govender (1984) further mentioned the development of positive self-concept in disabled children if they are defined positively by their "significant others" and vice-versa. Thus the role of parents and siblings is of vital importance, especially for the mentally retarded child whose inter-personal experiences are mainly within the family context. Grebler mentioned in his study that the parents are immensely frustrated due to the elements present in the child's condition and external limitations as reported in most studies. Parent's personality determines the level of frustration and anxiety too. Parental reactions are interrelated to the attitude hence, if parents have feeling of guilt then ambivalence is mostly seen towards the child and if they condemn the external world for the child's status then they

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reject the child, and parents who don't blame anyone for the child's ID accept the child as he or she is. Parental unfavorable attitude cause behavior problems in these children which in turn prevent them from using their limited capacities. According to Ntombela (1991) emotional stress of parents is unavoidable due to the constant physical care, financial demands, restrictions placed lifestyles, the disappointment of having a handicapped child, the guilt feelings arising from their anger and rejection of the child and concerns about his/her. Another common attitude of parents i.e. Hyperpaedophilia,is reported in many studies which is the pathological over-attachment to the child. When this happens the parents love for the handicapped child develops into a grossly exaggerated devotion and over-protectiveness which negatively affects the life and needs of other members of the family as well as for adequate adaptation of the child to the mainstream society.

ATTITUDES OF SIBLINGS AND RELATIVES TOWARDS INDIVIDUALS WITH ID

System theory suggests the importance of sibling sub-system as important determining factor for family homeostasis. Sibling relationships make up a child's first social network and are the basis for his or her interactions with people outside the family (Powell & Ogle, 1985). A child's temperament plays an important role in their response toward a sibling, including one with an ID. Although both positive and negative feelings exist in all sibling relationships, McHale and Gamble (1987) states "for school-age children and young adolescents, these relationships tend to be more positive than negative in their feeling tone. It is an interesting insight that children with disabled siblings appear to have more positive and fewer negative behavioral interactions than in those with non-disabled siblings". The positive aspects include higher levels of empathy and altruism, increased tolerance for differences, increased sense of maturity and responsibility, and pride in the sibling's accomplishments (Powell & Ogle, 1985). The attitudes of siblings are greatly influenced by the attitude of parents so if parental attitudes are positive then positive feelings in siblings follow and this is a very important observation to be aware of while giving psycho-education to parents of ID.

According to Ntombela (1991) siblings experience emotions range from jealousy, shame, guilt, to frustration. And it gets exacerbated by the material deprivation they experience due to the increased financial responsibilities towards the disabled child. Studies report shame leading to social isolation as they feel that they cannot invite their friend's home.

The siblings may feel victimized and feel frustrated due to the parent's restrictions concerning the kind of games and outings in which their disabled child and his/her siblings may be involved, so as to protect the child from social discrimination. The chores and responsibilities assigned to the siblings as a result of parent's involvement with the child with ID are matters of concern.

ATTITUDES OF TEACHERS AND STUDENTS TOWARDS INDIVIDUALS WITH ID

The educational experience of any student is influenced by teachers' attitude so if the attitude is negative then the impact is profound. Children with ID spend most of their time with teachers in schools and vocational institutes so their attitude matters a lot. Studies report mixed messages regarding the teacher's attitude.

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Though the legal mandates declare children with ID to be included in the regular classrooms, but they don't ensure their acceptance or fair treatment in schools (Marks, 1997) and some studies also indicates that inclusion can fail to result in positive outcomes in these children (Genesi, 2000; Cook et al, 2000) if social comparison is upward and discrimination persists.

A study conducted by Efron & Efron (1967) revealed that special education class teachers expressed more favorable attitudes to the intellectually disabled than do teachers of ordinary children (Rawlins, 1983). But only a small minority of teachers is in favor of integrating the intellectually disabled-into regular classes (Gotlieb, 1975; Rawlins, 1983). Studies by Scruggs et al., (1996) gives an insight into the social desirability factor indicating that although in the educational fields teachers agreed with inclusive programs for children with ID, but in practice they expressed hesitancy. Intellectually disabled children were the most rejected children in twenty regular classes for their behavior in the classrooms, playground and outside the school environment and they were very seldom chosen as 'a best friend', irrespective of the organizational or integrated settings (Johnson, 1950; Rawlins, 1983). Several studies show that specific Inclusive Education (IE) training courses improve future teachers' attitudes and self-confidence (Glumbic, Kaljaca, & Brojcin, 2004; Stella, Forlin, & Lan, 2007), as well as their abilities and self-awareness regarding abilities of ID thus creating a more positive attitude (Cologon, 2012).

Davis, Tang, Oliver and Wu (2000) found that compared to a sample of Irish children, the Chinese children were more positive towards school integration and were more willing to have social interactions and form social relationships with people who were intellectually disabled.-While in Japan, a study (SO, 2004) among middle school students indicated underestimating the intellectually disabled and even hesitation to interact with them but North American students expressed their willingness to interact and had better perception of the competencies of the intellectually disabled. (Norins-Bardon et al., 2005). While, more than 516 studies stated that more the contact with people with intellectual disability, less was the prejudice. (Pettigrew et al., 2000; Hewstone, 2003) .

Students with higher marks or higher qualifications show better attitudes towards people with disabilities than those with lower marks and qualifications (Sharma, Forlin, Loreman, & Earle, 2006; Forlin et al., 2009).

PEOPLE'S ATTITUDE ABOUT THEIR EDUCATION AND INCLUSION IN THE MAINSTREAM.

Education is the right of every child because it equips him to meet the challenges of life.

Inclusive Education (IE) or Mainstreaming as a type of education ensures the exercising of the right to a complete, and quality education for all, maximizing integration of the society and promoting diversity in knowledge sharing and experience (EADSNE, 2011). According to statistical data, Spain is one of the EU countries with the highest levels of IE. Only 0.4% of Spanish students with special educational needs (SEN) attend specific educational institutions (EADSNE, 2011; Chiner & Cardona, 2012) in contrast to 4% in Belgium, Denmark, Germany or Switzerland.

Some significant milestones in the field of education of the disabled are the Salamanca Statement and Framework for Action on Special Needs Education (UNESCO, 1994); the Declaration of Madrid in 2002; the UN Convention on the Rights of Persons with Disabilities (UN, 2006), which was signed

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by 147 countries and ratified by 97; and the 48th Session of the International Conference on Education "Inclusive Education: the way of the future" (UNESCO, 2008).

The policies of the government of India towards the education of children with disabilities have been reflected in the enactments, schemes and through institutions established for various relevant activities. According to the NSS 58th round (Jul.–Dec. 2008), 19.68% children with ID were enrolled in grades between 1st-5th, 8.62% were enrolled in grades between 6th-8th. Some of the major policies and legislature framework in India for education of the disabled in order to alter people's mind set and reduce discrimination are the constitutional safeguards provided by the Constitution (86th Amendment) Act 2002 declaring education as a fundamental right of all children in the age group of 6–14 years, adoption of the National Policy on Education (NPE) in 1986 whose objectives include integrating the physically and mentally handicapped with the general community as equal partners, to prepare them for normal growth and to enable them to face life with courage and confidence. Concept of special education, teacher's training to deal with ID, and importance of vocational enrolment was bought up in this policy. Policies like the Integrated Education of Disabled Children (IEDC) which is the centrally sponsored scheme of Integrated Education of the Disabled Children providing educational opportunities for the disabled children in common schools, to facilitate their retention in the school system, and also to place the children in special school to common schools after they acquire the communication and the daily living skills at the functional level. Another policy developed in 1992 is the Plan of Action (POA) which postulates that a child with disability who can be educated in a general school should be educated in a general school only and not in a special school. Even those children who are initially admitted to special schools for training in plus curriculum skills should be transferred to general schools once they acquire daily living skills, communication skills and basic academic skills. The Parliament of India enacted the Rehabilitation Council of India Act (RCI Act –1992) which was subsequently amended in 2000, to establish a statutory mechanism for monitoring and standardizing courses for the training of 16 categories of professionals required in the field of special education and rehabilitation of persons with disability. Persons with Disabilities (Equal Opportunities, Protection of Rights & Full Participation) Act, 1995: The most landmark legislation in the history of special education in India is the Persons with Disabilities (Equal opportunities, protection of rights & full participation) Act, 1995 involved with providing free education up to 15 years, integrating of disabled children with regular children and setting of special school in public and private sector and providing vocational training facilities. It is welcoming to note in the developing country like India that the Sarva Shiksha Abhiyan (SSA) has been operational since 2000-01 in partnership with state governments to achieve the goal of universalization of elementary education. This adopts a ZERO rejection policy and it covers the following components under education for children with disability. They are early detection and identification, functional and formal assessment, education placement, aids and appliances, support services, teacher training, resource support, Individual Educational Plan (IEP), parental training and community mobilization, planning and management, strengthening of special schools, removal of architectural barriers, research, monitoring and evaluation of females with disability.

Across the world the right of every child to education is proclaimed in the Universal Declaration of Human Rights (1948) and was strongly reaffirmed by the World Declaration on Education for All (1990). The UN Standard Rules on the Equalisation of Opportunities for Persons with Disabilities (1993) was an important resolution for improving the educational conditions of persons with disabilities which affirms, 'Those with special educational needs must have access to regular schools which should accommodate them within a child centered pedagogy capable of meeting these needs".

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Though the mentioned legal policies and laws with few other policies have been mandatary in developed and developing nations but still there is a growing fear among parents and educationists that the children with ID would create discipline problems and decrease the growth and productivity of fellow students as a result cause hindrance to overall progress of the society. Hence, it is better to put them in separate special schools. This mind-set causes obstacles to the integrated education system. In a study among regular school teachers of Nigeria regarding inclusion of children with ID revealed that 57.4% teachers could not cope with the children with ID because of their learning difficulties. Teachers with higher years of teaching experience were found to be more favorable to exclusion (Tolu.et al, 2014)

Moreover, just bringing a child into a mainstream classroom does not indicate integration if no other supports is in place. There are children who are integrated but very lonely as nobody plays with the child. These may lead to social exclusion, isolation and psychological problems in him/her. There is a lack of community resources like health and transportation, job training programs, lack of special teachers, and special learning aids to provide the supports necessary for their success in the inclusive workplace or schools. Need for social services is high but services are less and inclusion in the work and school environments has been extremely difficult due to the diversity that exists within some countries.

Four variables like general demographics, educational background, teaching experience and perceived competence to teach the disabled affect regular classroom teacher's (RCT) attitude towards mainstreaming. Teacher's cultural background, knowledge regarding intellectual disabilities that have been gained either with one's own personal experience or formal studies seems to be the factor towards building up of positive attitude. Perceived competence i.e. the RCT's perceptions of their ability to meet the academic and social needs of the disabled children, personality characteristics such as openness to experience, empathizing, conscientiousness, intuitive, good power of observation, even tempered and having received in service training appears to have a significant positive impact on attitude towards mainstreaming.

ATTITUDES OF EMPLOYERS TOWARDS INDIVIDUALS WITH ID AND THEIR INCLUSION IN WORK

People with disabilities would be benefitted if they were employed in various skilled and unskilled tasks as it helps in skill development, increase income, decrease social isolation and leads to life satisfaction. But they face many challenges when integrating into the work force. Overcoming co-workers and employers' negative attitudes and perceptions is one such challenge. The employment rate of people with disabilities remains low despite efforts, legislation, and identified benefits of hiring people with disabilities (Stokes, 1990,Geng-qing & Qu, 2003; Ruggeri-Stevens & Goodwin, 2007;).

Despite rules and laws only 44% of intellectually disabled adults are in the labor force, either employed or looking for work, while just 34 percent are actually working, according to a survey by Special Olympics and conducted by Gallup and the University of Massachusetts at Boston. Studies by Rimrnerman, 1998 have shown that the attitudes of employers play a major role in determining the success of employing workers who have been labeled with mild and moderate intellectual disability. Employing such people reduces support and treatment costs of caring for these individuals, and allows them to pay taxes and improve their level of self-confidence and independence. Levy, Jones-Jessop, Rimrnerman & Levy reported that larger companies have been found to be more positive in their attitudes towards hiring persons with disabilities than small companies (in Rimrnerman, 1998, p.246.)

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People from the work-force who had prior experience with ID are positive towards their recruitment and less educated corporate executives place less emphasis on the educational accomplishments of persons with disabilities and are more favorable towards hiring them. People with ID who have vocational and social skills, had greater chance of employment while executives in many companies avoid hiring persons whose ID raises concerns about their ability to integrate into the workplace. But in another study coworkers of people with disabilities mentioned contagious excitement about the job as a positive experience while working with people with disabilities (Ruggeri-Stevens & Goodwin, 2007). It is also possible that public's underestimation is the result of the strongly held stereotype that exists among some people that individuals with ID are less capable than their non-disabled peers (Ghai, 2002).

In the United States, of the 43 million people classified as having disabilities, 56% are employed compared to 88% of people without disabilities (U.S. Census Bureau, 2007). Hence, discrimination against individuals with disabilities appears to continue as a serious problem all over the world. Many intellectually disabled people work in fast food joints, and retail chains such as Walgreens, Best Buy and Safeway have stepped up to hire them. Sheltered workshop is another platform which inculcates high self-esteem and sense of purpose in life, where about 30% of ID work but they face segregation from non-disabled workers in the basic task and outcome they perform. They can legally be paid less than the minimum wage under a 1938 federal law that allows wages to be based on comparing their productivity level with that of a non-disabled worker. But disability rights groups won a victory when President Obama signed an executive order raising the minimum wage to $10.10 an hour for federal contract workers. The order includes several thousand disabled workers at sheltered workshops run by federal contractors. In comparison to other countries surveyed, India is most comparable to South Africa in terms of where they believe individuals with ID should not work but countries like Japan, Ireland and the United States were extremely positive indicating that individuals with ID could work in skilled or unskilled work set-up.

In Columbia, the Rehabilitation Services Administration (RSA) is responsible for empowering individuals with disabilities to "maximize employment, economic self-sufficiency, independence, and inclusion and integration into society". By law, the local RSA would conduct a review and assess to determine eligibility and priority for services. Provision for supported employment, on-the-job training, and other experiences using supports and realistic work settings are also reported to be available and no individual is denied individual services based on disability. Once the local RSA determines that an individual is eligible for Vocational rehabilitation (VR) services, the VR specialist develops an Individual Plan for Employment (IPE). The IPE generally include among other things, the individual's employment goals and means to achieve them. (University Legal services report, Washington, 2010)

Some of the common barriers identified in inclusion of ID to employment are the perception that individual with ID lack the necessary skills to work in a competitive employment, belief that inclusion will have a negative consequence on the environment, such as lower the productivity of other workers and create safety problem for the individual himself and others, and the presence of external obstacles such as lack of services which prevent inclusion from happening and finally, inclusion is hindered by negative attitude harbored by many individuals.

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ATTITUDES OF HEALTH PROFESSIONALS TOWARDS INDIVIDUALS WITH ID

Never discourage anyone who continually makes progress, no matter how slow. – Plato

The trend towards deinstitutionalization and the movement towards community rehabilitation programs imply that more physicians are caring for mentally retarded patients in their daily practices. Medical students have positive attitudes towards people with intellectually disabled (Rutledge and Scatt, 1997) .A study on the systematic review on health care professionals and students attitude towards disability in New York indicated that one's experience with a person with disability, ones background with disability influences in becoming more comfortable with a challenging rehabilitation situation. Female health care students and professionals are found to be showing more positive attitude towards patients with disabilities then do their male colleagues (Satchidanand et al., 2009). Attitude of the medical students holds importance as they are the future professionals who would provide their service to the disabled. In a study conducted by Karl et al. (2013) to assess the effects of a clinical experience that involved caring for people with ID indicated favorable attitude among the medical students and they wanted to learn more about this group. A similar study by Khandelwal and Workneh (1986) to understand medical students' perceptions of, and attitudes towards, mental illnesses and ID, before the start of a 6-week psychiatric attachment indicated 92% regarded ID as an illness; 62% regarded it as very serious; 78% stated that they would have some problem in their family life.

Rose (1996) revealed that families are enormously affected by the perception of their health professionals' lack of information, support system and dissatisfaction with the services. In United States, a study by Doornbos (2002) suggested that 85% of the caregivers regarded communication problems with mental health professionals as the most non supportive aspect of a mental health care system, indicating that there lies incongruence between the collaboration and partnership between the two parties increasing iatrogenic burden for families. "Iatrogenic burden" was the term coined by Lefley (1996) to describe the stress felt by families from a system that most of the times reacts to them with indifference. Therefore, it is essential to generate collaboration between the health professionals and the families as often family is regarded as liability for the condition of the intellectually disabled, not that the population is unique and deserves special services themselves.

Mental health professionals clinical training programs should focus more on family coping, adaptation, and competence rather than family pathology (Mohr, Lafuze, & Mohr, 2000).Some of the barriers that prevent one from collaboration with the families include lack of insight about family stress, limited outreach to families, the lack of awareness of the needs of families, and continued exposure to a pathology.

A step was taken by National Association of the Mentally Ill (NAMI), Professional Provider Family Education Course (PPFEC) in United States which is a 10 week course developed for the purposes of educating, encouraging, and helping professional mental health providers to better understand the family's responses to mental illness and involve the family in the delivery of care, Physician's negative attitude towards individuals with ID will have deep detrimental effect on the delivery and outcomes of medical services and may influence the beliefs and attitudes of others who assist in this health care so the issue needs sensitive handling and management.

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ATTITUDE TOWARDS SEXUALITY OF INDIVIDUALS WITH ID

The world worries about disabilities more than disabled people do. – Warwick Davis

Sexuality is an innate part of each and every individual. Sexual behavior develops on three levels, biological, social and psychological (McLeod, 2008). Children and young people develop physically, mentally, emotionally and sexually through exploration, observation and processing the information gathered. Sexual development is not only physiological but also changes in sexual knowledge and behaviors.

Sexual needs or rather sexual health often becomes a neglected aspect of people with intellectual disability, although the biological needs that arises among human beings tends to be the same. Individuals with intellectual disabilities are no different in this respect, and express the need and desire to form relationships, engage in sexual contact, and acquire sexual knowledge (Kelly, Crowley, & Hamilton, 2009; Konstantareas & Lunsky, 1997; McCabe, 1999; Siebelink et. al, 2006).

Some of the essential skills in which PWID may require specific educative and/or medical management are in maintenance of hygiene, general gynecological care compliance, sexually transmitted infections (STI), abuse and knowledge about prevention of unwanted pregnancies

An efficacious way of protecting child's sexuality mostly during adolescents involves education in sexuality and gender mainstreaming. This could be provided by parents, teachers and friends. They could be taught in a disabled friendly language about the distinction between proper and improper touch, knowledge about private and public behavior, age appropriate sexual issues and teaching the importance of fulfilling sex life. Studies report that both males and females with ID react differently to the experience of sexual abuse. Findings suggest that females become passive in their later sexual relationships, make poor relational decisions and submit to physical, sexual and emotional abuse easily, while males are unable to understand the act and in turn internalize the action and become aggressive in their own relationship with others (Alplott, 1999; Block, 2000 ; Jobling et al.,2000 ; Griffth et. al., 2000; Trigler & Pfeiffer, 2001). The emotional impact of engaging in sexually inappropriate behaviors and/or being charged can include shame, guilt, fear, rejection, blame, stress, loss of trust and confusion. The physical impact can include bullying, isolation, STIs, pregnancy, a loss of job/home/money/freedom, risk of harm and injury. Inappropriate sexual (ISB) behavior at the earliest stage warrant redirection and depending on the behavior, age and impact to self or others can escalate to a situation whereby professional intervention is required

Education is the mechanism to promote the decision making abilities and empower the individuals with intellectual disability, thus reducing vulnerability and inappropriate sexual expression (Aylott, 2000; Black, 2000; Lumley & Scotti, 2001 ;Nirji,1972; Ward, et al.,2001).Vulnerability to abuse among intellectually disabled can be reduced by adequate social skills training, appropriate judgment skills, and provision of practical knowledge based training in formal sex education programs(Sobsey,1988;Sobsey &Varnhagen, 1988; Watson, 1984). Differentiating appropriate sexual behavior from inappropriate sexual behavior, relation to sexuality and protective behavior to individuals was addressed in a training program in People 1st Program (PIP), a project of Family Planning Western Australia (2009) which had favorable outcome.

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ATTITUDE OF THE MEDIA TOWARDS INDIVIDUALS WITH ID

The role of media in promoting prevention, detection and rehabilitation of intellectual disabilities has been grim. There has been a noticeable lack of coordination between media professionals and those working for the disabled. There is a lack of moral responsibility to help in policy formulation and implementation by the media so there are very few media efforts to address disability needs and to promote disability awareness. There is general indifference to the cause of integration of people with disabilities into mainstream society by the media. Many times in various movies individuals with ID are projected with a touch of humor and sympathy which is both unethical and immoral while few of the films have also sought to enhance the sensitivity of society towards the needs, rights, sensibilities and potential of people with disabilities.

Although, there are few television and radio programs which telecast programs to promote assistive devices available for persons with disabilities as well as on integration of children with disabilities in normal schools but the main emphasis on early intervention in the management of disabled children is not often seen as the right target. Since stigma due to negative media coverage impedes the recovery process, triggers discrimination and prejudice, and creates barriers to seeking and finding decent housing, employment, and education, it is essential to make use of appropriate advertisement, share success stories and circulate appropriate facts about the condition to remove the stigma and dogmatization that lies among the population at large to create an aura of positivity and compassion towards PWID.

CONCLUSION

Special children are the god's gift in its purest form, brimmed with innocence, nonjudgmental and generous attitude within them. They are not odd or weird; all they want is to be accepted.

The general approach towards the care and rehabilitation of the individuals with ID reflects the confused state of mind of a person who wants to be emancipated and modern while preserving age-old traditions and cultural values. Though the Government policies, legislative actions, schemes and provisions, programs for the disabled give the impression of commitment to human rights and equal opportunities across countries but the ground reality is quite different in most of the developing countries.

There is not much work done to create awareness about disability in many countries so most people continue to believe that disability is either an irreversible medical condition or an act of fate. And in both the cases the onus of care rests with the family of the disabled and not on the community at large. Though various schemes have been offered for the welfare of this population, due to lack of adequate information among the stakeholders, the PWID, their families and organizations that work for them are either unaware or cannot avail of the provisions therein and many times it is seen that the process of availing the benefits of these schemes are very cumbersome as well as time-consuming.

There are significant myths and misconceptions about disability causing the disabled to be discriminated, isolated and marginalized. The legal definitions in many countries view disability strictly from the medical and/or psychometric perspectives that reinforce a medical model of intervention rather than the much-needed community-based rehabilitation. Very interestingly though the rehabilitation programs have received recognition but they are funded because of their activities rather than achievements and in reality they are not need based but fund driven so are very cost-intensive, lacking in real goal or

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long-term viability. Hence, these programs become counterproductive to the cause of development of rehabilitation services in the long run.

Overall, it is apparent that the general public of many countries lacks an appreciation of the range of capabilities of individuals with intellectual disabilities, and therefore has low expectations of what they can do. The world still believes that individuals with intellectual disabilities should work and learn in separate settings, apart from people without disabilities. The family is seen as the most appropriate living environment for individuals with intellectual disabilities, a function of both cultural values and availability of services. In thinking about the barriers to inclusion, there is unanimous recognition that the lack of resources and services in the community, employment and school are the major obstacles to inclusion. In addition, the world sees the negative attitudes of others, including the media, as standing in the way of inclusion.

People who perceive individuals with intellectual disabilities as more capable support inclusion in work and school, and believe that the existence of obstacles are not too large and expect few negative outcomes of inclusion.

The direct and indirect efforts made in many jurisdictions needs to be monitored on a continuous basis. These include efforts to ensure the substantive equality of people with disabilities in the field of employment, education, independent living and full societal participation. Hence, more research on this population is essential in all socio-economic levels for planning and program implementation. Also it is essential to translate research evidence into practice to bring about the change.

Recommendation

- Awareness and education programs are needed to educate the public about the capabilities of individuals with ID, and, that there is great variability that exists among people with ID. Further, it needs to be made clear that not all people with ID fall into the moderate to severely disabled category and that most people with ID are not physically distinguishable from their non-disabled peers.
- If education of the ID is to become a reality all over the World then the training of teachers has to become a top priority. The teachers need to be provided with intensive training to work with various disabilities. In-service teachers also need continued training to update their skills and knowledge of inclusive education strategies.
- It is important for the health professionals to focus more in the capabilities instead of the inadequacies in the assessment process in order to promote smooth functioning of the IEP that are to be maintained for the children .Also, ensuring that one's practice, clinic or hospital is open and welcoming to persons with intellectual disabilities, educating oneself and colleagues about the needs of individuals with intellectual disabilities, holding high health expectations for persons with intellectual disabilities and including them as partners in making decisions about their health are some steps towards a progressive mind-set.
- Specific organizations working for specific disability should develop advocacy program to sensitize the community and the administration to the needs of people with disability as a whole and not be involved in one or two specific disabilities only.
- Families and other stakeholders should be provided the necessary insight about their views and their attitudes towards their own children with ID.As families become more knowledgeable about

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the capabilities of their children with ID, they will begin to expect more from the community and take part in the community rehabilitation programs.

- A strong school and family partnership would ensure good planning taking into consideration of the student's needs and the school division's resources and policies. An effective way to attain that is to introduce self-help group of parents with intellectually disabled child. Thus parents with positive perception can help the other parents in the early stages of adjustment to develop positive and realistic expectation.
- There is a clear need to provide effective, timely, ongoing training for people responsible for the health and wellbeing of PWID. Provision of training to help parents, care givers and disability workers better identify inappropriate sexual behavior at its earliest stage may reduce the escalation, severity and repeated occurrence of behaviors that adversely impact lifestyle and opportunities of the PWID.
- In low income countries, disability is strongly linked to poverty so improving the quality of life of people with disabilities and their families should be the focus of the health care services as this would benefit a large disadvantaged section of the society.
- For the success of community based rehabilitation services, it is crucial that professionals learn from success in the developed countries, as well as from failures so need based programs should be initiated which would be viable in the long run. The activities, mission and vision of any rehabilitation program should be clearly laid down and reviewed from time to time.
- Another strategy for promoting change in attitudes could be programs such as Unified Sports which provide a dynamic model for inclusion in the community by creating the opportunity for individuals with and without ID to participate in sports side-by-side in an effort to break down existing stereotypes.
- The current societal attitudes towards people with ID partially dictate the importance the government places on the issue. There is a need for legitimization of rights of the ID with acquiring of their basic services protesting against discrimination and injustice and acknowledging their richness and the diversity.
- Role of the media is crucial in changing the myths and superstitions about PWID and giving appropriate knowledge, responsible reporting, information about care, opportunities and rehabilitation of PWID to reduce prejudice and discrimination is the need of the hour

Hindsight: *There is no doubt that the dream for discrimination free and equal education for the people with intellectual disability may require a comprehensive change in the institutional arrangements and legal provisions but the most important change has to come in our mindset, in our thinking and attitude towards the disabled to bring about the larger change.*

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Chapter 90
Gratitude and Happiness in Adolescents:
A Qualitative Analysis

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ABSTRACT

Gratitude is important for social and emotional health. Research suggests that there is a relation between experiencing and expressing gratitude and happiness. The aim of this chapter is to review current research regarding gratitude development and happiness, adolescent gratitude development, and to discuss future recommendations. This chapter also discusses a study examining adolescent perspectives on the meaning of being thankful. To obtain adolescent perspectives on the meaning of being thankful, adolescents (N = 1,098) wrote essays describing what being thankful meant to them. Thematic analysis was used to identify and analyze themes within the essays. Percentiles were calculated for the most recurrent themes across essays (Appreciation = 54.07%, Family = 31.42%, Positive Emotions = 28.81%, Assistance/Support from Others = 25.99%, Friendship = 21.18%, and Downward Comparison = 16.60%). Understanding gratitude development in adolescents can aid in creating effective interventions, potentially increasing adolescent well-being and happiness.

INTRODUCTION

Gratitude is a construct that is highly valued across cultures, and in most cultures, there are different ways of expressing one's thanks. But, how is gratitude defined? There is no single definitive definition. Gratitude has been conceptualized as, "a sense of thankfulness and joy in response to receiving a gift, whether the gift be a tangible benefit from a specific other or moment of peaceful bliss" (Emmons, 2004). Gratitude has also been viewed as "a moral virtue, an attitude, an emotion, a habit, a personality

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trait [and] a coping response" (Emmons & McCullough, 2003, p.377). Gratitude seems to create many positive benefits. For example, feeling grateful may remind people of a positive event, and expressing gratitude to others often strengthens relationships (Seligman, 2011). Reciprocation and helping others has also been linked to feelings of gratitude. "Gratitude opens your heart and carries the urge to give back-to do something good in return, either for the person who helped you or for someone else" (Fredrickson, 2009 p. 41).

Happy people seem to flourish more internally and externally (Lyubomirsky, Sheldon, & Schkade, 2005). While we can identify happiness in ourselves or in another, defining happiness is more challenging. What exactly *is* happiness? Happiness is defined in "terms of frequent positive affect, high life satisfaction, and infrequent negative affect" (Lyubomirsky et al., 2005). According to authentic happiness theory, happiness is the main component of positive psychology and consists of three subjective features—positive emotion, engagement, and meaning (Seligman, 2011). Similarly, the term happiness is itself a subjective measure of life satisfaction (Seligman, 2011). In comparison, Seligman's well-being theory posits that one of the central topics of positive psychology is the construct of well-being (Seligman, 2011). Positive emotion, engagement, relationships, meaning, and achievement are the measurable aspects that contribute to well-being (Seligman, 2011). Positive emotion consists of happiness and life-satisfaction (Seligman, 2011), and therefore happiness continues to play a part of positive psychology and optimal health and functioning.

This chapter has four main foci. First, the authors review previous research regarding gratitude development in adolescents in general, and more specifically, research regarding the many possible benefits that increasing gratitude can have for adolescents. Next, the authors discuss the relation between happiness and gratitude. The chapter then explores several issues, controversies, and problems related to the topic of gratitude in adolescents and provides a detailed description of unpublished research examining adolescent perspectives on the meaning of being thankful. Finally, the authors suggest applications for the future within the field of positive psychology. The aim of this chapter is to review current research as well as share new research regarding gratitude development and happiness, specifically within adolescence, and to discuss future recommendations.

BACKGROUND

Gratitude development in adults yields positive effects. In adults, gratitude is related to positive emotions and wellbeing, including the emotion of happiness (McCullough, Emmons, & Tsang, 2002). Further, there is a positive relation between gratitude and prosocial behavior (Ma, Tunney, & Ferguson, 2017), as well as a positive relation between gratitude development and subjective well-being (Emmons & McCullough, 2003). Gratitude is also incongruous with negative emotions and may even mitigate the presence of negative feelings, such as greed, envy, or anger (Lyubomirsky et al., 2005). In addition to gratitude's positive effects on positive emotions and subjective well-being in adults, research has found that gratitude has a positive relation with health: the greater the gratitude, the better the health (Singh, Khan, & Osmany, 2014). Clinical trials suggest that gratitude can lower blood pressure and improve immune functions (Emmons, 2014; Emmons & Stern, 2013). Gratitude, therefore, seems to benefit people emotionally, physically, and socially.

While gratitude research with adults has exploded since 2000 with the popularization of positive psychology (Seligman & Csikszentmihalyi, 2000), there is a need for additional gratitude development

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research in adolescence (Froh & Bono, 2014). There have been, however, several studies that provide great insight into gratitude development among children and adolescents. In a study that asked school-aged children to describe what they were thankful for, the most common themes expressed were family, basic needs, friends, and teachers/school (Gordon, Musher-Eizenman, Holub, & Dalrymple, 2004). Some of the other themes expressed included pets/animals, God/church/religion, police/fire fighters/helpers, own life, and material objects (Gordon et al., 2004).

Two additional studies asked children and adolescents to write their greatest wish and explain what they would do for the individual who fulfilled that wish (Freitas, Pieta, & Tudge, 2011; Tudge, Freitas, Mokrova, Wang, & O'Brien, 2015). Results from these two studies suggest that children at different ages express gratitude differently. Findings suggest that adolescents are more likely to use connective gratitude, and younger children more often used concrete gratitude (Freitas et al., 2011; Tudge et al., 2015). Moreover, as children mature, they are more likely to consider benefactors and the larger community in their expressions of gratitude (Tudge et al., 2015). Concrete gratitude occurs when children repay the benefactor with something they themselves appreciate; this does not necessarily coincide with something the benefactor would appreciate (Freitas et al., 2011). Alternatively, connective gratitude occurs when an individual considers the benefactor in deciding how to repay her; the individual gives the benefactor something the benefactor would appreciate, and the repayment is altruistic (Freitas et al., 2011). Connective gratitude, therefore, reflects adolescents' ability to see beyond their own needs and wants to take the benefactor's perspective.

Gratitude has many positive effects on an adolescent's functioning. For example, gratitude in adolescents predicted higher GPAs, life satisfaction, social integration, and absorption (Froh, Emmons, Card, Bono, & Wilson, 2011). Gratitude also predicted lower levels of envy and depression (Froh et al., 2011). Another study indicated that in early adolescence, gratitude is positively correlated with positive emotions, including feeling pride, hope, inspiration, forgiveness, and excitement (Froh, Yurkewicz & Kashdan, 2009). Gratitude, therefore, seems integral for adolescent flourishing.

There are other positive aspects of adolescent development related to gratitude. In one study, middle school students' perceptions of social support (parent and teacher support) were positively related to gratitude, and although uncertain from the cross-sectional design, social support may be an antecedent for gratitude (Reckart, Huebner, Hills, & Valois, 2017). These findings were consistent with an earlier study with adolescents which found a positive relation between gratitude and social support (Froh et al., 2009). Thus, gratitude seems to buoy adolescents' social development.

Gratitude development in adolescents has also been linked to prosocial behavior (Froh et al., 2009). A recent 4-year longitudinal study, consisting of 566 adolescent participants, was conducted to examine whether gratitude was associated with changes in social behavior (Bono, Froh, Disabato, Blalock, McKnight, & Bausert, 2017). Participants completed questionnaires at 4-time points spanning 4 years (Bono et al., 2017). After controlling for social desirability, age, socioeconomic status, and gender, the authors of the study found that increases in gratitude over time predicted increases in prosocial behavior over time and that increases in gratitude significantly predicted decreases in antisocial behavior over time (Bono et al., 2017).

In adolescence, there is a positive relation between gratitude and subjective well-being (Froh et al., 2009b). In one study, an intervention group received weekly gratitude intervention sessions over a 5- week period, while the control received neutral sessions (Khanna & Singh, 2016). The intervention produced significant effects on psychological well-being, positive affect, positive feelings, life satisfaction and gratitude (Khanna & Singh, 2016). Results from another study suggested that gratitude is positively

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related to school wellbeing and showed that gratitude's positive effect on school wellbeing was partially mediated by materialism (Jiang, Sun, Liu, & Pan, 2016).

Forgiveness and gratitude has been studied with respect to their associations with other aspects of adolescent development. In recent studies among adolescents, gratitude and forgiveness positively correlated with life-satisfaction, psychological wellbeing, and positive affect; gratitude and forgiveness negatively correlated with negative affect (Shourie & Kaur, 2016). Further, while gratitude and forgiveness were positively correlated, grateful and forgiving adolescents also reported fewer depressive symptoms, feelings of loneliness, and feelings of anger (Mary & Patra, 2015).

Researchers have suggested that there is a relation between experiencing and expressing gratitude and happiness (e.g., Margelino & Evangelista, 2015; Miller, 2006). One study found that the expression of gratitude affects the amount of happiness that both the expresser and the receiver of gratitude feel (Margelino & Evangelista, 2015). Another study found that in young adults, personality, psychological well-being, gratitude, and happiness were significantly positively correlated (Singh, Salve, & Shejwal, 2017). Additionally, psychological well-being, gratitude, and extraversion predict happiness in young adults (Singh et al., 2017). Further, life meaning, gratitude, self-esteem, attitude towards education, and positive affect had more of a positive impact on the happiness levels of very unhappy adolescents than on those of average adolescents (Proctor, Linley, & Maltby, 2010). Also, life meaning, gratitude, self-esteem, and positive affect had more of a positive impact on the happiness levels of very unhappy adolescents than on those of very happy adolescents (Proctor et al., 2010). Thus, very unhappy adolescents may experience the greatest positive gains in happiness from increasing these positive factors.

Gratitude has similarities to purpose, as both gratitude and purpose echo moral emotions (e.g., empathy and sympathy) (Malin, Liauw, & Damon, 2017). Gratitude and purpose both influence others outside of the self in a positive manner. For example, gratitude and purpose can impact prosocial behavior and strengthen relationships with other individuals (Malin et al., 2017). There are, however, slight distinctions between gratitude and purpose. A person experiencing gratitude notices and recognizes the benevolence of something beyond herself (Malin et al., 2017). Gratitude is spontaneous, whereas purpose is more future and goal-oriented; it involves acting on the behalf of something greater than oneself (Malin et al., 2017). Thus, although gratitude and purpose are not one and the same, both gratitude and purpose have a positive impact on individuals and on those with whom the individual interacts.

In an exploratory study, gratitude and the association of protective/risk factor behaviors were studied among African American adolescents (Ma, Kibler, & Sly, 2013). Results suggested that moral affect gratitude and life orientation gratitude were both related to positive family relationships (Ma et al., 2013). Moral affect gratitude can be viewed as gratitude connecting to moral behavior, which occurs when a person has concern for another human being (McCullough, Kilpatrick, Emmons, & Larson, 2001). Other researchers have suggested that gratitude is part of broader life orientation, involving the observation and appreciation of all that is positive in the world (Wood, Froh, & Geraghty, 2010). Greater life orientation gratitude was related to abstinence from risky behaviors (e.g., drug/alcohol use and/or sexual intimacy, intercourse), and greater moral affect gratitude was related to protective factors, such as academic and activity engagement (Ma et al., 2013). Thus, gratitude may have important implications regarding adolescent behavior.

Gratitude impacts many aspects of adolescent life. Research on gratitude development in adolescents has suggested that gratitude is related to forgiveness, happiness, subjective well-being, life satisfaction, prosocial behavior, and social support. Additionally, as children develop into adolescents, their expression of gratitude changes coinciding with their growth and maturity. They move from concrete to connective

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expressions of gratitude, where the adolescent considers the gift giver's wants. These fascinating connections between gratitude and a multitude of positive aspects of adolescent development provide an abundance of opportunity for further exploration.

MAIN FOCUS OF THE CHAPTER

Issues, Controversies, and Problems

Although the amount of positive psychology research continues to grow, and specifically gratitude research, there continues to be a lack of gratitude research with adolescents. A PsychINFO literature search of abstracts including the terms "Gratitude" and "Adults" produced 203 papers. The number of papers produced was reduced to 103 for the terms "Gratitude" and "Adolescents," and even more so for the terms "Gratitude" and "Adolescence," producing only 11 papers. This suggests a need to better understand gratitude development in adolescents.

Positive Youth Development (PYD)

The developmental period of adolescence, where children begin to move into adulthood, is full of great change in the intellectual, physical, hormonal, and social realms (Arain et al., 2013). Adolescence can be a troubling time for some individuals (McCarthy, 2000). This aligns with the past definition of Positive Youth Development (PYD), which was based on a deficit model, relying on the "absence of adolescent problem behaviors" (Lerner et al., 2005). Mental health disorders in adolescents is widespread. Approximately 20% of adolescents, ages 13-18, have or will have a serious mental health disorder (Merikangas et al., 2010). Research has suggested that approximately half of Americans will meet diagnostic criteria for a psychiatric illness at some point throughout their life, and often, beginning in either childhood or adolescence (Kessler, Berglund, Demler, Jin, Merikangas, & Walters, 2005). Although individuals with these disorders are certainly not fully mentally healthy, are individuals who do not have these disorders automatically healthy and happy? Just because someone does not feel depressed or anxious, display disruptive or violent behaviors or have intense mood swings, does not mean that person is living his or her life to its fullest. At best, they can be said to be stable. But stable is not flourishing (Keyes, 2005).

Currently, research on adolescent development has made a shift from defining PYD by measuring the absence of negative behaviors to measuring the presence of positive characteristics in adolescents (Lerner et al., 2005). Examining PYD from the context of looking at increasing positive characteristics rather than decreasing negative ones promotes teaching adolescents the necessary skills to experience lives filled with positive emotions, such as joy, gratitude, hope, love, and happiness, rather than only focusing on eliminating negative symptomatology. This is a welcomed change in the definition of PYD because PYD now takes into account a more complete range of experience and emotions in adolescents.

One study, although conducted with adults, supports the notion of viewing mental health from a positive standpoint rather than just viewing mental health as the absence of mental illness (Keyes, 2005). Historically, the absence of mental illness was considered equivalent to the presence of mental health, suggesting the two are opposites. Mental health and mental illness, however, are not opposite sides of one bipolar continuum; instead, they form two distinct correlated continua. The results suggest that

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the presence of mental health is not the same as the absence of mental illness (Keys, 2005). Therefore, mental health should be explored as a separate entity.

Adolescent development must also be seen as a dynamic process. Lerner et al. (2005) discuss the importance of human development and plasticity. There is potential for change throughout the stages of development, as the relationships between the person and her biological, psychological, ecological, and historical function develop and change. Lerner and colleagues describe the bidirectional relationships between individuals and their multilevel context, which represent as plasticity (Lerner et al., 2005). Plasticity provides a hopeful view, showing the capacity for changes in human behavior, which may impact lives positively.

The Present Study

The chapter authors conducted a study measuring adolescent development from the context of looking at a positive characteristic, gratitude. The present study examines adolescent perspectives on the meaning of being thankful. During class time, adolescents were given the following instructions: "Please write a short essay about what being thankful means to you." This prompt is broader than those used in the previously mentioned studies. Therefore, the authors expected to see a broader array of responses. This study was conducted to fill in some of the gaps in empirical research to contribute to the understanding of gratitude development in adolescents and potentially to aid in creating and implementing effective interventions to increase adolescent gratitude.

Participants were students from a public high school in Long Island, New York. Students in grades 9th through 12th participated in the study. Adolescents ($N = 1{,}098$) were asked to write short essays on what being thankful meant to them. Nine hundred fifty-eight essays were analyzed. Approximately 11% of participants opted out, and 1.7% of essays could not be analyzed (e.g., illegibility.) [1]

Thematic analysis was used to identify and analyze essay themes. Specifically, we used inductive analysis, where the author codes the data without using "pre-existing coding frames" or "analytic preconceptions" (Braun & Clarke, 2006). The first author (RJG) coded the data individually. Afterward, a colleague reviewed and assessed a copy of the coded data; detailed discussions occurred when there were any disagreements, and discussions continued until an agreement was found. Coding is most often done by one individual, but it has been recommended that colleagues function as "rigorous examiners and auditors" of analysis (Saldana, 2016, p. 36-37).

Percentiles were calculated for the most recurrent themes across essays. Some essays contained multiple themes. The most recurrent themes across essays were Appreciation (54.07%), Family (31.42%), Positive Emotions (e.g., happiness, pride, joy) (28.81%), Assistance/Support from Others (25.99%), Friendship (21.18%), and Downward Comparisons (16.60%). Several other themes that appeared less frequently included Basic Needs, Not Taking Things for Granted, Counting Blessings, Acceptance, Accomplishments, and Religion.

Happiness was included in the theme of Positive Emotions. Many participants related "being thankful" to feeling happy. For example, one participant included the following statement: "Thankful is to be happy for what you are given, no matter what happens, bad or good, to be happy for living." Another participant wrote, "It's to be happy with what you have and feel good about it." A third participant used these words to define being thankful: "It means to be happy with yourself and what is around you." Such examples support previous research suggesting that gratitude is positively related to happiness (Margelino & Evangelista, 2015; Miller, 2006; Singh et al., 2017). Moreover, as in previous research

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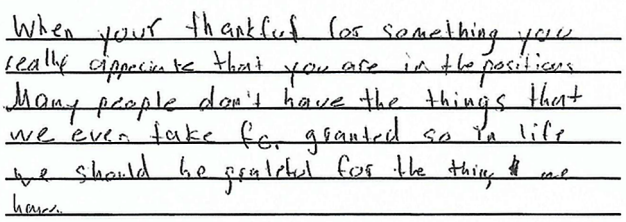
Figure 1. Appreciation and Downward Comparison Essay. This figure is an essay completed by a participant that includes Appreciation and Downward Comparison themes.


When your thankful for something you really appreciate that you are in the positions Many people don't have the things that we even take for granted so in life we should be grateful for the things we have.

with children, Family and Friendship were common themes (Gordon et al., 2004). For example, one participant included the following statement: "Motivation and support from my family is what I am most thankful for." Another participant wrote, "It is important to say, 'thank you' and 'I love you' when you meant it and to realize that the greatest things in life are the friendships and relationships you have with others, not material goods."

As previously addressed, there has been a lack of research on adolescent gratitude development and research examining adolescent development through a positive lens. Considering adolescents from a negative lens, where the absence of maladjustment in adolescence is considered healthy, does not allow society to examine adolescents who are not just "healthy" but who are also flourishing. What distinguishes the adolescents who are living lives full of positive emotions, such as joy, pride, and gratitude? What are they doing differently than adolescents who are maladjusted or than those who are not exhibiting negative symptomatology but are not flourishing?

Often, adolescents wrote that the meaning of being thankful relates to appreciation and/or to others (family and/or friends) and/or assistance/support from others. This suggests that adolescents who understand and express gratitude may be more appreciative in general than other adolescents. They may also be more aware of and appreciative of others, especially close family or friends who may provide them

Figure 2. Family, Friends, Positive Emotion, and Appreciation Essay. This figure is an essay completed by a participant that includes Family, Friends, Appreciation, and Positive Emotion (i.e., happiness) themes.

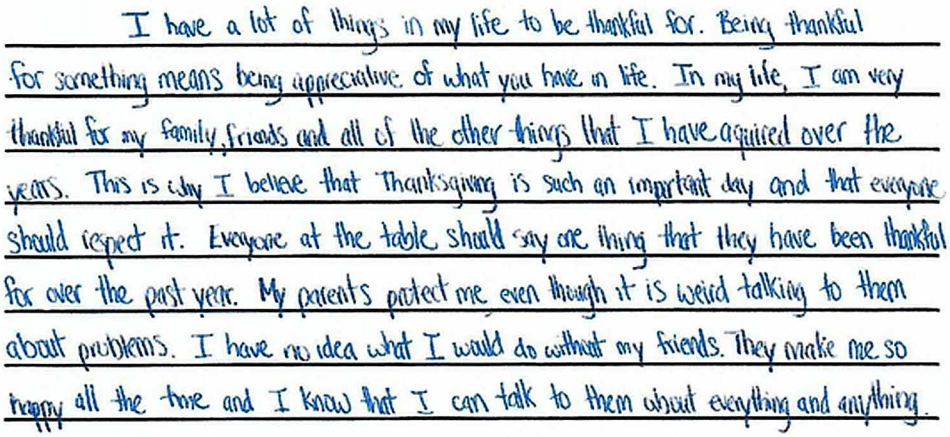

I have a lot of things in my life to be thankful for. Being thankful for something means being appreciative of what you have in life. In my life, I am very thankful for my family, friends and all of the other things that I have acquired over the years. This is why I believe that Thanksgiving is such an important day and that everyone should respect it. Everyone at the table should say one thing that they have been thankful for over the past year. My parents protect me, even though it is weird talking to them about problems. I have no idea what I would do without my friends. They make me so happy all the time and I know that I can talk to them about everything and anything.

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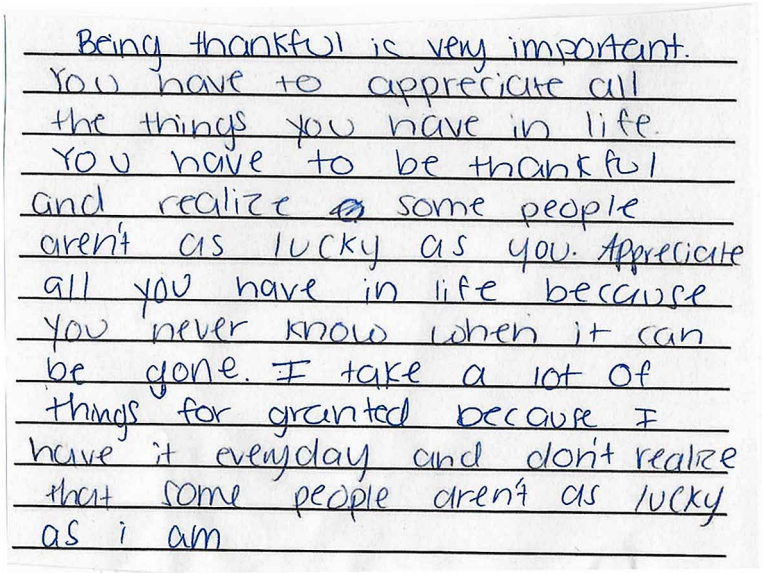
Figure 3. Downward Comparison and Appreciation Essay. This figure is an essay completed by a participant that includes Downward Comparison and Appreciation themes.


Being thankful is very important. You have to appreciate all the things you have in life. You have to be thankful and realize some people aren't as lucky as you. Appreciate all you have in life because you never know when it can be gone. I take a lot of things for granted because I have it everyday and don't realize that some people aren't as lucky as i am

with support. This is consistent with research discussed above that suggests that gratitude is related to social support (Froh et al., 2009b).

Although the present study has contributed to the growing research on gratitude development in adolescents and aids in the understanding of gratitude development in adolescents from a positive lens, it fails to examine how gender, socioeconomic status, and age moderate gratitude development in adolescents. This is particularly important considering, for example, research has shown that while girls are more grateful than boys, boys may benefit more from expressing gratitude (Froh et al., 2009b). Considering issues associated with the development of gratitude can be useful in designing programs that foster gratitude (Freitas et al., 2011). More research is needed in this area. Examining themes generated in the present study may be helpful in choosing or designing programs that promote gratitude development.

Figure 4. Assistance/Support from Others essay. This figure is an essay completed by a participant that includes Assistance/Support from Others.

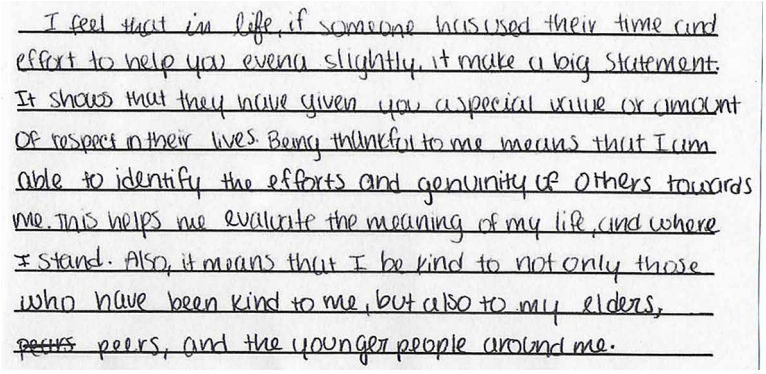

I feel that in life, if someone has used their time and effort to help you even a slightly, it make a big statement. It shows that they have given you a special value or amount of respect in their lives. Being thankful to me means that I am able to identify the efforts and genuinity of others towards me. This helps me evaluate the meaning of my life, and where I stand. Also, it means that I be kind to not only those who have been kind to me, but also to my elders, ~~peers~~ peers, and the younger people around me.

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Figure 5. Positive Emotion and Assistance/Support from Others Essay. This figure is an essay completed by a participant that includes Positive Emotion (i.e., happiness) and Assistance/Support from Others.

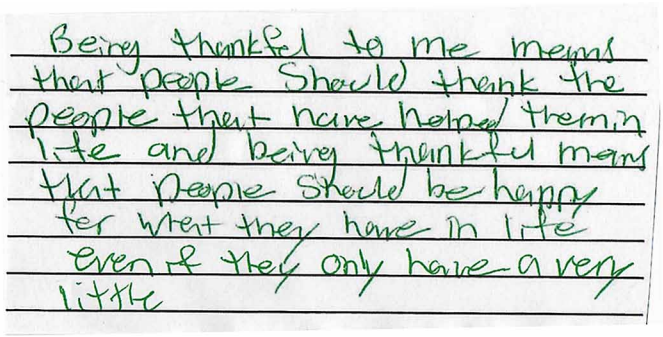

Being thankful to me means that people should thank the people that have helped them in life and being thankful means that people should be happy for what they have in life even if they only have a very little

Figure 6. Positive Emotion, and Appreciation Essay. This figure is an essay completed by a participant that includes Appreciation and Positive Emotion (i.e., happiness and pride) themes.

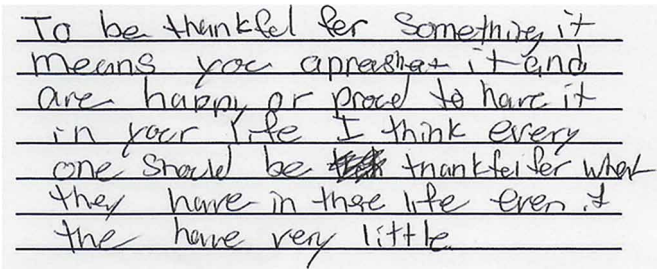
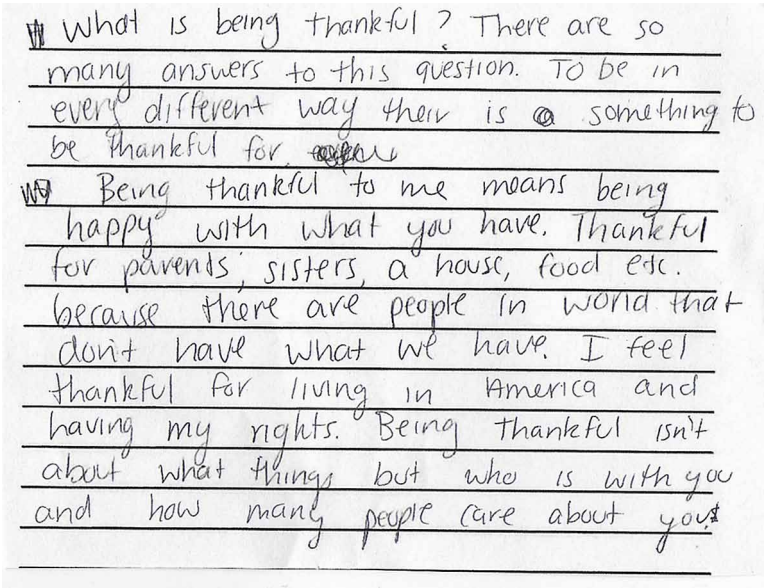

To be thankful for something it means you appreciate it and are happy or proud to have it in your life I think every one should be thankful for what they have in their life even if the have very little

Figure 7. Family, Positive Emotion, and Downward Comparison Essay. This figure is an essay completed by a participant that includes Family, Positive Emotion (i.e., happiness), and Downward Comparison themes.


What is being thankful? There are so many answers to this question. To be in every different way there is something to be thankful for.

Being thankful to me means being happy with what you have. Thankful for parents, sisters, a house, food etc. because there are people in world that don't have what we have. I feel thankful for living in America and having my rights. Being thankful isn't about what things but who is with you and how many people care about you.

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For example, a more in depth look at appreciation, the most common theme, may be a good place to start. A longitudinal study looking at the changes in the ways in which appreciation is experienced and expressed over time through a child's or adolescent's development might assist in developing effective interventions to help adolescents gain more appreciation and more effectively express their appreciation.

Inhibitors of Gratitude

Because gratitude has a wide array of benefits for adults and adolescents, possible inhibitors of gratitude should be explored. In our country, individuals search for happiness in a variety of ways (Emmons, 2014). Materialism is a popular form of searching for happiness; however, gratitude cannot be sustained in a highly materialistic society (Emmons, 2014). In one study, participants reported that materialism and envy inhibited the frequency of feeling grateful over time (Solom, Watkins, McCurrach, & Scheibe, 2017). When individuals believe that buying items creates happiness, they are less likely to pay attention to their own blessings (Solom et al., 2017). Therefore, materialism is an inhibitor for gratitude that should be addressed.

Individuals who lack gratitude are often characterized as having an exorbitant sense of self-importance (Emmons, 2014). These individuals are often described as narcissistic (Emmons, 2014). A key ingredient in narcissism is entitlement, and entitlement inhibits gratitude (Emmons, 2014). In a recent study, narcissism and cynicism were found to be strong inhibitors of gratitude (Solom et al., 2017). People who are narcissistic may not even be aware that they have received a gift because they feel as though that gift was something they deserved (Solom et al., 2017). When people are cynical regarding others, they are most likely to distrust the motives of others (Solom et al., 2017). People who are narcissistic, cynical, or materialistic may have more difficulty buying into gratitude interventions (Solom et al., 2017). Therefore, when planning to introduce gratitude interventions with clients, it may be beneficial to assess gratitude inhibitors, such as narcissism, cynicism, and materialism, and begin interventions targeting the inhibitors before targeting gratitude (Solom et al., 2017).

SOLUTIONS AND RECOMMENDATIONS

Scholars should continue to tackle the lack of research on adolescent gratitude development and continue to research positive characteristics of adolescent development. This will, in turn, aid in the understanding of gratitude development and in the choice and creation of effective gratitude and other positive psychology interventions to promote flourishing adolescents. The more knowledge that is gained from research on adolescent gratitude development, the more information acquired that can be shared with practitioners. Interventions could be created to increase specific areas that may increase gratitude and other aspects that are related to gratitude. Practitioners should implement the evidence-based interventions to help adolescents live lives full of positive emotions (e.g., happiness). One avenue to reach as many adolescents as possible is to provide these interventions in the school setting. Since students spend a major portion of their weekdays in school, the school setting provides ample opportunity for gratitude interventions. Teachers trained in intervention implementation would be able to intervene on school-wide, class-wide, small group, and individual levels.

Research suggests that counting blessings interventions can be beneficial when conducted in the school setting. In one study, the gratitude condition consisted of participants writing as many as five

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things they were grateful for since the previous day (Froh, Sefick, Robert, & Emmons, 2008). Results suggested a relationship between counting blessings each school day for 2 weeks and both optimism and life satisfaction, and counting blessings daily has been demonstrated to improve overall subjective well-being (Froh et al., 2008). This intervention is easy to implement and can be done with large groups of adolescents. The second author (JJF) conducted a gratitude intervention with about 1,000 middle school students in their homerooms while practicing as a school psychologist. They were asked to count up to five blessings they were grateful for on a daily basis for 2 weeks. After the intervention, teachers followed a lesson plan using the focused conversation method of teaching (Nelson, 2001). They asked students the following types of questions: *Objective* (e.g., What specific blessings did you count?), *Reflective* (e.g., What did you like most about counting your blessings?), *Interpretive* (e.g., What are the benefits of giving thanks?), and *Decisional* (e.g., How can we practice gratitude in our lives and at school?).

Anecdotally speaking, students seemed to benefit from counting blessings. Some students reported recognizing that "life could be so much worse." One student, who was from a wealthy family, stated "I realized how good I really have it. Some kids have nothing. I just never thought about it before." This is just one of the many creative ways we think youth can be taught to experience and express gratitude. Another option is to dedicate a specific time of year (e.g., a certain month) to expressing gratitude to others. For instance, students can write a thank you card each week for a gift received, such as by another student (e.g., protecting them from a bully), an administrator (e.g., supporting a class trip to a museum), a teacher (e.g., waiting with them until their parents arrive at school to pick them up), or support staff (e.g., ensuring the heat works during the cold winter months). Given the ease of inducing gratitude, its potential for making school tasks and exercises more creative, and its benefits to individuals and their environments, gratitude interventions for youth, in our view, should be seriously considered by those interested in fostering positive youth development.

Counting blessings interventions can also be conducted in the comfort of one's own home. Seligman (2011) recommends that individuals take ten minutes before bedtime to "write down three things that went well today and why they went well." Seligman noted that although the exercise may feel uncomfortable when first starting out, most individuals who complete this exercise become less depressed and happier after 6 months (Seligman, 2011).

Another evidence based intervention is called a "gratitude visit." Froh, Kashdan, Ozimkowski, and Miller (2009a) conducted a study using this type of intervention. Students wrote letters to someone whom they did not properly thank previously. Afterward, the students were required to read their letter aloud to that person. The authors provided an example of a letter that a 17-year-old female adolescent wrote to her mother. The letter stated:

I would like to take this time to thank you for all that you do on a daily basis and have been doing my whole life… I am so thankful that I get to drive in with you [to school] every day and…for all the work you do for our church… I thank you for being there whenever I need you. I thank you that when the world is against me that you stand up for me and you are my voice when I can't speak for myself. I thank you for caring about my life and wanting to be involved… for the words of encouragement and hugs of love that get me through every storm. I thank you for sitting through countless games in the cold and rain and still having the energy to make dinner and all the things you do. I thank you for raising me in a Christian home where I have learned who God was and how to serve him… I am so blessed to have you as my mommy and I have no idea what I would have done without you.

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Participants were asked to share their experience with their peers who were randomly assigned to the same condition. Results suggested that students who experienced the greatest gains from the gratitude interventions were those who were initially low in positive emotions; those students reported higher levels of gratitude and positive emotions after the intervention was administrated. Two months later, these same participants reported experiencing significantly more positive emotions compared to participants in the control condition (Froh et al., 2009a). According to Seligman (2011), a person feels happier and less depressed one month after completing a "gratitude visit." Thus, implementing a "gratitude visit" intervention may have a lasting positive impact.

One intervention conducted by Froh et al. (2014) that increased gratitude did so by training participants' benefit appraisals. Participants ranged in age from 8-11 years. Classrooms were randomly assigned to either a school-based gratitude curriculum or to an attention-control curriculum. Five sessions were taught by school psychologist interns. The first session was an introduction. Next, interns helped participants to understand the intentions behind a benefactors' helpful actions. Session 3 consisted of learning to understand the benefactor's experience of cost when providing benefits. Interns then taught participants to understand the benefits of obtaining a gift that they received from a benefactor. The final session consisted of the review and summary of the content presented to them in the previous lessons. Lessons were taught with various teaching methods, including discussions, opportunities to role play, and having participants document personal experiences in a "gratitude journal." In addition, interns highlighted the links between positive occurrences in the participants' lives and the actions of a benefactor. The structure of the attention-control sessions was similar to those of the gratitude condition regarding type of assignment but not content; content in the control sessions was neutral (Froh et al., 2014).

Two different studies were conducted using the above intervention. Results suggested that children can be taught have a greater awareness of their social-cognitive appraisals regarding their experiences as beneficiaries, which resulted in an increase in gratitude and in wellbeing. A daily intervention demonstrated these effects 2 days later, while a weekly intervention demonstrated these effects up to up to 5 months later. These two studies are good examples of gratitude development interventions that can easily be implemented into the school (Froh et al., 2014).

There are already several evidence-based gratitude interventions. These are wonderful starting points, but there remains a need for additional research on gratitude development in adolescents, so that additional effective interventions can be created and implemented. The educational environment may be an ideal venue for implementing such interventions because of the opportune access to adolescents that schools provide.

FUTURE RESEARCH DIRECTIONS

There has been a recent growth in the volume of research regarding gratitude development in adolescents; however, additional research in this area would be beneficial. One area for future research might include a focus on moderators. These could include gender, age, or socioeconomic status, for example.

One area of interest might be examining whether essay themes differ across genders. Could focusing on gender differences help determine whether interventions need to be differentiated for females and males? Results from the Gordon et al. (2004) study, examining themes of school-aged children's written responses to the question of what they are thankful for, suggest that there are differences among boys and girls. Girls expressed more thanks for family, friends, teachers, and rescue workers and helpers, pets,

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religion, and other people (excluding family, friends, and teachers) (Gordan et al., 2004). Therefore, while gender differences have been shown to exist in the themes expressed in children's perception of gratitude, research needs to be done to see if these same differences in themes exists among adolescents.

Previous research that examined mediating effects of positive and negative affect on the relation between gratitude and life satisfaction in late adolescence suggested that positive affect and negative affect fully mediated the relation between gratitude and life satisfaction (Sun & Kong, 2013). The study indicated that gratitude is associated with more positive affect in males, and females with lower negative affect scores were found to have comparatively greater life satisfaction than males (Sun & Kong, 2013). One suggestion for future research is to look at this relationship between gratitude and positive and negative affect from a qualitative standpoint. For example, adolescents (males and females) could write essays, participate in focus groups, or interviews, and researchers could take into account gender differences. Additionally, peer relationships and social support were associated with higher levels of gratitude in boys, while in girls, experiencing school violence predicted less gratitude (Choi & Yu, 2014). For both boys and girls, positive identity plays a key role in gratitude disposition (Choi & Yu, 2014). Together, these data suggest that there are several differences in the way that males and females develop gratitude, but there are also some similarities.

Although the present study looked at gratitude development in high school students in grades 9-12, future research should examine whether themes differ by age. Do themes in the essays written by students who have not yet reached 9th grade differ from those themes found in essays written by older students, for example, in the 12th grade? Previous research suggests that children at different ages express gratitude differently (Freitas et al., 2011; Tudge et al., 2015).

When examining the themes within the essays that school-aged children wrote regarding what they feel thankful for, variations appeared at different ages (Gordon et al., 2004). The older children voiced more gratitude than the younger children concerning family, friends, teachers, rescue workers, events and holidays, and life (Gordon et al., 2004). Several of these themes reference other people. The authors suggest that because younger individuals tend to be more thankful for materialistic items, the more mature sense of thankfulness for others that is demonstrated in older children may be an indication of a decrease in egocentrism and a greater interest in the importance of interpersonal relationships (Gordon et al., 2004). The authors do point out that the older children are more developed and are more capable of writing longer essays, which may have enabled them to list more things that they are thankful for than the younger children (Gordon et al., 2004).

Looking at adolescents from different socioeconomic backgrounds would be beneficial. In the present study, one of the major themes indicated was downward comparisons. Most participants in this sample come from affluent backgrounds. Previous research suggested that adolescents of lower socioeconomic status reported higher gratitude than adolescents of higher socioeconomic status, suggesting that, at times, wealthier adolescents do not feel as grateful (Choi & Yu, 2014). Perhaps participants from middle class and low socioeconomic status may define the meaning of being thankful differently than those from an affluent community. If so, interventions that foster gratitude growth would need to be differentiated for communities of different socioeconomic statuses. More research is needed in this area.

Another potential area for future research would be examining the inhibitors of gratitude and their influence in more detail. It might be productive to conduct a study with adolescents who score high on materialism or other inhibitors of gratitude. Interventions can be created to address these inhibitors (e.g., materialism). In one study, participants consisted of highly materialistic adolescents from the United States (Kasser et al., 2014). Adolescents received an intervention that was based on an established finan-

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cial curriculum, which included parental involvement (Kasser et al., 2014). Results suggested that the adolescents who were highly materialistic at the start of the study and received the intervention showed decreases in materialism and increases in self-esteem compared to a control group (Kasser et al., 2014). Once inhibitors are addressed, it would be interesting to see if these adolescents become more responsive to gratitude interventions than those who do not receive interventions targeting gratitude inhibitors. These types of studies would provide valuable information for practitioners who are an interested in increasing gratitude and other positive characteristic in adolescents.

CONCLUSION

Gratitude is a critical part of an adolescent's healthy development. The experience and expression of gratitude may promote appreciation, positive emotion, social support, and overall subjective well-being. Although gratitude has been shown to relate to positive youth development, research on adolescent gratitude development is still in the beginning stages. We have sought to review the literature on gratitude and happiness and to introduce a qualitative study examining adolescents' definitions of what it means to be thankful to expand the knowledge base on gratitude in adolescents. We also reviewed literature on evidence-based interventions to offer possible recommendations for practitioners working with adolescents in the schools that would support increases in felt and expressed gratitude as well as other aspects of positive youth development. Gratitude positively impacts areas of fundamental importance to adolescents. Thus, developing gratitude interventions in educational settings could potentially improve adolescent psychological health.

The present study has shown that when adolescents think about the meaning of thankfulness, appreciation of others (family and friends) and the assistance/support they've received from others comes to mind. Therefore, grateful adolescents may be more appreciative in general and, more specifically, to others than their peers who do not have as deep of an understanding of gratitude. One possible conclusion that can be drawn from this relation between gratitude and appreciation is that fostering a sense of gratitude in adolescents may help adolescents develop more positive feelings about their relationships. Parents can help by fostering gratitude and appreciation in the home. Parents can be mindful of their own responses and can model the expression of gratitude and appreciation for family members and for others they interact with in the community. Parents can also positively reinforce the same behaviors in their children.

The school environment is another place where gratitude development can be encouraged. Gratitude interventions could be implemented into existing school curricula utilizing implicit techniques. In English class, for example, teachers could ask questions or facilitate discussion relating to characters' experiences or expressions of gratitude within specific texts. These implicit techniques can be applied to history class as well, during lessons analyzing important events that have shaped the course of history and society. Gratitude and other positive education exercises could be implemented in art classes as well. For example, students could create positivity portfolios. Students would be asked to collect items that inspire positive feelings and emotions and look at their portfolios whenever they felt they needed an emotional lift (Fredrickson, 2009).

Across curricula, teachers could create classroom environments that would stimulate expressions of gratitude. Teachers could reinforce acts of kindness in their classrooms and model positive responses in multitudes of situations. Increased exposure to such responses and reinforcement of supportive ex-

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changes promote the development of gratitude. These practices could have a broad impact, creating a more positive whole-school environment.

Gratitude, a critical component of health for adolescents, need not be left to develop on its own. Parents, teachers, and community members can—and should!—look for opportunities to model and reinforce behaviors that reflect the expression of gratitude and appreciation. Sometimes, there are inhibitors of gratitude that must be addressed before gratitude interventions are undertaken. This will ensure the greatest effectiveness of these interventions. A solid understanding and expression of gratitude will serve adolescents well as they navigate through this trying developmental stage.

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KEY TERMS AND DEFINITIONS

Concrete Gratitude: When reciprocating, the person does not consider the benefactor but, instead, gives something to the gift-giver that the person himself appreciates.

Connective Gratitude: When reciprocating, the person considers the benefactor by choosing something that the benefactor will appreciate.

Downward Comparison: Comparing one's self to others who are less fortunate.

Gratitude Visit: An intervention where a person writes a letter to someone whom he did not properly thank previously. Afterward, the person who had written the letter, reads his letter aloud to the person that he is thanking.

Happiness: A subjective measure of life-satisfaction, including high positive affect and low negative affect.

Life Orientation Gratitude: A view of gratitude as being part of a broader life orientation, involving the observation and appreciation of all that is positive in the world.

Materialism: When people place importance on material items, even believing that the gaining of material items can provide them with increased happiness.

Moral Affect Gratitude: A view of gratitude as connecting to moral behavior, which occurs when a person has concern for another human being.

ENDNOTE

[1] Although all essays were made available, due to a data entry error, gender and age were unable to be linked to the participant who wrote the essay.

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Chapter 91
Cross-Cultural Decision-Making in Healthcare:
Theory and Practical Application in Real Clinical Conditions

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ABSTRACT

This chapter describes how people are connected to each other through a common system of encoding and decoding messages. Opening the European gate has made intercultural communication omnipresent, and this includes health care. Internationally-based tasks need new, culture-aware medical practitioners. The challenges, barriers, and solutions in the aforementioned area based on the personal experiences of the authors. The chapter concludes that in spite of personal experience, intercultural tension continues to be a major hinderance to patient healthcare services.

INTRODUCTION

Culture constitutes a complex structure that includes habitual ways of thinking, acting, and interacting. This built-in set of procedures is "the software of the mind" and can be shared, learned, and updated, but is also subject to typically gradual change. Many attempts at defining culture describe it as a non-monolythic, overlapping set of internal "scripts" defining the functioning of social norms and values: "culture involves the ideas, beliefs, values, and assumptions about life that are widely shared among a

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group of people and guide much of their behavior" (Brislin, 1993). Assuming this perspective allows us to realize that people are equipped with various cultural "tools", and some of them may overlap or even cut across different cultures (national, regional, organizational, professional, etc.). It can be also shaped by many factors: family, religion, political and educational systems, art and other activities. Culture also influences our vision of the world and interactions with other people: cognition (behaviors, information) and recognition and interpretation of emotions (both our own as well as those of others). Within a particular culture, people are connected to each other through a common system of encoding and decoding messages. Messages are sent, received and confirmed through verbal and nonverbal behaviors (Kim, 1988).

The multiculturalism of the European society is deep due to the migration of people and extensive tourism. There is no doubt that opening the European gates made social interaction and mutual understanding between representatives of different cultures much easier. Intercultural communication helps us become more familiar with foreign countries, organizations, and cultures and affords new opportunities for intercultural communication (Hornakova, 2006).

Current approaches to understanding other cultures are divided into a dissecting (superficial) model and a classifying (quantifying) one. Both these approaches have their strengths and weaknesses, but there is a clear need to develop, implement, and evaluate high-quality semi-automated education and training programs that focus on human perception and deeper understanding of other cultures without stereotyping. This way every culture can be recognized and "decoded" thanks to the cultural intelligence, even though the cultural mindset of a typical Polish person might be very different from that of a Japanese, which results in different interpretations of the same behaviour. Our aim is to think how to predict and avoid failing in inter-cultural interactions within a working health care system.

This issue is important for organizations operating in both national and international environments. The specific organizations in question are health care units and their everyday clinical practice. In times of hardship, full of social tensions and unrest, there might arise sudden and drastic cultural shifts, which often make the biases and limits of the existing models of culture more visible. They may provide only a partial view of culture and significantly influence the effects of clinical practice. Taking into consideration various perspectives and interpretation of own behavior may be thus critical. Cross-cultural decision making, culturally-aware education systems and highly-developed information gathering and analysing capabilities have become a foundational part of health care systems, which allows for implementing effective forms of treatments (higher quality of life for the patient in terms of health condition). Even those organisations that are described as most conservative and reflexively opposed to changes in the health care system are aware that medical knowledge and clinical experience are not enough to assure recovery and respect the patients' free will and choice. The ultimate therapeutic success is now measured by different standards than before, namely, by the patients' capacity to return to education/work, participation in everyday life of their family and community, and finally by the general patient satisfaction. Such a success may be achieved despite the impossibility of complete recovery.

The challenges that international medicine poses call for a new breed of culture-aware medical practitioners. We do not know if transcultural orientation is the best possible solution, but we have to take it into consideration. There is often the need for new solutions, joint research, health care or educational activities. This instigates adaptive reformulations of the progressive health care guidelines, standards, and procedures. Moreover, we do not know if institutional health care culture really can pose significant obstacles to organizational adaptation.

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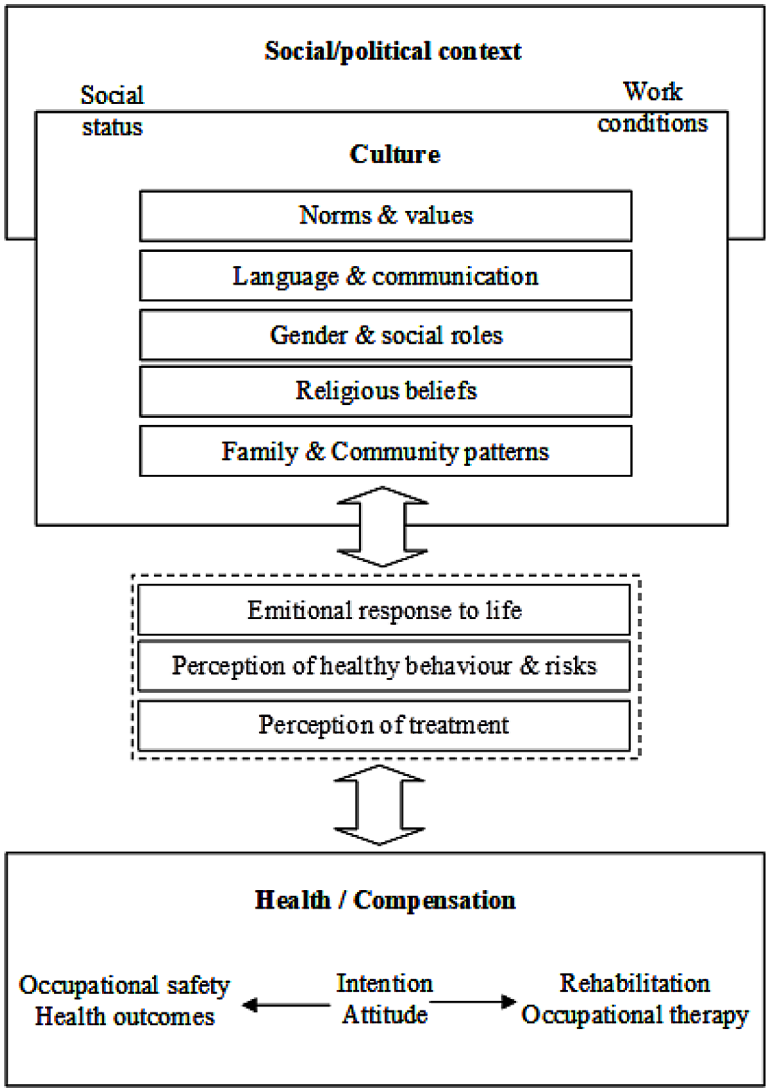
Figure 1. Cultural categories and their relations to health and compensation
Côté, 2013.



The phenomenon of non-native or foreign patients and health care staff is not limited to one country or even one continent. What is more, the percentage of non-native physicians in selected countries may in the future increase up to 30% - understanding dialects, colloquial speech, and body language may be difficult for them.

Even the most homogenous society is not a society without differences. Demographic shifts make cultural diversity an important factor in the workplace of the medical staff. Due to the diversity of patients' backgrounds, clinical specialties, approaches and diagnostic/therapeutic methods, understanding the importance of communication in health care delivery becomes the key issue. The same patients communicate with physicians, therapists, doctors, and other health care professionals from differing cultural backgrounds.

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The term "health care provider" encompasses the organization and its workers, i.e. not only medical specialists, but also pharmacists, medical secretaries, medical IT specialists, the administrative personnel and others. These people may get in touch with patients (even accidentally) and influence the public relations of a particular health care provider. Thus, the term "delivery of health care" encompasses all services offered by a health care provider (not only treatment, rehabilitation and care). We should be aware that the aforementioned terms and definitions, as far as some strict regulations and procedures, may be perceived by patients as an attempt at dehumanization of the health care and a lack of an individual approach to each particular patient.

BACKGROUND: INTERCULTURAL COMMUNICATION IN HEALTH CARE AND ITS CHALLENGES

Health care workers have to learn how to communicate effectively with people from other cultures (Collier, 1989). Effective intercultural communication in health care affects patients' physical and mental well-being (Voelker, 1995). Understanding and respecting the values, beliefs, and attitudes of the patients constitutes a key element of this process (Bronner, 1994; Moore, 1992).

Interactions within the health care system are intercultural, since patients do not share the terminology, assumptions, and norms of the health profession culture (Ulrey & Amason, 2001). Setting up an effective health care system requires recognizing the importance of communication: faster and more precise diagnosis. Shortcomings in communication may lead to shortcomings in health care. Strict health care procedures are not the same as communication between two parties: the medical team and its patients. The medical jargon and lack of time make patients feel as if they were communicating with a machine (internet bot): quick procedural questions, lack of confirmation, poor understanding, weak patient-therapist co-operation.

A better ability to communicate across cultures may provide a significant market advantage, since improved communication may influence public relations and produce credentials as a patient-friendly and effective brand.

Miscommunication may, at the very least, cause dissatisfaction and stress for both providers and patients, but it can also lead to misunderstandings and costly mistakes, including misdiagnoses and violations of patients' ethical beliefs (Ulrey & Amason, 2001). A common example of this is when patients from different cultures report pain in various ways (Lee et al., 1992), and even informed consent (full information enabling them to freely make decisions about their own health care) may be culture-sensitive (Gostin, 1995).

The medical staff should learn to decode non-verbal expressions characteristic of patients from different cultures, they should study their traditions, customs, religions and lifestyles as well (Hornakova, 2006). The traditional, monocultural health care organizations contribute to the exclusion of certain social groups (Stone, 2009).

Health care is not typically a competitive market, but it nonetheless needs to advance and prove successful in its endeavours. Market decisions that are confusing or difficult to understand to the society bring infamy and may influence the reputation of the health care unit. Intercultural issues in health care may take away the attention from work-related factors and emphasize the attitude, expressions of feelings, perceptions, therapist-patient relationships and modalities of intervention in intercultural settings (Côté, 2013).

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INTERCULTURAL COMMUNICATION IN HEALTH CARE: BARRIERS

We can consciously, though not always directly, assess the effectiveness of our communication with others.

There may be defined four primary cultural dimensions:

- **Patterns of Thought:** Common ways of thinking, beliefs, values, norms, and emotional attitudes,
- **Patterns of Behavior:** Common ways of behaving, speaking, etc., with intentional/unintentional, unconscious/subconscious or individual/interactive behaviour,
- **Patterns of Artifact Utilisation:** Common ways of manufacturing and using things, dwellings, tools, machines, and media,
- **Imprints in Nature:** The long-lasting imprints left by a group in the natural surroundings, (agriculture, trash, roads, etc.).

The most important factors influencing health care communication are as follows:

- Sensitivity to cultural differences where cultural sensitivity is defined as "willingness to use cultural knowledge while interacting with patients and considering culture during discussions and recommendations for treatment" (Brislin, 1993; Dennis & Giangreco, 1996; Jackson & Haynes, 1992))
- Language barriers (not only in clinical assessment, but also in translating prescriptions, etc.), including night shifts in hospital, where the number of bi- or multi-lingual personnel is limited
- Religious or spiritual beliefs, taboos, sex-role differences
- Patients' assumptions and beliefs concerning health care
- Prejudicial attitudes (sets of ideas based on stereotypes) influencing health care delivery, which is defined as "different ways that some cultural groups are treated in the health care system"
- Tensions between the patient and his/her family and the medical staff
- Disabilities, disorders, pain, stress, depression (including non-disclosed aliments and deficiencies, e.g. driver who resist diagnosing and healing eyes failure because he fears that he will lose his job
- Power differences (imbalances of power) – built into the health care structure
- Health care as a business (e.g. limitation of health care services)
- Intercultural vision of medical ethics
- Some controversial subjects: mental illness, AIDS, sexually transmitted diseases, vaccines, impotence, abortion, euthanasia, and in-vitro fertilisation
- Medical miscommunication - cultural misunderstanding resulting in medical mistakes, problems with patient use of medication, etc.

Physicians can give information about the patient's health within four general frameworks:

- **Strict Paternalism:** Reflects a physician's decision to provide misinformation to the patient when the physician believes it is in the best interest of the patient (e.g. in the case of a patient with terminal cancer)
- **Benevolent Deception:** When the physician chooses to communicate only a part of a patient's diagnosis (e.g. in the case of patients with poor prognosis)
- **Contractual Honesty:** Telling the patient only what she or he wants/wishes to hear or to know

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- **Unmitigated Honesty:** When a physician chooses to communicate the entire diagnosis to a patient

Cultural sensitivity and effective intercultural communication undoubtedly benefit the health care providers personally by reducing their stress levels. Patients are often too scared and sick to focus on communication, whereas the providers are pressed for time or too focused on technology (Kreps & Kunimoto, 1994). Medical staff should endeavor to reduce the effects of lapses in communication whenever possible.

INTERCULTURAL COMMUNICATION IN HEALTH CARE: SOLUTIONS

Even though both sides – the patient and the medical specialist - are responsible for effective communication, it is the latter on whom the greater share of said responsibility lies, since it is them who is expected to use their training and communicative competence to develop positive relationships that facilitate an accurate diagnosing and effective treatment of patients (Ulrey & Amason, 2001). The trust on part of the patient and his/her family significantly influences the efficacy of the health-promoting strategies that are at the doctors' disposal.

Three dimensions of intervention in the context of cultural pluralism are highlighted by authors:

- Therapist-patient relationship
- Organisational structure
- Cultural competence, i.e. set of attitudes, practices and policies needed to develop culturally responsive caring (Côté, 2013)

Lots of attention should be focused on preventing and solving issues related to intercultural communication. If hospital staff understands cultural differences, it might help avoid many conflicts that might ensue from said differences.

Cultural sensitivity in health care settings includes:

- Avoiding routine
- Using culturally appropriate language
- Having knowledge of other cultures
- Understanding culture-specific value
- Considering culture in assessment of patients
- Adapting treatment according to the cultural knowledge they have regarding a patient (Bernal et al., 1995; Dennis & Giangreco, 1996)

Intercultural communication training programs for health care providers covers cultural accommodation of the medical staff. One of possible solutions is the LEARN model:

L: Listen to the patient's perception of the problem
E: Explain your point of view
A: Acknowledge and discuss the differences and disparities in perceptions of the problem,
R: Recommend treatment
N: Negotiate treatment (Edlin 2012)

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Key issues are also: family involvement, community involvement: social support and feedback, chaplain involvement (where possible), and combating myths thanks to EBM-based therapy (but see also for role of alternative therapies as complementary medicine).

Study by Hornakova on Czech health care system showed that understanding the professional foreign terminology used in clinical practice is important for the majority of health care specialists. It is rarely possible to implement it in everyday clinical practice, and the most common way to maintain it are internet, professional literature, radio and television. Moreover, better financial prospects were much more important than higher qualifications or career development (Hornakova, 2006). Recommendations for effective intercultural communication in health care profession are as follows:

- Have enough time for each client from different culture
- Find a language for communication
- Use simple words and expressions which the patients from other cultures will understand
- Avoid medical terminology as much as you can
- Speak slowly and clearly, repeat words more often and require the same from different-culture patients
- Health care professionals should learn words for basic communication in the language of the Different-culture client and use them adequately
- Suppose possible prejudices and check the meaning of understanding
- Take your time to express yourself, do not be in a hurry
- To facilitate better understanding, smile and use gestures and visual aids in form of pictures
- Notice the non-verbal expressions of different-culture clients
- Find solutions that are a compromise, tolerate cultural varieties and ethics
- Help your clients express their feelings, ideas, opinions and needs
- Add schemes, drawings, communication cards, etc.
- Be patient and tolerant to all non-verbal expressions of different culture clients
- Verify whether the client understands the basic information you are trying to convey
- Provide the date(s) in numbers rather than words
- Listen carefully
- Encourage a client from the different culture to express their feelings, ideas, opinions and needs
- Use foreign language dictionaries and an interpreter if necessary (Hornakova, 2006)

COMMUNICATION WITH PATIENTS WITH NEUROLOGICAL DISORDERS

Stroke therapy focuses on reducing mortality, decreasing functional impairment, and increasing the patient's quality of life. Stroke may affect various levels of the nervous system and can lead to complex reception and/or perception deficits. Communication in post-stroke patients is impaired by aphasia, dysarthria, and many other syndromes. Patients with communicative disorders and special needs typically require further diagnosis and therapy aided by the speech pathologist. Medical staff and family/caregivers need obey rules related to the deficit areas, and certain possible psychological reactions and their influence on patient and his/her environment should be discussed (Pimentel, 1986). Although patient-staff communication is regarded as important, Laghorne et al. put little emphasis on it in their study in the section where they describe stroke patient care. They enumerate the following elements:

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- Assessment procedures: medical, nursing and therapy assessments
- Early management policies: early mobilization, avoidance of urinary catheterization, treatment of hypoxia, hyperglycaemia, and suspected infection
- Ongoing rehabilitation policies: coordinated multidisciplinary team care, early assessment for discharge (Langhorne et al., 2002)

Most of stroke units offer both acute medical treatment and rehabilitation. A stroke unit is characterized by the following features:

- Is geographically defined with dedicated beds
- Has multidisciplinary and specially trained personnel
- Has standardised protocol for diagnostic evaluation, observation, acute treatment and rehabilitation (Indredavik, 2007)

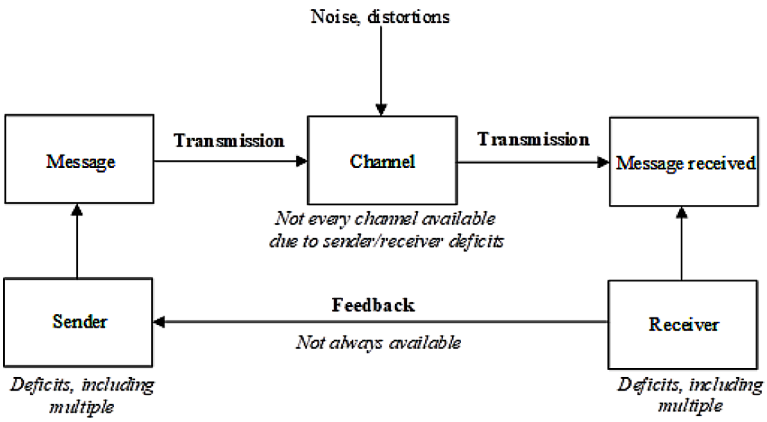
Study by Pound & Ebrahim showed that on the stroke unit, teamwork was divided between doctors and therapists on the one hand and nurses on the other, while on the general medical ward, team working was not observed (Pound & Ebrahim, 2000).

Study conducted by Pound & Ebrahim showed that tasks at the stroke unit were divided between doctors and therapists on the one hand, and nurses on the other. No such tendency was observed at the general ward.

Following figure shows adaptation of the traditional Shannon-Weaver's communication model to communication taking into consideration patient's deficit. It may be modified individually for each patient.

Sudden hearing loss in post-stroke patients (both on brain stem or cortical level) is regarded as common. It may severely impair the patient's ability to communicate (Bamiou, 2015).

Figure 2. Shannon-Weaver's communication model which takes into consideration patients' deficits
Own project based on original Shannon-Weaver's model (Shannon 1948).



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In the case of neurological rehabilitation services, multidisciplinary team approach is advocated. Coordinated work of various specialists better stimulates patients with neurological disorders, which also improves therapy outcomes. Despite general guidelines, lack of detailed procedures makes therapists' experiences and perceptions diverse, as far as structure and composition of the team are concerned (Suddick & De Souza, 2006).

Multidisciplinary team meetings are regarded as useful form of coordinating daily work and a form of institutionalised communication. However, to be effective, the meetings need to:

- Organise and communicate in the team adequately
- Achieve a consensus in a multidisciplinary discussion
- Offer consistency in the patient management standard
- Include a teaching element for junior team members
- Improve communication between different specialists
- Have a mature leadership
- Be democratic
- Entail constructive discussion. (Ruhstaller et al., 2006)

Now such meetings are regarded as a key component of a professional's routine. As opposed to the multidisciplinary team, integrated care methods may not reduce disability, institutionalisation, or duration of hospitalization. (Sulch et al., 2002).

Multidisciplinary team in stroke rehabilitation offers:

- Improved team working
- Better understanding of patients' needs
- Enhanced SMART (specific, measurable, achievable, realistic and time framed) goal-setting
- Greater patient involvement (Monaghan et al., 2005)

Nursing staff might be considered a weak point of post-stroke therapy and communication.

Nurses often talk with patients in a functional manner, use minimal social or affective communication, avoid patients with communication difficulties. They control conversation, its topic and flow. A certain asymmetry was observed: patients responded briefly to closed-ended questions, whereas the conversation focus should be on the patient's goals, hopes, worries and future expectations. Poor communication may impair the development of communication abilities and the potential to recovery. (Gordon et al., 2009).

The International Classification of Functioning, Disability and Health (ICF) may clarify team roles and clinical reasoning for rehabilitation planning purposes. It may also aid communication within multidisciplinary therapeutic team; moreover, it may structure service provision in the conditions of mixed skills, individuals' interests, and staffing levels within teams (Tempest & McIntyre, 2002).

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COMMUNICATION WITH PATIENTS WITH AND POST-CONSCIOUSNESS DISORDERS

(Re)establishment of communication is one of the main goals in the assessment and therapy of patients with disorders of consciousness (DoC). Extensive motor impairment and lack of speech are challenges for further communication. What may also be apparent is the absence of external signs of consciousness. Patients are able to process stimuli of varying complexity even in cases of being unable to respond. Unfortunately, patients with DoC are the the most severely impaired; in effect, severe motor impairment, fatigue and attention disorders, may lead to severe communication deficits in this population. Little is known about the mental life of such patients, and it still needs further research. How can be sure, if certain person is conscious and aware. (One may ask how can we not be sure whether a certain person is conscious and aware or not) Current diagnoses and assessments, based mainly on behavioral measures, are unreliable and prone to errors. Disorders of communication similar to DoC may cause discerning the disorder and lead to false diagnoses. High rate of misdiagnosis (around 40%) is observed in assessment of awareness in patients in a vegetative state (VS, called also unresponsive wakefulness syndrome, UWS) and patients in a minimally conscious state (MCS).

Predicted response to external command constitutes reliable method which allows detecting awareness in patients with DoC. Answer may have various forms, usually measured using dedicated devices (EEG, fMRI, etc.). Action or intention reflected in the predicted pattern of activity observed in the brain (the so-called neural representation) can also constitute a response. Distinction between responsive and nonresponsive patients are still beyond our recognition, but it is fundamental for diagnosis, prognosis, clinical therapy, rehabilitation and care, and even medical ethics, legal rules, and decision-making process (Owen, 2013).

Attempts of communication with the aforementioned patients constitute a major challenge; however, the activity is not without a purpose. Certain percentage of such patients can respond to commands, but we have to help them in improving existing communication channels or providing a new one.

Some percentage of patients with DoC is able to respond to commands by willfully modulating their brain activity (e.g. by selectively paying attention, depending on the stimuli). A binary yes/no answer is much better than no response whatsoever. We hope patients with DoC can selectively maintain attention to certain events in their environment, process them and understand them thanks to coherent thought. We also anticipate that these patients can formulate answers, and wilfully manifest them thanks to a novel technical solution. Brain-based communication tests with the use of functional magnetic resonance imaging showed that all patients followed instructions from commands. Patients in these tests were able to answer either yes or no. As a result, behaviorally nonresponsive patients regained ability to communicate with environment (Naci & Owen, 2013).

Functional magnetic resonance imaging (fMRI) and electroencephalography (EEG)-cover areas of basic sensory, perceptual, language, and emotional processing assessment in patients with DoC. But a positive detection of conscious awareness and possibility for communication is much more difficult (Harrison & Connolly, 2013). Even patients in vegetative state (VS) who appear to be awake do not show any signs of awareness. Yet, they can respond to commands thanks to brain-computer interfaces: willfully modulating their brain activity according to instruction (Naci et al., 2012).

Discrimination between vegetative state and minimally conscious state are essential to subsequent rehabilitation and care. Some EEG procedures are developed to do it quasi-automatically (Mangia et al., 2014).

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Binary response "yes/no" to the question may elicited by performing mental imagery tasks using fMRI. Such mental imagery process produces distinct activation patterns (compared to motor imagery in controls). 3 Tesla fMRI is required to provide an appropriate signal-to-noise ratio (Liang et al., 2014).

Variations of similar technical solutions are available for different DoC patients. UWS patients are regarded as having no awareness, while MCS patients are regarded as having their conscious awareness partially preserved. Lancioni et al. described two studies with various types of response:

- Willingly imaging of single- versus double-hand closure
- Increase engaging in leisure activities, and listen to audio-recordings of family members (Lancioni et al., 2014a)

Passive and isolated patients emerged (who recovered from?) from DoC have access to the broader repertoire of responses, despite speech and motor impairment constituting a huge difficulty. Thus, intervention programs relying on assistive technology are applied, including:

- Accessing brief periods of stimulation through one or two microswitches
- Combining a microswitch and a sensor connected to a speech generating device
- Controlling through computer or radio systems and a microswitch
- Communicating through modified messaging or telephone systems operated via microswitch
- Controlling and communicating options through computer systems operated via microswitch (Lancioni et al., 2014b; Lancioni et al., 2012)

What was also described were important brain markers detected in cognitive processes and awareness in the absence of behavioral manifestation; however, which of these are available for DoC patients remains unknown.

Various solutions based on distinct paradigms may be feasible to various DOC patients. Moreover, we should take into consideration clinical usefulness of each solution – e.g. limitations in fMRI due to its:

- Huge dimensions (lack of bedside version)
- Weight
- Complex procedure (both realizing and interpreting, hardly generalizable use in clinical routine)
- Weak temporal resolution
- Cost (Luauté et al., 2015)

Quasi-simultaneous fMRI-EEG measure, increases time resolution of the measurement, is available. But it seems current form of fMRI will not be individual equipment of the patient with DoC. Comtte et al. compared four fMRI-based methods correctly and accurately interpreting the communication task, but:

- None of them showed 100% correct detection during the communication
- 25% of participants did not provide the expected patterns of activations (Comte et al., 2015)

BCI paradigms are more feasible than individual equipment. Recent advances concerning studies on magnetoencephalography (MEG) may constitute another breakthrough in BCI technology. However, we still search for patient's bedside equipment. Several limitations of BCIs are important:

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- Lack of awareness in itself
- Lack of spatial resolution (but computational solutions for EEG source localization still quickly develops)
- Atypical patterns of brain activity in brain damaged patients

Despite relatively quick progress – it may concern minority of DOC patients (Luauté et al., 2015).

Alternative diagnostic tools for asessment response to command are also developed. Detecting signs of consciousness in patients in vegetative state/unresponsive wakefulness syndrome (UWS/VS), minimally conscious state (MCS) is possible with the use of a breathing-controlled communication device. One of them achieves accuracy 84%. Patients with locked-in syndrome (LIS) were unable to use it (Charland-Verville et al., 2014).

Despite needs and reported efficacy, the development of the aforementioned systems is limited by many technical and clinical challenges. Such communication mode is difficult, and it also requires trained personnel. Inter-cultural communication using BCI is difficult but not impossible. It requires deep adaptation of the therapeutic team to the needs, knowledge, and previous experience of the DoC patient. Patient's family assistance seems to be very valuable.

COMMUNICATION WITH GERIATRIC PATIENTS

Caring for elderly people (especially: elderly parents) is common in many cultures, not only in the Western culture. Despite various co-occurring physical and/or mental diseases, the elderly is no different from other patients. Communication is crucial for them. Activities and interactions of elderly patients are useful for measurement of their cognitive and behavioural functioning. Study by Armstron-Esther et al. reported rather low levels of staff-patient interaction beyond expected routine of patient care. Staff did not engage patients in social activities or informal conversations while elderly patients require enjoyable and rewarding conversation (Armstron-Esther et al., 1994).

Optimal performance of medical procedures in the elderly needs adequate clinical communication with patients. Importantly, the traditional paternalistic relationship between the patient and the therapist is no longer appropriate. The optimal performance can be achieved by:

- Accuracy
- Empathy
- Efficacy
- Shared decision-making and setting common goals
- Informed consent process
- Adaptation to patient understanding (including level of education, personality, etc.)
- Adaptation to possible cognitive impairment (Giampieri, 2012)

Pain is regarded as a vital factor which influences the course of communication. The following issues were identified in pain-influenced communication:

- Nurse-to-nurse communication
- Nurse-to-patient communication

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- Pain management strategies
- Environmental and organisational issues related to care
- Complex nature of pain (Manias, 2012)

Best practice for the management of pain in elderly patients is not fully covered within guidances, partly due to inconsistences and differences in the patients' profile, methods and definitions used. The problem is also influenced by attitudes and beliefs of older people influence all aspects of their pain experience (stoicism is prevalent). Therapies must be individualised and carefully monitored, and certain psychological approaches seem be useful in older population (Abdulla et al., 2013).

Conversational strategies in nurse-to-patient communication should fit the demands of elderly patients suffering, for example, from dementia. The aforementioned can be further divided into two sides of communication:

- **Nurse Conversational Strategies:** Moderating, clarifying, exploring, validating, rescuing, and general discourse markers,
- **Patients' Conversational Strategies:** Discourse markers, limited engagement, expanded responses, personalized response, self-initiated participation, disconnected or fragmented participation.

Even patients with dementia are able to participate in such adaptive conversation (Perry et al., 2005).

Patients with dementia are a special group of elderly patients. The language used by medical staff should match the comprehension abilities of residents. In effect, they become agitated (which is displayed by restlessness, strange noises, or negativism) if this language is too complex for them (Hart & Wells, 1997).

COMMUNICATION WITH PAEDIATRIC PATIENTS

Communication with paediatric patients and their caretakers is extremely difficult and requires not only sophisticated tools but also extraordinary abilities of the general practitioner. The concept of child-physician communication is based on mutual trust, knowledge and experience of the GP. It constitutes developmental intervention itself and shapes new intervention strategy in each patient.

The objective assessment of functional achievements in both healthy and ill children (including children with developmental disabilities) may change significantly due to such factors as: boredom, fear, hunger, thirst, etc. An easier diagnosis or even development of motor, cognitive, or social skills in young patients may be facilitated by the new generation of interactive toys. However, the use of toys as peacemakers is not always enough. The new findings on infant development are key to recent research: they allow to assess both physiological and pathological development and potential retardation, mainly through careful observation. Diagnosis and communication through gestures and toy usage is possible in 8- to 16-month-old infants, but their interpretation is not easy (Dimitrova et al., 2015). There is a need for classification of a whole range of gestures used by a particular infant. Play position, grasping, reaching, handedness, and object manipulation require knowledge shared between children and their caretakers, which would enable a proper interpretation (Miller & Gros-Louis, 2013; Olson & Masur, 2015). On the other hand, poor mobility of the upper limbs, asymmetrical performance, weak reactions to stimulus, poor coordination, or varied motor skills and general recurrent problems in adaptation of posture to the

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whole repertoire of various movements may characterise developing disorders. Videotaping may be useful for measurement and analysis of such behaviours.

Early detection and diagnosis is essential as it enables the implementation of preventive measures and therapy of pathological elements at a very early stage – every day makes a significant difference in further therapy. Effectiveness of the treatment seems to be closely connected with the proper diagnosis, communication and trust, as well as with the advanced methods, techniques and tools applied in a particular case.

The development of healthy children can be shaped by the toys used. The selection of such toys may influence the sensory, motor and cognitive development and facilitate new achievements. Toys may be useful for monitoring and measuring infants' behaviours but cannot be taken as the only determinant; therefore, more clinical tests are needed.

We present some individual and group toy-associated behaviours which are relatively easy to observe and assess:

- **Searching Behaviour for a Disappearing Toy:** In 5- to 6-month-old infants
- **Pushing a Button to Turn on a Distant Light or to Get a Toy:** In 7-month-old infants
- **Imitating Object Manipulation:** In 10- to 12- month-old infants
- **Performing the Aforementioned Actions Faster Using Various Grasp, a Variety of Objects, and Creative Thinking:** In toddlers
- **Simple Group Behaviours:** Imitating, repeating, passing a toy between children, group toy using, and cooperating during a game: in toddlers
- **Replicating Actions to Achieve Preestablished Effects:** In 19-month-old toddlers
- **Fighting Over a Single Attractive Toy:** Begins in much older children
- **Use of Musical Toys:** Can cause increased responsiveness in toddlers and children of all ages

Many of the aforementioned behaviours may be easily observed by the caretakers, but such an observation made by a stranger (new therapist, new physician) is not easy and needs to be stimulated by a person who is familiar to them.

Some toy-associated behaviours may also relate to the increased probability that a developmental disorder will occur. These include:

- Throwing blocks in 18-month-olds can be a predictor of *attention-deficit hyperactivity disorder* (ADHD) (Yoshikawa, 1997)
- Difficulties in hand-eye coordination
- Lack of manual dexterity
- Lack of recognition of causal relationships

Generally available, low-cost, fun, and functional toys facilitate diagnosis and treatment provided that they are chosen carefully. Moreover, technologically advanced solutions (games, virtual reality) are widely accepted by children.

Most of the studies concern children living in relatively wealthy Western or similar countries, and analyse intercultural factors which may change some of the observed behaviours entirely. We should be aware of the fact that there are still many threats and limitations concerning e.g. stimulation of children with epilepsy (if recognized). Diagnosis and therapy of children with developmental disorders in selected

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countries is still scarcely accepted. We do not know exactly how will the TV or computer games influence children's behaviours in the future. Their attention span becomes shorter, hence, toys must be more and more attractive. Intra-gender comparisons are not always possible due to social roles stereotypes and task division. On the other hand, hyper-stimulation of a child should be avoided.

The recovery from the paediatric developmental disorders is still limited. Thus, it may significantly influence the health-related quality of life of both the children and their families. In selected cultures such a child may be difficult to accept – we should take it into consideration while shaping the patient-physician communication.

Communication, diagnosis, therapy and care in case of infants should be shaped through play: the execution of the requested behaviours should be covert and therefore natural. Moreover, the same toy can play an important role in exercises performed by the infant – if the therapist or the caretaker provide the children with the same communicative-therapeutic activities at home.

A variety of developmental disorders, patients' and parents' profiles or factors influencing therapy outcomes make the whole intervention patient-oriented. This kind of approach, even NDT-Bobath derived, is often called eclectic or mixed.

It is difficult to apply detailed schemas describing communication in the therapy of infants with developmental disorders. Various toys, games, and robots (even artificial animals) are used, but none particular toy guarantees therapeutic success. Instead, it is better to think about stimulators such as colour, shape, texture, movement, light or sound.

Toys may become a very useful communicative and therapeutic tool in the examination of infants, toddlers and children. The effective use of toys needs a thorough understanding of normal and pathological development of the group discussed. Appropriate stimulation may significantly enhance motor, cognitive, and social skills. It seems that neither medical specialist nor parents are trained for conscious and wise application of such knowledge in clinical practice and everyday life.

Generally, we can say that communication with young patients is far from communication with adult patients. Child therapy and end-of-life care in the paediatric intensive care units are crucial. Six domains are identified as critical to high-quality, family-centred care:

- Communication with the child and family – concerning treatment goals and plans
- Continuity of care
- Family support
- Ethics and shared decision-making
- Pain and other symptoms reduction
- Grief and bereavement support (Truog et al., 2006)

COMMUNICATION IN PALLIATIVE CARE

Relation to disease, suffering and death varies across cultures and influences the palliative care. Physician-patient communication is the central element of quality care and family satisfaction. Nonetheless, communication in palliative care seems to be a very difficult but a rather well recognized issue. There is a need for effective communication, identification of effective communication systems, and exploration of the influence and value of the contemporary communication theories, models, and frameworks in palliative care. Alleviating pain and anxiety, promoting patient's quality of life, encouraging patients

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and their families, as far as situational control should constitute general basement of patient-staff relationship (Wallace, 2001).

Terminal patients and their families usually look for better quality of life – establishing certain and adequate ways of communication may play key role in this process. The study by de Andrade et al. (2013), concerning patient-nurse communication in palliative care extracted the three basic categories:

- "Palliative care and communication - interpersonal relation between the nurse and the terminally ill patient";
- "Communication in palliative care as a strategy for strengthening the bond between the nurse and the terminally ill patient";
- "The importance of communication between the nurse and the family of the terminally ill patient under palliative care".

Communication plays a significant role in the individual assessment of the patient. Intensive care units and palliative care units are regarded as "high quality" based on various criteria. Study by Nelson et al. (2010: 809) extracted such factors as:

- Timely, clear, and careful communication
- Therapy focused on patients' preferences, goals, and values
- Care concerning comfort, dignity, and personhood of the patient
- Family care with open access and proximity to patients
- Interdisciplinary support in the intensive care unit
- Bereavement care for families of patients who died

According to the study by Seccareccia et al. (2015), key elements of communication in high-quality palliative care are:

- Building trust and kinship with patients and families
- Meeting the expectations and explaining goals of care
- Keeping patients and families informed about the patient's condition
- Validating patients' concerns and needs by means of careful listening
- Intruding the issue of death and dying in a careful and controlled manner

Despite vast research, there is still no central and widely accepted set of communication skills in palliative care. Some of them may best be described as:

- Respectful and friendly attitude towards the patients
- Initiative to discuss the end-of-life issues (Slort et al., 2011)

On the other hand, limitations stemming from the nature of treatment and physicians' work are reported as well:

- Difficulty in dealing with former doctors' delay
- Demands from patients' family

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- Dealing with emotions and troublesome doctor-patient relations
- Insufficient clarification of patients' problems
- Promises that could not be kept
- Helplessness
- Too close involvement
- Insufficient anticipation of various scenarios (Slort et al., 2011)

Family meetings are regarded as a space for implementing shared decision-making and improving communication in the relation to the patient's family – medical staff, empathy, and open discussion concerning death and dying. It may improve patient's test results, reduce trauma, depression, and anxiety, improve patient's quality of death and dying (Levin et al., 2010).

DISCUSSION

Research and associated guidelines to contemporary and future clinical practice should cover at least the following issues:

- Biopsychosocial approach and holistic therapy and care gradually replace previous biomedical approach
- Differences between roles, tasks, and power of various health care professionals (physicians, nurses, physical therapists, occupational therapists, medical technicians, etc.) within a multidisciplinary therapeutic team
- Some specialist may participate in a multidisciplinary therapeutic team only temporarily, but they need a coherent view of the whole therapy
- Research, education, and clinical practice should cover not only current problems but also problems emerging in the near future
- Theory and practice may differ significantly
- Homogenous populations (including medical staff and patients – their caretakers and families) seem not to be prepared to intercultural society or approach within health care system

We described various issues that are relevant to intercultural communication within health care system. As the population becomes more culturally diversified, intercultural communication becomes more important. Communication is crucial for the functioning of health service, and is not limited to the communication between the patient and the physician.

LIMITATIONS OF CURRENT RESEARCH

- Results are often limited to physicians and nurses – we do not know their impact e.g. on long-term rehabilitation
- Results may not be universal to all health care providers
- Results for a particular population are valid for members of this population – it is difficult to compare the results for various populations

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- An increasing number of international students, immigrants, and foreign tourists may influence the results for a popular city or even the whole region

Despite common awareness and cultural education, competence within health care system is far from ideal. Possibility of being exposed to multicultural clinical settings should be sufficient to prevent from stereotypes, generalizations, and reductionism (Côté, 2013).

DIRECTIONS FOR FURTHER RESEARCH

There is a one general direction for further research: identification of intervention modalities and conceptual framework proposed by the researchers, clinicians, and organizations (both governmental and non-governmental) targeted at improving the services and care directed to the patients from different cultural backgrounds. A coherent strategy allows for improvement of the efficacy of the whole action.

The described problems have been studied by various disciplines: anthropology, sociology, medicine, cognitive science, and linguistics. Nevertheless, they need a coherent view from the practical perspective.

The detailed short- and long-term goals are more complex – a set of goals depends on many factors, including local settings. It may encompass the following ideas:

- Ways in which communication influences the delivery of medical services can be foreseen
- How much our society or family trusts physicians (or generally medical staff)
- How patients understand the importance of communication in health care situations
- Whether a more serious illness may require much interaction with a physician (or generally medical staff)
- How can health care professionals encourage more open communication
- To what extent gender is a relevant issue in the context of intercultural encounters in the medical environment
- The influence of the media on the relations between the patients and the health care staff
- Which training programmes focused on improving physicians' and staff's intercultural communication need to be implemented
- Whether appropriate facilities are provided to promote healthy behaviours among ethnic minorities
- Whether we are equipped (theoretical frameworks, intervention tools and guidelines) to provide a culturally appropriate response to disability management, return to work or rehabilitation with regard to the diversity of the workforce

Evidence in this field is limited: many studies do not provide requirements on the selection criteria (inclusion/exclusion) or keywords. Moreover, the confusion between the racial and ethnocultural categories (mixed phenotypes, national and religious labels, natives and immigrants, and economic or political migrations) (Côté, 2013) are omnipresent.

It may be difficult to assess the situation without any general plan or external support. Some communities have long histories of integration in their host country, and have developed their own social and integration structures, but some communities still live in internal isolation (Côté, 2013).

A newly implemented research may constitute an important background for training programmes which can minimize the negative results stemming from cultural differences.

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CONCLUSION

There is a discrepancy between scientific research, current knowledge, and clinical practice.

Intercultural issues concerning health care system are hardly a new topic. The population of the European Union nations becomes more diversified culturally, and there is an urgent need to develop intercultural communication skills (Hornakova, 2006). Development of intercultural therapeutic relationships seems to be the key element of the novel approach to the health care system. The growth of immigration is a real challenge to the delivery of health care services. Despite growing concerns in providing culturally appropriate heath care, intervention models, tools and training tools are still not enough in the current health care systems (Côté, 2013).

Health care specialists perceive themselves as culturally sensitive and experience less anxiety in intercultural situations. Further, reduced anxiety may lead to better quality of health care (Ulrey & Amason, 2001).

We need more evidence concerning long-term results (i.e. concerning post-graduate education of the medical staff) of such programmes. New goals need new and more precise tools, which can be the main challenge for scientists from the aforementioned areas. Certain psychological approaches may be helpful as well.

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Section 6
Critical Issues and Challenges

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Chapter 92
Introducing Psychological Concepts and Methods to Cybersecurity Students

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ABSTRACT

This chapter begins with a brief review of the literature that highlights what psychology research and practice can offer to cybersecurity education. The authors draw on their wide-ranging inter-disciplinary teaching experience, and in this chapter, they discuss their observations gained from teaching psychological principles and methods to undergraduate and postgraduate cybersecurity students. The authors pay special attention to the consideration of the characteristics of cybersecurity students so that psychology is taught in a way that is accessible and engaging. Finally, the authors offer some practical suggestions for academics to help them incorporate psychology into the cybersecurity curriculum.

WHAT CAN PSYCHOLOGY OFFER TO CYBERSECURITY EDUCATION AND TRAINING?

There is a symbiotic relationship between the disciplines of computing and psychology: psychologists have helped in many ways to understand the way that computer systems are developed and used, but also an understanding of computers has helped psychologists to model and investigate human cognitive and social processes. This chapter will focus on the former; over the past 60 years, psychologists have tracked and researched the development and impact of computers and they have also been instrumental in their design and evolution. To design, develop, implement and evaluate secure sociotechnical systems students need to understand concepts and research methods in psychology. To understand the potential

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risks of sociotechnical systems, cybersecurity students need to understand and consider how people perceive, remember, feel, think and solve problems, i.e. the domain of cognitive psychology. It is also important for students to consider individual differences and social behavior if effective interaction between people and computer systems is to be achieved, i.e. the domain of social psychology and individual differences. An understanding of these psychological topics enables students in cybersecurity to consider the potential capabilities and limitations of computer users and helps them to design computer systems that are more effective (usable) for a variety of user types. In addition to covering the foundation areas of Psychology, it is also important that cybersecurity students are taught evaluation methods and that they are able to consider the social impacts and ethical issues regarding the implementation and use of computer systems in organisations and society.

A review of the literature and media commentary on cybersecurity attacks shows that increasingly they involve social engineering techniques; where psychological principles are used to manipulate people into disclosing sensitive information or allowing others to access a secure system (Tetri & Vuorinen, 2013). For example, phishing emails and phone scams utilize many psychological principles relating to social influence to persuade users to open a link, such as appeals based on fear or invoking a sense of scarcity or urgency (Cialdini, 2008). However, despite the psychological nature of such cybersecurity attacks, research into the role of psychology in cybersecurity is still limited (McAlaney, Thackray and Taylor, 2016). Also, often research into the closely linked area of social engineering is conducted from the discipline of computing rather than psychology. Indeed, the call for papers for a recent conference organized in the UK by the Higher Education Academy on learning and teaching in cybersecurity listed relevant disciplines as 'STEM' and 'Computing' and the eventual program of abstracts contained no mention of psychology. Similarly, curricular guidance for the field of cybersecurity education produced by the ACM (McGettrick, 2013), contained just two uses of the word psychology and no further detail. However, within the last year the importance of psychology has begun to be recognized in the academic literature (McAlaney, Thackray and Taylor, 2016). For example, a recent article (Hamman, Hopkinson, Markham, Chaplik & Metzler, 2017) suggests the teaching of game theory in cybersecurity courses and links this to the psychological nature of many incidents. Hamman et al. propose that one of the benefits of game theory is that it fundamentally alters the way students view the practice of cybersecurity, and state that it helps to sensitize them to the human adversary element inherent in cybersecurity in addition to technology-focused best practices (p1).

The majority of psychological research that has been conducted so far in this area has focused on prevention and mitigation strategies for the targets of cybersecurity incidents with little focus on the motivation of the perpetrators (Rogers, 2010). Psychology can offer much in helping to understand the motivations of individual hackers or scammers, for example drawing on the research into individual differences, looking at factors such as self-esteem, introversion, openness to experience and social anxiety (Fullwood, 2015). Other work has shown that individual's motivations are not always related to financial gain but can be purely for entertainment or social status reasons (Rogers, 2010). In contrast, large scale cybersecurity incidents are often instigated by groups, as opposed to individuals acting alone. As such these incidents can be regarded as the result of group actions and group processes; theories from Psychology are used to help understand the formation, operation and influence of groups on their members, and these can be usefully applied to online groups (McAlaney, Thackray and Taylor, 2016). Many hacking incidents, especially those perpetrated by teenagers and young adults, have been strongly related to social group pressure and social psychological influences. For example, individuals involved

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in the 2015 TalkTalk and 2011 Paypal hacks were instructed on how to do this by members of Anonymous, the hacktivist collective.

Psychological theories relating to disinhibition and deindividuation have been used to explain a number of behaviors online and can also be used to understand cybersecurity incidents. The perception of anonymity afforded by online communications allows individuals to take actions that would otherwise result in legal or social sanctions. Disinhibition refers to the sense that actions conducted online do not feel as real as those conducted offline which, it has been argued, can lead individuals to lose self-control (Taylor & MacDonald, 2002). Deindividuation, in which individuals lose their sense of self-awareness when they interact within a group, has been applied to online groups where individuals are often less identifiable and separated by space and time (Taylor & MacDonald, 2002). This is an under-researched area, but it would seem that in line with Social Identity Theory some individuals become engaged with online groups to an extent which would seem to be particularly intense and where they lose some sense of personal identity to social identity. In summary, theories from psychology can be helpful to understand and help to predict online behavior.

OBSERVATIONS FROM TEACHING PSYCHOLOGY TO CYBERSECURITY STUDENTS

In this section, the authors will review their experiences teaching psychological principles to a wide variety of cybersecurity students. The authors have experience teaching at undergraduate and postgraduate level (full-time and part-time) and developing cybersecurity training tools for industry. Foundation areas in Psychology which the authors consider important to introduce to students prior to discussing their application in cybersecurity are: social processes (e.g. group-working and communication); cognitive processes (e.g. perception, attention and memory), and individual differences (e.g. life experiences, gender, personality, cognitive style). Once these areas of psychology are covered, then it is easier to show how the authors apply psychological principles to cybersecurity.

Social Psychology and Cognition

The work of social psychologists can help understand the ways that technology affects social interaction, attitudes and behaviour. The authors ensure that there is a strong focus on how students can make practical use of the research findings and cover the major topics within Social Psychology (conversation and communication; group processes; interpersonal perception and attraction; social influence; attitudes, and conflict) and Cognitive Psychology (perception, attention and memory). Then the authors apply this understanding of social cognition to cybersecurity contexts and example topics covered include:

1. How an analysis of online language and communication can be used to identify fraudulent communication and how persuasive language can influence faulty decision-making regarding judgments of trust;
2. Group dynamics in cybersecurity incidents are reviewed, for example the group processes that shape the actions of both the cyber attackers and their intended target, including how group dynamics may lead to risky decisions and overestimations of skill and ability;

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3. The psychological basis of social engineering techniques, and how these may be mitigated and prevented;
4. The role of emotion when users engage with sociotechnical systems, e.g. Frustration experienced with the technical components of a secure system have been linked to poor decision making and subsequent risky behaviour;
5. The link between cognitive load and poor online decision making;
6. New technology and organisational change is highlighted, covering issues such as the management of staff working remotely online and selection and technology enhanced training of cybersecurity personnel; and
7. The psychological elements of computer games are covered, in terms of the way gamification is used to motivate and persuade potential victims of a scam and also the authors highlight elements of addiction that may lead to poor decision-making.

Assessment and practical activities are varied and three examples are included here. The ways that online groups can influence the way their members interact and behave is addressed by asking students to devise their own scam website which aims to adopt new members to a fictitious online community. Students design experimental materials to study the links between working memory and online search strategies. Thirdly, students use and evaluate an online training package to highlight cognitive biases in cybersecurity.

Individual Differences

To illustrate individual differences in susceptibility to scams, the authors cover the following topics:

1. A psychological understanding of the cognitive deterioration in older adults and how this knowledge can be used to understand how, when and why older adults are vulnerable to financial scams;
2. How gender and personality can affect levels of online susceptibility in relation to internet dating scams;
3. How stress and cognitive style can influence poor decision making; and
4. Research from consumer psychology related to e-commerce, e.g. Individual consumer behaviour and trust in e-commerce exchanges and relations between company and consumer.

In seminars, cybersecurity undergraduates engaged well in tasks where they were asked to think from both the defence and attack perspectives. One seminar involved asking students to identify the most at-risk groups and then tailor the advice they would give to that specific group. For example, if they are advising an older adult who is unfamiliar with technology, they must think of how to explain this using simple terminology. If explaining to a child how to stay safe online, they need to use examples that children can identify with. Students were also asked to design a cyberattack that would circumnavigate their advice. The most successful exercises were highly interactive; recapping information from the most recent lecture, discussing in groups and then presenting their viewpoints to the class as a whole. It was interesting to see that despite beginning the module with a somewhat cynical attitude to the importance of psychology, after a few seminars there was an increase in interest and participation. One large consensus from the students was that there needs to be greater emphasis on education about cybersecurity at all ages and levels of experience.

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Research Methods

Cybersecurity students may have limited understanding regarding the way empirical methods (an integral part of all Psychology degrees) can be used to evaluate computer systems. To address this, topics such as Experimental Design and Internet-Mediated Research are covered. Ideally students need to experience or apply methods, therefore it is helpful if the teaching experience includes case studies and practical workshops and assessed scientific reports. The authors have run workshops which compare qualitative methods (e.g. observation, focus groups) and quantitative methods (e.g. questionnaires and performance scores) to evaluate the individual's perceived vulnerabilities and this has contrasted the different methodological approaches well.

Designing an Internet-based experiment or survey requires careful consideration. Although cybersecurity students clearly have the technical skills to conduct online surveys, they often have less understanding of experimental design and what can be done with the data. There are many benefits of Internet-mediated research (for example, access to a larger population), however, many psychological and methodological issues need to be addressed by cybersecurity students and researchers. Issues the authors cover include:

1. The difficulty in ensuring that the participant is who they say they are and that they are answering in an honest way;
2. How to gain a representative sample;
3. How to construct questionnaire items to avoid bias;
4. Issues of data screening and sample attrition rates need to be considered;
5. The demographic profiles and questionnaire scores of those who did and did not take part in online experiments or surveys need consideration, and finally
6. Ethical issues, e.g. Whether informed consent can be gained online and how debriefing will take place.

Ethics

The teaching of ethics to cybersecurity students is not new. For some time, the teaching of ethics has been a requirement on degrees accredited by the British Computer Society (BCS). Since the classic text on computer ethics (Johnson, 1985), coverage of ethics has increased as computer systems become more pervasive in daily life. For example, issues of information security such as privacy, ownership, access and liability and reliability have become more important. These advances have led to the most recent edition of computer ethics (Johnson, 2009) including much work drawing on Psychology, e.g. covering the psychological and social implications of Internet use. However, despite the increasing need for ethics teaching sometimes there can be pressure on Computing departments in meeting this requirement. This is mainly due to it being a difficult area for computing staff to teach which, according to Dark & Winstead (2005), is because the area of ethics is not positivistic in nature. As psychologists the authors have been able to offer a different perspective on teaching ethics to cybersecurity students, based on the work of Dark & Winstead (2005), who discuss the use of educational theory and moral psychology to inform the teaching of ethics in computing-related fields. In their paper, they discuss ideas on moral development and the nature of morality, specifically as it relates to changes that educators may be trying to elicit within computing students when teaching ethics. The ways that a computer scientist and a psychologist teach ethics can be quite different, with the former more likely to use a positivist approach

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and the latter an approach based on educational theories. For example, a positivist approach would define what is right and what is not right (i.e. define truth) and then address what happens if one does not do what is right or does what is wrong. However, many Psychologists would disagree, saying that you cannot teach right and wrong and that although there are many laws which computing students need to know about, regarding what is wrong/right in society, there are not many things that are ethically questionable that are not illegal (and possibly vice versa!). In summary, philosophers have long recognized that it is almost impossible to 'teach' a student ethics, rather teachers need to advance students' sense of moral development and reasoning (Kohlberg & Kramer, 1969), something covered on all Psychology degrees. With this in mind, it is also important to consider the age and experience of students when designing teaching materials on ethics (covered further later). In summary, Psychologists have a lot to offer in the teaching of ethics to cybersecurity students. Some academics (Greene & Hiadt, 2002) go as far as discussing ethics purely in psychological terms, regarding the cognitive, affective and social aspects, when they state that the origins of human morality are emotions linked to expanding cognitive abilities that make people care about the welfare of others, about cooperation, cheating and norm following.

Considering the importance of individual's own behaviour around security and their understanding of the implications and consequences of behaviour, the behavioural component of morality could be of great value to teaching psychological principles to cybersecurity students; especially as learning has been shown to be aided by doing (Reese, 2011). Utilising educational games such as the Cyber Security Challenge UK has been of great value; such games set challenges for students to complete such as finding hidden data within a spread sheet. Additionally, the authors draw on students' life experiences to aid learning of the psychological materials; discussed further in the next section.

CONSIDERATION OF THE PROFILE OF CYBERSECURITY STUDENTS IN DEVELOPING PSYCHOLOGY MATERIALS

The variation between students studying different disciplines has been well documented regarding life experiences, gender and approaches to studying (Richardson, 1994). It is proposed that some of the following factors may affect the way that psychology teaching materials are perceived and understood by cybersecurity students and their level of engagement with the materials. Without wishing to generalize and stereotype students, these factors were considered in the way that materials were designed and presented with the over-arching aim to produce materials that considered and embraced individual differences.

Gender

The composition of most Psychology and Computing degree courses are significantly skewed, with females making up the majority of psychology degrees (79%) and males making up the majority (82%) of computing degrees (Higher Education Statistical Agency, 2014). There have been many attempts to explain the reasons why males and females are attracted to different disciplines and a review of these studies shows very little support for cognitive abilities being the differentiating factor; for example, similar abilities have been found when comparing students studying social with physical sciences (Halpern, 1992). Recent research has looked at personal values, interests or motivation factors to investigate what Radford and Holdstock (1995) term, 'what people want to do rather than what they can do'. Wilson (2003) used quantitative and qualitative methods to further understanding of how Computing is perceived. In

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her paper she argues from a constructionist approach that, rather than any real difference in skill, female and male differences are a product of historical and cultural construction of technology as masculine (p. 128). For example, she notes that girls at school have been shown to be superior to boys in some areas of programming, but that they lack encouragement and interest so that by the time they reach 18 years of age they have already opted out. Wilson (2003) identifies teaching styles which appeal to female students as those with an emphasis on relational and contextual issues and co-operative learning through teamwork and group projects. While styles preferred by males are those that emphasize the formal and abstract and independent learning. Therefore, when teaching psychology to cybersecurity students (where there are usually more male students) traditional methods used in Psychology classes such as seminar discussions have not always been the most effective method. The authors have tried to use a broad range of methods, but recognize that some are more effective with the majority male cybersecurity students.

Life Experiences

Cybersecurity postgraduate courses tend to attract a significant number of mature entrants who have frequently been employed in other careers, have many life experiences or are currently working in a related industry and studying part-time. It is important for the contextual examples to link to real security incidents and to draw on the experiences of students. While undergraduate cybersecurity courses are more likely to attract direct-entry students, therefore the examples may be more closely linked to incidents publicized in the media.

It is important to consider stage of moral development and life experience of students when presenting materials on the topic of ethics. For example, an environment needs to be created that allows students to safely reflect on and explore their moral beliefs relative to the current issues in cybersecurity. The authors found that postgraduate students are more interested in the philosophical debates regarding the psychological and legal implications of Internet use, compared to undergraduate students. Issues that students have debated include: whether deviance online is different from deviance in face-to-face contexts; whether online addiction is similar in process to other addictions and how it might impact security vulnerabilities, and how a person's face-to-face and online identity might differ.

Gibbs, Basinger and Fuller (1992) suggest undergraduates' moral development is not fully developed; they are still developing an understanding of how moral issues may relate more generally to societal functioning. This could explain differences in debates between undergraduates and postgraduates. The postgraduate students were more open to different perspectives than undergraduates and his could be due to being older, and therefore having stronger convictions formed, or life experience within the industry. Thus, this could also be informative to the types of materials used to teach psychological principles; the postgraduates may find it easier to consider the bigger picture and societal implications of cybersecurity. While undergraduates may need more support in understanding the wider societal implications.

Motivation to Study and Learning Style

The motivation of students to study a particular course will clearly affect their engagement and there may be some initial resentment of cybersecurity students toward the topic of psychology; this needs to be considered and addressed. Many students choose psychology to help develop an understanding of themselves and others and to develop 'people' skills useful later in a range of careers. In contrast, from

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our observations many cybersecurity students see the course as a stepping stone to gaining almost immediate employment in the security industry or as CPD to gain promotion.

Radford and Holdstock (1995) investigated differences between reasons why students chose Computing and Psychology degrees. Students were given a list of 60 items on the 'outcomes or benefits of Higher Education' to rank. These ranged from passing exams, learning to work with others, development as a person, develop problem solving skills etc. The results showed that the most important items differentiating the two fields were that computing students chose the development of problem-solving skills, logical thinking and increasing future earning power. While for psychology students, development as a person was important as was understanding other people, oneself and greater personal independence. They identified two key factors related to a student's choice of discipline: (i) personal development versus social relationships and (ii) thinking about and directly dealing with people versus things. The implications of this for teaching psychology to cyber students are twofold: (i) that cybersecurity students may be less open to thinking about people problems when considering online threats and security, and (ii) that it is important that students are aware of the way people use technology and their interactions with others can be as important as functionality.

A considerable amount of work has been published on the relationship between personality type and learning in Further and Higher Education, although there is relatively little focusing on students from specific disciplines. Layman et al (2006) collected personality types of students studying a software engineering course using the Myers-Briggs Type Indicator (MBTI). the authors considered this when adapting our psychology materials from those designed for psychology students, in terms of: groupwork and individual work; using lectures to emphasize concepts as opposed to factual data, and materials presented objectively as matters of fact with concise, concrete explanations.

It is important to recognize that students studying for cybersecurity courses are likely to have been taught in different ways and may approach studying in different ways, compared to those studying for Psychology degrees. From personal observation, cybersecurity students are generally more familiar with assessments which have definitive answers, while Psychology students are more accustomed to discussing the relative merits of both sides of a debate and to provide a balanced view rather than a definitive answer. This would support the extensive work by Kolb (1981) investigating learning styles and subject discipline. Depending on their background it has also been our experience that cybersecurity students can find the methodological approaches used in Psychology to be quite different from what they have previously experienced. Students from a cybersecurity background may be more accustomed to an epistemological and ontological stance which posits that understanding of phenomena is reached though objective study and experimental methods, and there is a finite set of solutions to any problem. In contrast the sub-disciplines of Psychology range from those which take a very positivist approach to those which are based largely on ideographic knowledge and social constructionism. Whilst the psychology topics that the authors have taught cybersecurity students do tend to lean more towards those which take a positivistic approach there is in general more subjectivity and uncertainty embedded with the teaching materials than they may be accustomed too. A comment that the authors frequently receive from cybersecurity students is that they find it strange that many areas of psychology have no single theory that is widely accepted as being the 'correct' one, and that instead there appears to be often be a multitude of, at times mutually exclusive, theories for any given psychological phenomenon.

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CONCLUSION

We would like to conclude by reflecting on our experiences to offer some general tips for those about to embark on teaching psychological principles to cybersecurity students.

As with all interdisciplinary teaching, materials need to be adapted effectively to provide appropriate links to the other discipline. In the case of cybersecurity, psychology materials need to be linked to topics taught on other units within the cybersecurity course and to show an awareness of the professional context of cybersecurity. It is important to deliver the materials at the correct level, taking into account the relevant intended learning outcomes and educational stage. At the first year of an undergraduate degree, the emphasis needs to be on practical activities and workshops can be used to demonstrate how recommendations based on Psychology can be put into practice. Indeed, examples can be used to illustrate where Psychology has *not* been considered to great effect! At final year undergraduate level, the authors found that students appreciate more detail as to *how* research was conducted and they need to develop skills to allow them to consider different psychological methods to evaluate the security of online systems. At postgraduate level, students are interested in hearing about ground-breaking research where psychology is being applied to inform cybersecurity, but also they appreciate discussing the philosophical debates. It is important not to overwhelm students (at any level) with psychological content but to provide case studies and references to support the concepts being covered. Similar to being prepared regarding the curriculum and educational level of your intended learners, some understanding of the profile of your intended learners can assist in developing Psychology materials for cybersecurity students. For example, the style of presentation of Psychology activities can be adapted to better match the approaches to studying of cybersecurity students.

Finally, it is important to recognize that students will have a certain perception of what Psychology covers. It is common for some cybersecurity students to think Psychology is only concerned with treating psychological disorders or that it is an 'un-scientific' way of explaining human behavior. As a result, it is useful at the start of any contact with cybersecurity students to briefly cover what is Psychology and what is not Psychology and to differentiate between academic Psychology and 'popular' Psychology. This helps to contextualize the wider role of Psychologists in the many areas of modern life relating to computing and technology. This has been helped recently with TV programs such as 'Hunted' (2015) employing forensic psychologists and cybersecurity experts to hunt escapees.

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Chapter 93
Why Psychology and Criminal Justice Can Only Take Us So Far:
The Value of and Need for a Social Psychological Perspective in Studies of American School Violence

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ABSTRACT

Concerns about continued increases in violent behavior in American schools and schools' ability to mitigate and reduce risks abound. Psychology and criminal justice have contributed much to what we know and understand about violence in schools; however, the author argues that these dominant disciplinary perspectives also obscure some important aspects of these phenomena, namely focus on underlying cultural logics that may be impacting violence in schools. In this chapter, the author sets out to achieve two objectives. First, she provides an overview of areas of focus in current literature in psychology and criminal justice that represent the dominant framework within which school violence in the U.S. is viewed. Additionally, she examines those disciplinary perspectives in terms of specific strengths and limitations. Second, she presents and describes a series of social psychological theories and pulls those theories into a coherent framework to demonstrate the value of the social psychological lens in studies of school violence and stimulate further discussion and research on this important topic.

INTRODUCTION

Psychology and criminal justice are the primary lenses through which the problem of violence in American K-12 schools has been examined. These two disciplines have contributed much to what we know and understand about violence in American schools; however, there are also some sticking points.

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Findings focused on school-based prevention efforts remain largely inconsistent (Blosnich & Bossarte 2011; Ryan-Arredondo, Renouf, Egyed, Doxey, Dobbins, Sanchez and Rakowitz 2001), and scholars and practitioners allege outdated, ineffective policies and practices (Brooks 2017; Craig 2016; Madfis 2017; Reddy, Borum, Berglund, Vossekuil, Fein & Modzeleski 2001). They also question the effectiveness of standard physical security measures such as surveillance cameras and security officers (Blosnich & Bossarte 2011; Reddy et al 2001). At the same time, concerns about continued increases in violent behavior and schools' ability to mitigate and reduce risks to students abound (Brooks 2017; Madfis 2016), especially as the FBI reports increases in school violence incidents (Blair & Schweit 2014).

It goes without saying that this is a social problem that deserves greater scholarly and practical attention, but, in light of where things stand now, I found myself asking, "have psychology and criminal justice taken us as far as they can at this point?"

As a sociological social psychologist, I am trained to examine circumstances and seek connections between phenomena by analyzing underlying social norms and assumptions that may be taken-for-granted but very much at work shaping circumstances. When examining a social problem, it is important to critically consider structural conditions, contextual circumstances, and underlying social norms and assumptions, as those shape how we define the problem, how we attribute cause, the research questions we ask, and, ultimately, the solutions at which we arrive.

When I stepped back to examine the literature around school violence, I saw an opportunity to apply the lens of sociological social psychology to critically examine these very issues. I set out to analyze topics of focus in the body of research on school violence hailing from psychology and criminal justice, social norms and assumptions that appear to be driving the trajectory of inquiry and support for the current approach, strengths and limitations evident in the body of literature, and means by which social psychological theory might provide fresh insights for this important vein of research.

TOPICS OF FOCUS IN THE LITERATURE ON SCHOOL VIOLENCE

Studies of school violence in American K-12 education are often approached through the disciplinary perspectives of psychology and criminal justice. Scholars and practitioners in these fields examine topics that vary from friendship and isolation to bullying; individual and family risk factors that may predict antisocial, violent, and criminal behavior as well as protective factors that reduce the likelihood of such behavior and means of intervening and addressing problematic behavior (for ex: Brooks 2017; Loeber, Farrington, Stouthamer-Loeber & Reskin White 2008; Langman 2009; Finley 2014). There is also a great deal of focus on mental health and topics such as stress, coping skills and mental disorders (Langman 2009; Langman 2010; Newman, Fox, Harding Mehta & Roth 2004; Vossekuil, Fein, Reddy, Borum & Modzeleski 2002).

Most of the studies examined here employ a psychological perspective but incorporate criminal justice either through examination of monitoring or punishment for violent behavior, collaborative efforts between schools and law enforcement or use of techniques such as profiling. Of interest for this chapter is not the specifics of those studies' findings or differentiation between specialized tracks of research but rather how scholars have focused their analytical attention overall.

In general, this body of research focuses on assessing and averting threat by examining individuals who are thought to present threat and designing prevention efforts. Not surprisingly, schools remain the

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primary context for these studies and prevention efforts because it is within schools that "crisis symptoms and warning behavior" (Leuschner et al 2017:70) often become apparent.

In the 1990s, a shift began from a single-source view of violence as something inflicted by dangerous individual "vectors" to a more complex, nested phenomenon (Astor et al 1999:103). Scholars incorporated frameworks such as Bronfenbrenner's (1977) ecological theory to examine nested relationships between communities, schools, families and individuals. We still see this focus evident in the literature today as studies consider the salience of macro-, meso- and microsystems to school violence (for example: Brookmeyer et al 2006, Espelage 2014). Although there is broad agreement that complex interactions of psychological, sociocultural, structural and situational factors contribute to violence (Rocque 2012), most of the emphasis has been on controlling for these factors in attempts to remove "noise" and isolate "signal" associated with individual factors. Thus, despite broader consideration of context and environment, there remains a great deal of focus on problematic individual behavior in reaction to adverse circumstances.

One of those adverse circumstances is social rejection. Studies have found that social rejection weakens connections between a student and their school community, for example during suspension and expulsion (Breunlin, Cimmarusti, Hetherington and Kinsman 2006), and is associated with problematic violent behavior by individuals who have experienced it (Kyriacou 2016; Leary, Kowalski & Phillips 2003; Vossekuil et al 2000).

Bullying, in particular, has been cited as an issue by a number of school shooting perpetrators (Vossekuil et al 2000, Madfis 2017). This has prompted more in-depth examination of the topic, including such things as types of bullies and psychological attributes of each type (Kyriacou 2016) and psychological adjustment of students who act as bullies, relying on measures like self-esteem, depressive symptoms, perceived stress, loneliness and life satisfaction (Estevez, Murgui and Musitu 2009). This line of research, which is much larger than the studies mentioned here, appears to have been undertaken in the interest of better understanding and intervening to stop these behaviors earlier in the causal chain before violence occurs.

When it comes to the day-to-day business of assessing threat in schools though, law enforcement and risk assessment experts suggest the use of behavioral threat assessments as evaluation and prospective profiling tools (Breunlin, Cimmarusti, Hetherington and Kinsman 2006; Borum, Cornell, Modzeleski & Jimerson 2010; Cornell & Sheras 2006; Fein et al 2002; Mohandie 2000; Reddy et al 2001; Toole 1999; Leuschner et al 2017).

Although these tools are widely used, the literature is chock full of scholar and practitioner concerns about a host of factors that include: judgment bias, false positives, exclusion of threats that deserve attention, utilizing assessment tools whose reliability has not been established (Reddy et al 2001), failure to consistently administer assessments (Ryan-Arredondo et al 2001), the difficulty of differentiating normal childhood aggression from more serious aggression (Bardick & Bernes 2008), and the potentially stigmatizing and harmful effects of popular assessment approaches such as profiling and guided professional judgment, which considers rates of violence within specific segments of the population (Reddy et al 2001).

To attempt to avoid these pitfalls, scholars advocate the use of multiple tools such as interviews, observation and assessment instruments as well as the involvement of administrators, counselors, teachers, law enforcement, social workers, psychologists and others who can contribute insights to cross-check findings (Bardick & Bernes 2008). A great deal of time has also gone into comparing characteristics of individual perpetrators of violence in schools, especially those who commit shootings (for example,

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Crews 2017; Crews & Crews 2018; Gerard et al 2017; Leary et al 2003) in attempts to better inform the work of school, law enforcement and mental health professionals.

Despite all the effort that goes into school violence prevention, there is still an ongoing conversation in the literature about whether violence can truly be prevented and the extent to which it is or is not "random" in nature. Some attribute the persistence of this problem in schools and difficulties with prevention to American gun culture (Glassner 2010; Haider-Markel & Joslyn 2001; Lawrence & Birkland 2004). Although it is frequently popularly described as random when people have difficultly collectively processing acts of violence, scholars point out that offenders generally cite rationale and that we need to attend to those rationale, even if *ir*rational, in order to dig deeper (for example, Madfis (2016, 2017).

When you look across this body of literature, the formative influences of psychology and criminal justice are very clear. Although contextual factors such as those associated with peer and family relationships have taken on increased importance in research and praxis on violence in schools and there has been some examination of cultural influences such as American gun culture, the focus has remained on identifying, addressing and averting threat as presented by individuals.

Evidence of this is the heavy reliance on behavioral assessments designed to measure psychological adjustment and disorders. Further evidence are the standard physical security measures instituted by many schools, such as cameras, metal detectors and hiring on-premise security officers (Breunlin, Cimmarusti, Hetherington and Kinsman 2006) as well as the more punitive discipline disciplinary measures relied upon to remove students from school and place them in the criminal justice system if they exhibit problematic behavior.

The commonality of these approaches demonstrates how psychology and criminal justice, together, dominate how we view and approach the social problem of school violence. It may seem obvious why these two disciplines have led the charge in this area, but let's step back and examine this a little more critically.

WHY PSYCHOLOGY AND CRIMINAL JUSTICE?

Although we're accustomed to hearing about issues from the perspectives of psychology and criminal justice, we don't often consider why it is that these disciplines are considered uniquely suited to shed light on the phenomena of school violence. To look more closely at these matters, we must temporarily widen our focus from the social problem of school violence to social problems across American society.

The psychological perspective, in particular, dominates American societal discourse about nearly all aspects of human life, particularly in the realm of social problems. We are accustomed to psychologists studying and advising us on a wide range of subjects from child-rearing and schooling to workplace behavior, addictions, aging, decision-making, all levels and types of criminal behavior and everything in between. This incredible breadth is evident in the American Psychological Association's definition of psychology as "the study of the mind and behavior," adding that "(t)he discipline embraces all aspects of the human experience – from the function of the brain to the actions of nations…" (American Psychological Association, n.d.).

The discipline of criminal justice has also evolved to be quite dominant in American society. The most immediately visible evidence of this is the plethora of television dramas, reality TV and news cycles that focus heavily on criminal actions, perpetrators, victims, and the actions of individuals who stop and punish wrongdoers. Further evidence is our disproportionately large prison population rela-

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tive to other nations and the collective focus placed on individuals being punished for wrongdoing. In short, the discipline is about maintaining social order, which broadly incorporates "…the procedures and government organizations which focus on upholding the law. These government entities work to maintain control in the public arena, prevent and manage crime, authorize punishment for criminal activities, and offer rehabilitation." (Criminal Justice Careers, n.d.) On their own, each of the lenses of psychology and criminal justice garner a tremendous amount of credibility and power in how we view and approach social problems, but their convergence is what is most significant to our purposes here. Since many social problems are described in ways that delineate how individuals challenge cultural logics or break the codified versions of those logics present in our system of law, we have come to rely heavily on psychology and criminal justice to help us "diagnose" and understand individual thoughts, motives, intentions and actions, prevent threats and punish perpetrators in the interest of maintaining social order.

From a practical standpoint, this approach has netted us some clear and substantial benefits. Since schools faced with threats of or actualized violent behavior are likely to be forced into reactive mode, they may have limited information (and often limited resources) with which to assess and intervene when necessary. Thus, behavioral assessments that focus on identifying immediate threats may be the most efficacious tools, even if they are imperfect. Likewise, the involvement of law enforcement provides a level of reassurance and a second and physical line of defense to support schools in their efforts. In support of this approach, we also continue to see scholars and practitioners pressing on to add to and refine what we know in these areas.

As a result, the vast majority of studies on school violence still examine nuanced elements of and test different instruments for assessing individual behavior. The goal, of course, is continuing to sort out attributions and identify interventions on the basis of individual reactions to social rejection, individual stress, individual coping skills, individual mental disorders and so on.

The combined power of and collective trust we place in psychology and criminal justice lead us to assume that we are doing all we can. This assumption and high level of trust are rooted in something much deeper than the contributions of scholars and practitioners in these fields. These disciplines, as we know them, emerge from, reinforce and resonate with cultural logics about individualism and individuals being personally responsible for their behavior, good and bad, in American society.

From childhood, we are conditioned to see ourselves as individuals, assert our individuality, and view outcomes in our lives, good and bad, as the result of our individual choices. We are accustomed to hearing about individual uniqueness, for example common phrases such as, "every child is different" and "everyone deals with grief differently." The collective is often viewed as a collective of individuals, so much so that many people appear at times unwilling or unable to process social issues separately from their own personal experiences.

When it comes to understanding violent behavior, although we are generally willing to entertain how individuals are influenced within society, attributing problematic individual action to such forces is viewed as deflecting or shirking responsibility. If one is viewed as deflecting, they are not "owning up" for their actions and wrongdoings. In short, even if "the social" influences us, we come back to the idea that individuals have the choice of how they will behave and that bad choices reflect personal deficiencies and problems.

These cultural logics underlie our entire societal system and provide a framework for how we view the social problem of school violence. Not surprisingly, in a society wherein we value these cultural ideas, we are conditioned to and very comfortable employing the familiar lenses of psychology and criminal justice to focus on individual behavior and personal culpability for problematic behavior. When we do

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so, we also discount the influence of social factors at work. I am not asserting that individuals bear no responsibility for their actions. Rather, I am suggesting the need to examine how our collective default tendencies to uncritically adhere to ideas about individual responsibility for school violence is limiting how we define the problem and what we see as feasible solutions for addressing it.

When we apply any disciplinary perspective to the study of a subject, we are limited to the confines of that lens. Our focus is drawn to some things to the exclusion or discounting of other things, thus limiting what we look for as well as what we find.

Since both disciplinary lenses being examined here bring focus to identifying, assessing and stopping problematic individual behavior, the greatest emphasis is placed on responding to problematic behavior at or near the end of the causal chain. The convergence of the lenses of psychology and criminal justice intensifies that focus to incorporate not only assessing, identifying, and diagnosing personally responsible individuals but profiling, watching, controlling and preparing for the worst in a defensive, reactive mode against dangerous, antisocial others.

Taking a watchful, cautious, defensive stance is not a bad thing. As we saw in the examination of topics in the literature, this stance has led to the creation of assessment instruments, the incorporation of multidisciplinary teams in assessment efforts, an increase in what we hope is more effective physical security in schools, and the creation of many different models for violence prevention programming.

Taken together, these measures are productive and helpful, yet there remain persistent concerns about inconsistencies in the literature and adherence to outdated, ineffective practices at the same time that incidences of and concerns about school violence are increasing (Blair & Schweit 2014). The knee-jerk reaction may be to continue down the familiar path, dig deeper and further specify what we understand about school violence and assessing and averting individual perpetrators. However, it seems we may have reached the limits of that approach for the time being and would do better to "defocus."

Anton Ehrenzweig (1971) wrote, in *The Hidden Order of Art: A Study of the Psychology of Artistic Imagination,* of the need to "defocus" and go from precise focus on specific factors to wide-angle defocused perception. This activity invites us to pause, step back from the situation, step away from our assumptions about what we think we see when we look at the phenomenon of school violence, allow all the specializations within this vein of research to blur together a bit, and open ourselves to seeing things in a new and different light.

THE LENS OF SOCIAL PSYCHOLOGY

Having "defocused," the collective of individuals that we are culturally accustomed to seeing blurs into a single collective. While not unidimensional by any means, the collective does have some common threads running through it. Some of those common threads exist in the form of taken-for-granted cultural logics. Primary among those logics in American society are ideas about individuality and self.

These logics do not necessarily impact everyone in the same way, for a host of sociological and psychological reasons; however, they do impact the collective. Their presence and influence are undeniable, and they have bearing on how we understand and approach the social problem of violence in schools.

To examine these dynamics in greater detail, I introduce three social psychological theories: Callero's myth of individualism, Mead's theory of self as a social product, and Berger & Luckmann's notions about the social construction of reality. First, I describe the major tenets of each theory, then I weave them into an overall framework and apply that framework to the study of school violence.

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Myth of Individualism

Callero (2014) examines the cultural value placed on individualism, the notion that each individual has worth and is self-directed, in American society. Evidence is not only found in "..literature, music, film and television…but also reinforced in many subtle and ubiquitous ways…" (18) as "…a guiding principle for many of our social institutions…" (22)

As examples, Callero cites our capitalist system of economy, which focuses on individual achievement, property ownership and competition; the labor market wherein workers are viewed as personally responsible for their own employment often regardless of the economic and employment landscape; religious institutions that emphasize personal relationships with God; and an educational system premised on individual evaluation and achievement (22-24). It is likely that you read that list and thought to yourself, "Yes, what's your point? Those things make sense!"…which suggests just how powerful, normalized and taken-for-granted these cultural ideas are.

Given that individualism "…privileges the individual over group, private over public and personal over social" (22), the power of individuals is celebrated and the power of social forces is deemphasized (157). This makes sense to us because the message is so clearly and consistently reinforced within our larger social system that any deviations from this focus may seem downright nonsensical. However, Callero cautions that such an approach, which focuses so heavily on individuals, is inadequate for understanding human behavior.

He argues, "the idea that the person and the group are independent and completely distinct entities is a serious oversimplification of the relationship between one's self and one's society. In truth, the social world sustains our individuality as much as individuals sustain society…The artificial separation of self from society, with the belief in the primacy and superiority of the autonomous actor, is the myth of individualism." (Callero 2014:27)

Callero provides a vignette, which he attributes to Saul Alinsky, to illustrate how the cultural value of individualism shapes our thinking about the relationship between self and society as well as how we interpret our experiences within it. Paraphrased, it goes something like this: Three friends are walking alongside a river and see a body floating in the water. They act quickly to remove the person and try to resuscitate them only to see another person in the river and then another and another. The friends continue to spot and act to help the people, until one of the friends quickly runs upstream. The other two shout after their friend and urge the person not to abandon their efforts to help individuals.

Callero explains that the friend who ran upstream did so because they wanted to try to identify the root cause of the problem, which turned out to be a broken bridge railing that was leading cars and pedestrians to fall into the river. As soon as the friend identified the problem, they took action to alert motorists and pedestrians, which then solved it.

The moral of the story is this: Focusing only on the drowning people was helpful and met the *immediate* need but insufficient to solve what was actually a structural problem. Callero (2014) further explains that, had the problem continued, individualist solutions would have likely been posed, for example suggesting more swimming lessons in the community or organizing counseling services for those affected. However, those solutions, while helpful and targeted, would not have lent to truly alleviating the risk to individuals or solving the problem.

When it comes to school violence, we can use Callero's theory to consider ways that the lens of individualism is lending to our understanding of the social problem of school violence as well as our beliefs about viable solutions of stopping it. Much like the actors in the vignette, we see the actors involved in

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violence prevention in schools intervening where immediate action is needed. Teachers, administrators, school psychologists, counselors and resource officers interview students, conduct assessments when problematic behavior is observed and take action to promote the physical security of school environments. Just as in the vignette, these actions are helpful and meet the immediate needs presented; they are also very specific actions that can be targeted at very specific needs. Yet, they are insufficient to solve the problem of violence in schools because the problem stems from social forces outside of, yet impacting, schools and all other social institutions.

With the exception of prevention programming, school violence continues to be treated as a problem that is most effectively addressed on an individual level. This prevents or intervenes to stop people from becoming "victims" in the most immediate sense (just as the friends in the vignette stopped people from drowning). But the work of prevention remains reactive, arduous, and constant. It also carries with it an opportunity cost, as those engaged in the work of intervening are unable to dedicate resources to what are likely to be more ultimately impactful structural solutions.

Callero's argument helps us to better understand how the lens of individualism functions to shape our understanding of the relationship between individual and society as well as our interpretation of violence in schools. Mead's theory of self as a social product takes that one step further.

The Self as a Social Product

Common understandings of "the self" in American society reflect the psychological perspective that selves are unique and independent; however, Mead asks us to consider a different notion of self, one that is a social product.

Mead is regarded as a seminal figure in the field of social psychology, which is first and foremost concerned with the effect the group has on the experiences and conduct of individual group members. For Mead, "…mind and self are, without remainder, generated in a social process" (Mead 1934: xxiii). Interpreting Mead's theory, Huebner & Joas, who annotate his work, explain, "It is only in a social process that selves, as distinct from biological organisms, can arise – selves as beings that have conscious awareness of themselves. (It is not) merely the process of being aware of one's self that is social: the self that one becomes conscious of in this manner is itself social in form" (Mead 1934: xxxii).

Although he views the self as a social product, Mead is not arguing that individuals have no agency. Of this, Huebner & Joas, explaining Mead's theory, say "the individual is no thrall of society. He (sic) constitutes society as genuinely as society constitutes the individual…Through society the impulsive animal becomes a rational animal, a man (sic)" (xxxiii).

Given his definition of self as a social product, Mead argues that behavior must be examined *within* the social process, as it can only be truly understood when examined alongside the behavior of the larger social group (Mead 1934). This is "...(because) the whole is prior to the part …," as explained by Huebner & Joas (Mead 1934:7). Thus, Mead argues that society shapes the individuals who inhabit it, since society exists prior to the individual, but the relationship between the individual and society is dynamic and co-constitutive such that each sustains the other.

When it comes to school violence then, we can apply Mead's theory to examine ways that the prevalent notion of self as unique and independent is leading us to focus on individual behavior and individual culpability. We emphasize those things, and deemphasize the powerful social forces at work and the larger social context within which people learn to view violence as a viable option and/or employ violence for asserting their power to deal with problems.

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Applying Mead's theory, we can also see the essentiality of examining behavior within a social context. For Mead, the self is literally "built" and constituted within social context as people learn about cultural values and learn to employ those values to navigate their society. Thus, individuals who use violence learned to function that way as a result of social interaction; they are products of a violent social context. It is not enough to profile or list characteristics of offenders if that information is not placed within social context. This does not necessarily lend to the dismissal of individual culpability. Instead, Mead's theory lends to considering a much broader array of information and a much larger social context.

To examine how it is that such powerful cultural logics about individualism and self can be largely invisible to us, I incorporate Berger & Luckmann's (1966) social construction of reality.

Social Construction of Reality

Berger & Luckmann (1966) argue that social order and, thus, the ways that we define and understand reality are produced by human beings through complex means. In this view, people create and come to understand reality through a process involving externalization, objectivation and internalization. First, people create social order through their actions (externalization), experience the created reality as objective (objectivation), and then internalize and understand it as subjective experience. Thus, "(s)ociety is a human product. Society is an objective reality. Man (sic) is a social product" (Berger & Luckmann 1966, 6).

The process of the social construction of reality is largely transparent to those who participate in it (Berger & Luckmann 1966). In social psychology, this is sometimes referred to as the 'fish in water' effect; everything the fish does occurs within and depends on the water, but the water is taken-for-granted. We can apply Berger & Luckmann's theory to view the community of people acting to prevent school violence as a social world.

From the perspectives of those in this social world, their experiences congeal into a taken-for-granted, internally-logical schema. When older members of the social world (or, in this case, those with more experience doing the work of preventing violence in schools, whom Berger & Luckmann refer to as "parents") teach their ways and beliefs to the younger members (those seeking more information about or being institutionalized into their role addressing the social problem of school violence, referred to as "children" in the theory), "(t)he objectivity of the institutional world 'thickens' and 'hardens' not only for the children, but (by a mirror effect) for the parents as well. The "There we go again" (of routine actions) now becomes "This is how these things are done.'" (Berger & Luckmann 1966, 4-5).

For objectivation and internalization to occur, there must be clear delineation of the doctrine and beliefs of the social world, which requires direction and teaching about the nature of the social reality. As the doctrine and ways of the social world are shared and repeated, they take on even greater credibility to those who teach them as well as those who learn them. To the individuals who inhabit the social world, the facts are undeniable and powerful.

Applying this more directly to school violence, those who inhabit the social world of the institution of education have defined the problem of school violence through the disciplinary lenses of psychology and criminal justice. Those who participate in this social world, such as teachers, administrators, counselors, school psychologists, and school resource offers, create the social order based on the views available to them through the lenses of psychology and criminal justice. The teachings include a specialized language and specific tools for sense-making in this context, including behavioral threat assessments and means of enforcing physical security measures when violence is threatened or occurs.

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Participants experience the social order as objective reality and are generally unaware of the way it impacts their interpretation of the phenomena associated with violence in schools. Another factor rendering the social world invisible to inhabitants is the fact that its internally-logical, for example the behavioral assessments and other tools relied upon to do the work of violence prevention were created within that same context and, therefore, already reflect and further reinforce its truths.

Those who are trained within the social world adopt and become invested in its ways and truths, too. As they then train others, they pass on the truths, and, as Berger & Luckmann (1966) say, the world "… attains a firmness in consciousness…and it can no longer be changed so readily" (4-5).

THE THREE SOCIAL PSYCHOLOGICAL THEORIES CONVERGED

Here, I offer an account of how Callero's myth of individualism, Mead's theory of the self as a social product, and Berger & Luckmann's social construction of reality converge. First, I overlay the lenses to provide a different view of the current approach, which has been architected through the disciplinary lenses of psychology and criminal justice. Second, I delineate the ways that this new theoretical framework allows us to conceive of an alternative path forward for studies of violence in schools.

A Social Psychological Analysis of the Current Approach to Preventing School Violence

The social world of the institution of education and those who work within it to prevent violence in schools is shaped not only by the lenses of psychology and criminal justice but that of individualism and the notion of unique selves, which resonates with and reinforces the view afforded by the other two lenses. Those within this social world are so accustomed to viewing phenomena through the lens of individualism that they rarely notice the lens is at work filtering what they see and how they interpret meaning and experience.

The inhabitants of this social world rely on cultural notions of individualism and conceptions of student selves as unique, independent beings, some of whom display pathologic violent tendencies and must be dealt with as individuals in order to protect school communities. Logics, composed of the specialized language and meaning within the social world, congeal into a body of knowledge that exerts formative influence on all present and future thought and action within the social world. Logics also shape how past events are interpreted and remembered. The details of observations and the results of individual assessments are recorded within this framework.

These understandings shape how the inhabitants of the social world define the problem of violence in schools and what they conceive as effective solutions, which lends to a specific trajectory of thought about the right and correct ways to define and approach the problem. This begins with defining the steps and procedures necessary to prevent violence, which incorporates operationalizing notions of threat, intervention, prevention and punishment with an intense focus on individual actions and individual culpability. To do this work, inhabitants of the social world must place themselves largely at or near the end of the causal chain, as this is primarily where the teachings and tools on which they rely equip them to intervene.

Inhabitants view these means of operating in their social world not only as representing the most feasible means of addressing violence in schools but the *only* feasible means of doing so, given their tools

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and methodologies. After all, many of their efforts to identify and avert threats are successful. They're able to stop some of the would-be offenders from acting and stop innocent people from becoming victims in the most immediate sense. Thus, participants press on in their respective roles.

Refinements and innovations are sometimes conceived and enacted to improve tools and methodologies either through research or practical measures. However, even these are limited within the logical confines of the social world and often, at best, result in incremental gains.

If suggestions for refinements to tools and methodologies push the limits or fall outside of the logical framework of the social world, they are likely to be rejected, as they do not mesh with its ways and truths. In this way, the practitioners and even some of the scholars who step into this social world collaboratively sustain and insulate it from change. Within the larger societal framework of job specialization, those outside of this social world accept the insulation, assuming they should defer to the specialists and experts in this regard.

Within the social world described, it is not surprising that participants should go about violence prevention at or near the end of the causal chain where specific problematic behaviors occur. That is where violence has already happened or is about to happen. It is, thus, the only point at which individual behavior can be clearly and specifically observed, assessed, defined and punished, which is what the inhabitants of this social world are trained to do. Those within the social world are very committed to sustaining it, as they have been socialized into this world, are invested in it, have contributed in large and small ways to its very form, and, as a result, urge that we must stay the course.

Focusing intensely on the most visible manifestations of violence in schools at or near the end of the causal chain lends to identifying problematic behavior and punishing those who exhibit it, but, like the friends pulling bodies from the river, we won't necessarily get to the cause of the problem because we are operating with a limited vantage point.

An Alternative Path Forward

The efforts of direct prevention in schools cannot stop, at least not in the foreseeable future, and individual perpetrators will continue to be held responsible for their actions. However, we can also use the lens of social psychology to at least conceive of an alternative path forward that may take us closer to achieving the goals of not only preventing violent acts but *reducing violence* in schools. Preliminary steps on that path hinge on broader consideration of our larger social context, which requires us to reframe the social problem of violence in schools.

In this chapter, I have argued that our cultural notions of individualism and unique, independent selves are powerful underlying social assumptions that have bearing on how we understand and approach the social problem of violence in schools. When we remove the lenses of psychology and criminal justice to view this problem, the lens of individualism, which is foundational to that of psychology and criminal justice in the American context, remains. Without concentrated focus on assessing, diagnosing, averting and punishing, the multi-dimensionality of individualism comes into sight.

As an idea and philosophy, individualism operates to lend to the production of individuals who believe they have worth, control their own circumstances and should act in their own interests. Thus, individuals who do not believe their interests are served by the collective might see their best or only viable option as taking initiative to act in what they believe *are* their best interests.

Relating to school violence, this could mean perpetrators who feel wronged or isolated within the collective, using the lens of individualism and independent selves, may view it as their personal responsi-

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bility to take action and achieve justice for wrongs committed against them. Previous studies suggest that perpetrators of violence may rely on cultural scripts about masculinity to solve problems with which they are confronted (Kimmel & Mahler 2003; Madfis 2016, 2017; Mai & Alpert 2000; Newman et al 2004). Perhaps individualism and cultural notions of self are *additional* cultural scripts relied upon by those in crisis to remedy problems and reclaim the self-efficacy and personal dignity essential to individualism.

This does not excuse acts of violence, but it does offer a tenable explanation, from the perspective of perpetrators, within this social context and should be explored further. Some may argue that this is just human nature, think: fight or flight responses, but it is also possible that this is punctuated by tenets of individualism that encourage individual agency. Common phrases such as, "You have no one to blame but yourself," and "You teach people how to treat you" come to mind here. These phrases provide concrete examples of the internalized tenets of individualism that maintain focus on individual selves, individual agency and personal responsibility for negative circumstances in one's life.

Callero (2014) provides another example germane to considering how the ideas within individualism may influence individual actions in negative ways. He tells a story about the life and demise of Ted Kaczynski (infamously known as the Unabomber), who retreated to wilderness living and plotted and carried out a series of bombings in the U.S. Callero argues that, in a society that prizes and focuses on instilling the value of individualism, we will also, at times, produce radical individualism, which he calls "individualism gone wrong."

Considering the well-supported findings about perpetrators' feelings of social rejection being cited as rationale for committing violence in schools (for example, Breunlin, Cimmarusti, Hetherington and Kinsman 2006; Kowalski & Phillips 2003; Kyriacou 2016; Leary, Kowalski & Phillips 2003; Madfis 2017; Vossekuil et al 2000), it could be that the behavior of those *who reject* evidences "individualism gone wrong," as they mock and belittle others in attempts to punctuate and elevate their own status and self-worth.

A third example that may suggest "individualism gone wrong" is offered by Kravetz (2017), who examined the dynamics of social contagion to understand the social forces behind a series of suicides in Palo Alto, CA. Kravetz defines social contagion as "…the ways in which others influence our lives through catchable thoughts, emotions and behaviors" (author's note, x), which he argues are neither inherently negative nor inherently positive but contribute to the spread as well as the alleviation of social problems.

In the case of this suicide cluster, Kravetz reasoned that it was the particular culture of Palo Alto as a place of high achievement and innovation as well as extreme social pressure to succeed, all of which stem from the philosophy of individualism, that contributed to the problem. After the first suicide, word spread about the deceased and their life and circumstances, and the phenomena spread to lend to the deaths of eight other students in a four-year period. Following his analyses, Kravetz (2017) wrote, "(g)iven the infectiousness of thoughts, the stickiness of the most subtle of emotions, and the transmissibility of others' behaviors…(we must) take better stock of the invisible forces that sway us…" (author's note, xii).

Explaining the insights gained from Nicholas Christakis, director of the Human Nature Lab at Yale, Kravetz states, "(i)t's difficult to quantify how much of what we do is achieved by our own volition versus what we unknowingly pick up from others…We can't comprehend the number of social contagions that we pick up in a given day, let alone across a lifespan...(but) decades of research shows that social contagions are so powerful that they shape the landscape of every domain of our lives. And this hidden system of influence…connects us all." (29). Key to all of this is the idea of social connectedness.

Future studies should examine whether and how cultural ideas about individualism, incidences of "individualism gone wrong," and mechanisms of social contagion could offer explanatory power in stud-

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ies of violence in schools. The concept of social contagion may also shed light on why some individuals decide to commit violence while others do not. This concept may also be useful to explore how we come to collectively view the threat of violence in schools and appropriate means of responding, which then have bearing on the actions taken by educational institutions and law enforcement.

By examining these social forces, individual culpability is not removed; however, it is moderated. And it is that moderation that will free up some of our focus to more broadly consider the relevance of the larger social context to violence in schools.

CONCLUSION

Overall, the current focus on individuals, as viewed through the lenses of psychology and criminal justice, detracts from the ability to see and address the big picture of violence in schools. This is because attention is primarily drawn to only the most visible manifestations of violence, as that is where these disciplines' tools equip them to look. But, as I have argued here, the problem of violence in schools does not originate in schools; it only manifests there.

Limiting our vantage point to the assessment and identification of would-be offenders in school environments, taking action to punish offenders and remaining in a defensive stance of "violence prevention" are unlikely to net us the results we seek, which are reduced rates of violence of schools. This is why psychology and criminal justice can only take us so far and why there is a need for more research and praxis on this topic to adopt the lens of sociological social psychology.

The comments of Spokane County Sheriff Ozzie Knezovich after a school shooting in September 2017 offer poignant insight on applying that lens. Knezovich provided commentary on social forces that he believes are to blame, namely the ubiquity of violent behavior in media. He decried the media's practice of reporting heavily on school shootings and said it lends to a "school-shooting culture," which was believed to be a factor in the actions of the teen perpetrator. Knezovich continued, "This young gentleman got sucked into a counterculture, a culture of violence…And you media, you're to blame for it. You keep using headlines. You keep giving them names."

When asked about the teen's access to the firearms used in the shooting, Knezovich said, "…I carried a gun all my life. I hunted, I shot. My friends and I, when it's hunting season back home, when I was in high school, every one of those rigs has a gun in the gun rack. Why? We went hunting on the way home. None of those guns ever walked into school. None of those guns ever shot anybody. You start glorifying cultures of violence. You glorified gang culture. You glorified games that are actually giving points for…killing people. A gun did not change, we changed." (Spokesman, n.d.)

Knezovich's comments suggest that American society shoulders collective accountability for the violence in our society and, ultimately, in our schools. He argues that social fascination with violent images has created a culture of violence, and he differentiates that culture from that which he knew as a young man, which involved more access to weapons and more freedom with how they were used but less inclination to use them against other people. By sketching out this picture, Knezovich, in effect, offers a theory about how these social influences come together to lend to heightened collective fascination with violence in American society and increase individuals' inclination to look to violence as a viable means of problem-solving. Knezovich's comments also indirectly suggest the value of multidisciplinary collaboration in this field, which is echoed in the literature (for example, Harris & Harris 2012).

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There may be particular value in converging the lenses of social psychology and criminal justice. Together, these perspectives provide an interesting framework for viewing social problems. Social context is elevated in importance; individual actions are examined in context; evidence is likely to be sought from a broader array of sources at micro-, meso- and macro-levels; individual diagnoses are no longer sought; and solutions are likely to more effectively address the collective as well as affected individuals because of the collaborative focus on the social order and the many and complex factors that contribute to sustaining it.

Of course, social psychology, like all disciplines, has its limitations. Adopting a broader vantage point may obscure, at least temporarily, specific individual-level factors that warrant closer attention. But that's exactly the goal…to redirect focus to the collective and broaden what we look for, what we are able to see, and what new solutions come into view when we examine the phenomenon of school violence.

Schools are and should remain an important context for studies and prevention efforts; however, the onus is not on schools alone. Recalling the notion of positive social contagion, Kravetz (2017) calls for us to "…spread a catchable sense of personal responsibility for one another in a world that demands so much of it." (author's note, xii, emphasis added). American society as a whole is implicated in this social problem and, therefore, must be considered as a whole as we reassess the field of possible actions and solutions.

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Chapter 94
Status of Play Therapy Research

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ABSTRACT

With today's focus on evidence-based treatment (EBT) for children, play therapists are ethically responsible to identify and deliver effective interventions as well as synthesize the considerable body of play therapy research to support their practice and to advocate for play therapy as an evidence-base practice. Play therapists' ability to articulate research findings is particularly important as they consult with the adults in children's lives who make decisions regarding children's wellbeing including parents, teachers, school administrators and other professionals. This chapter aims to present an up-to-date comprehensive review and synthesis of contemporary play therapy research with a focus on studies employing randomized control group designs in order to provide play therapy practitioners with a guide to understanding and utilizing the substantial research base for play therapy.

STATUS OF PLAY THERAPY RESEARCH

With an increased focus on evidence-based treatment (EBT) for children, play therapists are ethically bound to identify and deliver appropriate and effective interventions. In addition, play therapists are charged with the responsibility of understanding and using the considerable body of play therapy research to support their practice and to advocate for play therapy as an evidence-base treatment for childhood disorders that interfere with children's day to day functioning. Play therapists' ability to articulate research findings is particularly important as they consult with the adults in children's lives who make decisions regarding children's wellbeing including parents, teachers, school administrators and other professionals.

National focus on the shortage of adequate mental health services for children (Center for Disease Control, CDC, 2013; Mental Health America, MHA, 2013; President's New Freedom Commission on Mental Health, 2003; U.S. Public Health Service, 2000), along with the evidence-based movement has heightened attention on disseminating information about EBT's for treating childhood mental health

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disorders and resulted in several texts (Baggerly, Ray, & Bratton, 2010; Chorpita, et al., 2011; Reddy, Files-Hall, & Schaefer, 2016; Russ & Niec, 2011; Silverman & Hinshaw, 2008; Weisz & Kazdin, 2010) and websites (California Evidence Based Clearinghouse, CEBC, 2016; evidencebasedchildtherapy.com, 2015; Society of Clinical Child and Adolescent Psychology, SCCAP, 2016; National Center for Education and Evaluation, NCEE, 2016; SAMHSA National Registry of Evidence-Based Programs and Practices, NREPP, 2016) aiming to guide professionals to provide child interventions with evidentiary support. Although, with the exception of Baggerly et al. (2010) and evidencebasedchildtherapy.com (2015), these sources have paid little attention to play therapy interventions for children despite decades of research that supports the evidence base for play therapy.

Despite increased advocacy and research foci on providing EBT's for children over the past two decades, the number of children who go untreated continued to increase over this millennium (CDC, 2013; MHA, 2013; NCCP, 2014; U.S. Census Bureau, 2015). One possible explanation is the lack of currently recognized EBT's that are responsive to the developmental needs of children (Weisz & Kazdin, 2010; Bratton, 2015). Play therapy is widely recognized as a developmentally responsive mental health intervention for children (Landreth, 2012; Schaefer, 2011), yet continually criticized for lack of empirical support (Phillips, 2009; Russ & Niec, 2011). Our goal for this chapter is to respond to this misperception by presenting a comprehensive review of the evidence base for play therapy. Through synthesis of contemporary meta-analytic and systematic reviews and summaries of individual play therapy outcome studies meeting criteria for methodological rigor and treatment protocol, this chapter provides play therapy practitioners with a guide to understanding and utilizing the substantial research base for play therapy.

Contemporary Meta-Analytic and Systematic Reviews

Responding to previous lack of recognition of play therapy as an EBT, contemporary play therapy researchers have developed and disseminated a) comprehensive systematic reviews of outcome research (Bratton, 2010; Bratton, 2015; Bratton, Landreth, & Lin, 2010; Bratton & Ray, 2000; Landreth, 2012; Landreth & Bratton, 2006; Ray, 2011; Ray & Bratton, 2010; Ray & Bratton, 2015; Ray & McCullough, 2015), b) meta-analyses of controlled research studies (Bratton et al., 2005; LeBlanc & Ritchie, 2001; Lin & Bratton, 2015; Ray, Armstrong, Balkin, & Jayne, 2015), and c) online searchable play therapy research database (evidencebasedchildtherapy.com).

Meta-analyses and systematic reviews of controlled outcome studies are widely recognized as two of the most robust methods of evidentiary support for identifying evidence-based practices (Rubin, 2008). Researchers have conducted four meta-analytic reviews of play therapy in the 21st century. Bratton et al. (2005) conducted the largest meta-analysis of play therapy research to date which included a total of 93 controlled outcome studies spanning five decades. Play therapy, including filial therapy, demonstrated a large overall treatment effect (.80). Bratton and colleagues reported moderate to large treatment effects across presenting issue and target outcomes. LeBlanc and Ritchie (2001) reviewed 42 outcome studies from the same time period as Bratton et al. and found a moderate treatment effect (.66) for play therapy including filial therapy. Both Bratton et al. (2005) and LeBlanc and Ritchie (2001) identified parental involvement and duration of treatment as significant factors impacting children's treatment outcomes. Bratton et al. (2005) further pointed out that early studies in the field of play therapy were limited by lack of scientific rigor and recommended that contemporary play therapy researchers adhere to stringent research designs, sound methodology, and reporting guidelines.

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Additionally, two meta-analyses (Lin & Bratton, 2015; Ray et al., 2015) were recently published focusing exclusively on the efficacy of child-centered play therapy (CCPT) approaches. Utilizing rigorous hierarchical liner modeling (HLM) methods, Lin and Bratton (2015) investigated the overall treatment effect of CCPT approaches including child-parent relationship therapy (CPRT)/filial therapy from a total of 52 controlled outcome studies published between 1995 and 2010. Findings demonstrated a statistically significant overall effect size of .47, indicating a moderate treatment (Lipsey & Wilson, 2001) effect for CCPT intervention. Using random effect model methodology, Ray et al. (2015) conducted a meta-analysis on the efficacy of CCPT conducted in elementary schools and included a total of 23 controlled outcome studies from 1975 to 2011. Results demonstrated a statistically significant effect sizes for outcome variables, including externalizing problems ($d = 0.34$), internalizing problems ($d = 0.21$), total problems ($d = 0.34$), self-efficacy ($d = 0.29$), and academic progress ($d = 0.36$).

In effort to further explore the empirical support for play therapy, researchers have conducted several comprehensive systematic reviews. Due to space limitations, we include reviews published since 2010. Bratton (2010) reviewed 51 school-based play therapy intervention outcome studies published 1990 to 2009 conducted by mental health professionals ($n = 30$) or specially trained and supervised paraprofessionals ($n = 21$) and concluded that school-based play therapy demonstrated beneficial effects for a range of childhood disorders. Bratton reported that 75% of the investigations reviewed were conducted since 2000 which indicated a 100% increase compared to the previous 5 decades of research published on school-based play therapy. Ray and Bratton (2010) reviewed 25 experimental and quasi-experimental studies published 2000 to 2009 investigating impact of play therapy conducted by a mental health professional. Compared to their previous review of six decades of play therapy research (Bratton & Ray, 2000), Ray and Bratton (2010) concluded that methodological rigor and research productivity made considerable increases during the 21st century. Bratton (2015) conducted a systematic review, limited to randomized controlled trials (RCTs) in play therapy, and found 24 RCTs published since 2000 that met stringent inclusion criteria. Bratton offered a thorough review of strengths and limitations of the research base for play therapy and concluded that play therapy had strong evidentiary support to condone its use as an effective mental health intervention for children.

In 2015, Ray & McCullough in association with Association for Play Therapy (APT) published an evidence-based practice statement for play therapy, providing a comprehensive review of play therapy research and categorizing play therapy research into an evidentiary hierarchy pyramid from most credible research design (meta-analyses and systematic reviews) to least credible research design (case reports). Ray and McCullough reviewed 42 outcome studies published between 2000 and 2015, of which 21 were randomly controlled trials, 5 were quasi-experimental studies, 5 were single-case designs, and 11 were repeated measures single group designs.

The most comprehensive review of contemporary play therapy outcome research studies to date is accessible from an online data base at evidencebasedchildtherapy.com. The data base includes studies published 1995 to present and was created by Bratton, Dafoe, Swan, Opiola, McClintock, and Barcenas (2015) in association with the Center for Play Therapy (CPT) at the University of North Texas to provide a continually up-to-date means of accessing and disseminating the evidentiary support for play therapy as well as to serve as an international clearinghouse for play therapy research. As of this writing, the database includes 96 published studies, representing a total of 3,937 child participants. Of which, 73 studies were conducted by U.S. researchers and 23 studies were produced by researchers outside of the U.S. Publication patterns reveal a considerable increase in publications from 33 outcome research studies published 1995 to 2005 to 63 outcome studies published since 2006. The search and sort features allows

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viewers to examine the effects of play therapy by theoretical model, setting, research design, presenting issue/outcome variable, publication year, and author. To date, one-half of the included studies employed the gold standard in research methodology, randomized controlled group design (n = 48), with remainder of outcome studies investigating play therapy's effects using non-randomized controlled designs (n = 20), repeated measures single group designs (n = 19), and single case experimental designs (n = 9). Majority of studies are research investigations of the efficacy of CCPT (n = 44) and CPRT (n = 31), which is a CCPT model in which CPRT-trained therapists instruct and directly supervise parent and other significant caregivers, e.g. teachers and mentors in CCPT principles and skills. Other theoretical models represented include Adlerian play therapy (n = 3), cognitive behavioral play therapy (n = 3), sandtray play therapy (n = 3), activity play therapy (n = 4), theraplay (n = 3), gestalt play therapy (n = 2), and other/eclectic play therapy approaches (n = 3). A database sort by outcome variable reveals studies investigating play therapy's effectiveness on global behavior problems (n = 45 studies), externalizing problems (n = 39), internalizing problems (n = 31), caregiver-child relationship (n = 31), socio-emotional functioning (n = 16), self-concept (n = 12), trauma/attachment (n = 9), academic/language (n = 6), and development (n = 4).

Four additional reviews were conducted, narrowing systematic literature search to focus on specific theoretical models of play therapy. Landreth (2012) and Ray (2011) provided comprehensive research reviews of published and unpublished studies in their respective texts focused exclusively on CCPT approaches, independently concluding that CCPT research demonstrates sound evidence for its effectiveness with a variety of childhood disorders and presenting concerns. Landreth (2012) included 53 CCPT and CPRT studies 1995 to 2010 and Ray (2011) included 62 CCPT studies 1947 to 2010. Bratton et al. (2010) focused on CPRT, a filial play therapy intervention, in a comprehensive literature review of 32 controlled outcome studies published from 1995 to 2009. According to the APA standard for EBT's (Silverman & Hinshaw, 2008), Bratton et al. (2010) concluded that CPRT met criteria to be recognized in the "promising" or "probably efficacious" ranking categories as an EBT for childhood disorders. More recently, Ray and Bratton (2015) conducted a systematic review of 13 school-based CCPT studies that met stringent criteria for experimental research design and concluded that CCPT resulted in positive outcomes for academic achievement, disruptive behaviors including aggression and ADHD, internalizing behavior problems, speech, and functional impairment across diverse populations of children.

Several conclusions can be made from the results of these meta-analyses and systematic reviews regarding the research base and efficacy of play therapy. Research findings support play therapy as a developmentally responsive and viable intervention for a range of childhood disorders in real-world settings, particularly in schools. Play therapy demonstrates beneficial effects on childhood outcomes in relatively few number of sessions (10-13 sessions on average). Involving caregivers in children's play therapy treatment produces stronger outcomes, i.e., filial therapy/CPRT methodology. Authors reported notable improvements to contemporary play therapy research methods including larger sample sizes, manualized treatment protocols and procedures to ensure treatment fidelity, standardized assessments of child outcomes, and randomization to treatment groups. Despite communicating encouragement in the advancement in quality and quantity of play therapy research, authors unanimously called for the advancement of play therapy research by employing more stringent research methods and increasing productivity in order to elevate the credibility and dissemination of play therapy research.

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Individual Outcome Studies

For the purpose of reporting on the current status of play therapy research, we conducted a comprehensive online and offline review of controlled outcome research studies published since 2000 to identify studies that demonstrated methodological rigor. Randomized controlled trials (RCT's) are typically referred to as the "gold standard" research design to determine treatment efficacy (Nezu & Nezu, 2008). Thus, in effort to conduct a rigorous systematic review of the play therapy literature, we decided to only review studies that used random assignment of participants to treatment groups. Inclusion criteria which further refined our search included: a) intervention was identified as play therapy, b) participants were children between the ages of 2 and 12; c) studies were published since 2000; d) studies were conducted by researchers in the United States; e) studies were published in English in a peer-reviewed journal or book; f) studies reported child outcome variables and used standardized assessments; g) studies provided descriptive information about the play therapy intervention and participants, and as noted previously, h) intervention used a randomized, control group design. Although studies conducted by non-U.S. research teams were excluded for the purpose of this review, there is a growing body of play therapy research being conducted internationally.

Studies coded as using randomized group assignment included block and stratified randomization to control for extraneous variables such as school or location in the case of multiple research sites, classroom environment, and to accommodate participants' schedules. The primary reasons for excluding studies from the final review was lack of random assignment to treatment groups and failure to meet the requirement for the intervention to be identified as "play therapy." Consistent with previous meta-analyses and systematic reviews of play therapy research, we restricted studies to those that used the term "play therapy" to describe the experimental treatment and appeared to meet the definition provided by the Association for Play Therapy (APT). APT defines play therapy as "the systematic use of a theoretical model to establish an interpersonal process wherein trained play therapists use the therapeutic powers of play to help clients prevent or resolve psychosocial difficulties and achieve optimal growth and development" (APT, 2016). Due to filial therapy's historical and current recognition as a play therapy intervention (L. Guerney, 1983; O'Connor & Schaefer, 1994, Schaefer, 2011), we included studies using child-centered filial therapy methodology.

Twenty-six studies meeting criteria are summarized in Table 1. We coded studies according to theoretical model/intervention type and control group type. Intervention models included 11 individual CCPT, 5 group CCPT, 8 child-centered filial therapy using the CPRT model, 1 individual Adlerian play therapy (AdPT), and 1 group sandtray play therapy. Consistent with previous systemic reviews of play therapy research (Bratton, 2015; Ray & Bratton, 2010), there remained a noticeable absence of research on other play therapy interventions using theoretical models traditionally used in child therapy, for example, Gestalt, Jungian, ecosystemic, prescriptive, existential, experiential, cognitive-behavioral, and theraplay (O'Connor & Braverman, 2009; Schaefer, 2011). Although the majority of studies reviewed utilized a no treatment control group (i.e., waitlist/delayed start control; n = 14), a noticeable shift in 21st century play therapy research is employing research designs that include active control (n = 8) or comparison treatment groups (n = 4).

We reported only original study data in instances where studies used duplicate participant data including follow-up studies. All but one investigation reported treatment providers' training, a significant improvement from Bratton et al.'s (2005) review. Except for CPRT studies in which paraprofessionals (i.e., parents, teachers, mentors) provided intervention under the direct supervision of a CCPT and CPRT/

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Table 1. Experimental Play therapy research – randomized controlled studies

Study	Intervention Model/ Control Group Type # Sessions Frequency; Length Setting *Treatment provider	Sample Age Ethnicity Sex	Child Outcome Variable/ Target Problem	Findings
Baggerly & Landreth. (2001)	Modified CPRT / WC 10 play sessions 1/wk; 20 min School *CPRT-trained 5th- grade mentors	N = 29 Behaviorally at-risk students Age: 5-6; M=5.7 76% Cauc, 14% AfAm, 10% Lat 58% male	Internalized Behavior Problems; Self-esteem	Compared to the waitlist control, teachers and parents of experimental group children did not report statistically significant differences between groups across time. Results indicated positive trends in the adjustment of children who received the 10 weekly play sessions facilitated by peer mentors trained in modified CPRT. Further analysis of the experimental group's scores pre to post showed that according to parent report, children demonstrated statistically significant improvement in externalizing and delinquent behavior problems and child demandingness. *Companion study to Robinson, Landreth, & Packman, 2007.
Blanco, Muro, Holliman, Stickley, & Carter (2015)	CCPT / WC 16 sessions 2/wk; 30 min School	N = 59 Academically at-risk 1st graders Age: 6-7; M=6.5 69% Cauc, 17% Lat, 7% AfAm, 2% Asian, 5% other 53% male	Academic Achievement; Anxiety	Compared to the waitlist control group, children in the CCPT group demonstrated statistically significant increase in early achievement scores (YCAT). Additionally, children in the CCPT group demonstrated statistically significant lower mean scores on anxiety. Compared to the waitlist control group, children in the CCPT group demonstrated no significant difference on achievement test scores (WJIII ACH) between the groups.
Blanco & Ray (2011)	CCPT / WC 16 sessions 2/wk; 30 min School	N = 41 Academically at-risk 1st graders Age: M=6.4 46% Cauc, 34% Lat, 17% AfAm 63% male	Academic Achievement	Compared to the waitlist control, children in the CCPT group demonstrated statistically significant improvement on a standardized achievement test which indicated an increase in children's overall academic abilities with a medium effect size. Post hoc analysis showed that both groups demonstrated statistically significant improvement from pre to post test, however the treatment effect for the CCPT group was twice as large as the control group.
Bratton et al. (2013)	CCPT / AC 20 sessions 2/wk; 30 min Head Start school	N = 54 At-risk, low-income Pre-K students Age: 3-4; M=4.1 42% AfAm, 39% Lat, 18% Cauc 67% male	Clinical Disruptive Behaviors	According to teachers who were blinded to treatment groups, the CCPT group demonstrated statistically significant improvements and large treatment effects on disruptive behaviors, attention problems and aggression, compared to the active control (Mentoring) group over three points of measure; 78% of children in CCPT moved from clinical levels of concern to more normative functioning following treatment in 1 or more areas of concern.

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Table 1. Continued

Carnes-Holt & Bratton (2014)	CPRT / WC 7 play sessions 1/wk; 30 min Community agency *CPRT-trained parents	N = 61 Adoptees Age: 2.5-10; M=5.7 47% Cauc, 15% Lat, 9% AfAm, 18% other 55% male	Attachment Difficulties; Clinical Comorbid Behavior Problems	Statistically significant findings and large treatment effects on all measures indicated the effectiveness of CPRT over the WC on 1) reducing adopted children's externalized behaviors and global behavior problems, and 2) increasing parental empathy as measured by objective raters blinded to the study.
Ceballos & Bratton (2010)	CPRT / WC 7 play sessions 1/wk; 30 min Head Start school *CPRT-trained parents	N = 48 At-risk, low-income PreK students Age: 3-4; M=4.3 100% Lat 56% male	Clinical Comorbid Behavior Problems;	Statistically significant findings and large treatment effects on all measures indicated the effectiveness of culturally-adapted CPRT over the WC on 1) reducing children's externalized and internalized behavior problems, and 2) decreasing parent-child relationship stress. 85% of children in the CPRT group moved from clinical levels of concern to more normative functioning. Cultural considerations discussed.
Cheng & Ray (2016)	Group CCPT / WC 15-16 sessions 2wk; 30 min School	N = 43 Kindergarten children Age: 5-6; M=5.1 44% Lat; 33% Cauc; 23% AfAm 70% male	Social-Emotional Functioning	Compared to the waitlist control group, children in CCPT group demonstrated statistically significant increases in parent reported total social-emotional functioning, social competence, and empathy with medium effect size. Teacher reports did not reveal statistically significant differences between groups.
Danger & Landreth (2005)	Group CCPT / AC (groups of 2) 25 sessions 1wk; 30 min School	N = 21 Speech-delayed PreK students Age: 4-6; M=4.9 81% Cauc; 19% Lat 86% male	Expressive Language; Receptive Language	Compared to the active control group (speech therapy), the CCPT group who also received speech therapy demonstrated non-statistically significant improvement from pre to post test with large treatment effects on receptive and expressive language and a small treatment effect on anxiety.
Fall, Navelski, & Welch (2002)	CCPT / WC 6 sessions 1/wk, 30 min School	N = 66 Special Educ. students Age: 6-10,; M=8.3 98.5% Cauc 64% male	Behavior & Social Problems	Case manager reports showed a statistically significant decrease for anxiety and social behaviors. Teachers' rating did not show statistically significant difference for classroom behaviors, anxiety, or social problems. No effect sizes were reported. Results also showed no statistically significant difference for self-efficacy.
Flahive & Ray (2007)	Group Sandtray / WC (groups of 3) 10 sessions 1/wk; 45 min School	N = 56 At-risk 4th-5th graders Age: 9-12 62% Lat, 9% AfAm, 28% Cauc 52% male	Comorbid Behavior Problems	According to teacher reports, children in the experimental group demonstrated statistically significant improvement on total behaviors with medium effect size. Parents' reports did not demonstrated statistically significant differences on overall behaviors with medium effect size. Parents and teachers' report demonstrated statistically significant differences on externalizing behaviors with medium effect sizes.

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Table 1. Continued

Garza & Bratton (2005)	CCPT / COMP 15 sessions; 1/wk; 30 min School	N = 29 Behaviorally at-risk students Age: 5-11; M=7.4 100% Lat 59% male	Comorbid Behavior Problems	According to parents who were blinded to children's treatment group, culturally-responsive CCPT demonstrated a statistically significant benefit (large treatment effect) on externalizing behavior problems compared to the COMP treatment (empirically-supported manualized guidance intervention). CCPT demonstrated a medium beneficial treatment effect on children's internalizing problems, although not a statistically significant difference. Cultural considerations discussed.
Jones & Landreth (2002)	CCPT / AC 12 sessions 3/wk; 30 min Diabetic Summer Camp	N = 30 Insulin dependent children Age: 7-11; M=9.4 87% Cauc; 3%AfAm; 7% Lat 57% male	Diabetes Adaptation; Behavior Problems; Anxiety	According to parent report, children in the CCPT group demonstrated a statistically significant improvement in diabetes adaptation compared to the AC (Diabetic camp activities). At follow-up, there was no statistical significant between group differences, but the CCPT group continued to show greater improvement. Both groups reported decreased anxiety and improvement in behavior problems.
Jones, Rhine, & Bratton (2002)	Modified CPRT/ COMP 20 play sessions 1/wk; 20min School *11-12th grade CPRT-trained mentors	N = 26 Behaviorally at-risk PreK to K Age: 4-6; M=5.4 96% Cauc 57% male	Comorbid Behavior Problems	Parents who were blinded to children's treatment group reported CPRT group children demonstrated a statistically significant decrease in internalizing and total behavior problems, compared to the COMP group, PALS®, which used a manualized curriculum. According to blinded raters' direct observation, CPRT mentors demonstrated a statistically significant improvement in empathic interactions with their child of focus compared to PALS® mentors.
Meany-Walen, Bratton, & Kottman (2014)	Adlerian PT / AC 16 sessions 2/wk; 30 min School	N = 58 Students with disruptive behavior Age: 5-9; M=6.4 48% Lat, 33% Cauc, 19% AfAm 79% male	Clinical Disruptive Behaviors	Compared to the AC (Mentoring), 1) AdPT participants demonstrated a statistically significant and moderate to large decrease in disruptive behavior as reported by independent raters and teachers blinded to children's group assignment; and 2) teachers reported a statistically significant decrease in stress in their relationship with students receiving AdPT.
Morrison & Bratton (2010)	CTRT / AC 16 wks Daily center time play Head Start school *CPRT-trained teachers	N = 52 At-risk, low-income PreK students Age: 3-4; M=3.9 56% Lat, 31% AfAm, 13% Cauc 58% male	Clinical Comorbid Behavior Problems	Compared to the AC (Conscious Discipline®) across three points of measure, teacher-adapted CPRT (CTRT) demonstrated statistically significant benefits and large treatment effect on children's externalizing behavior problems and moderate effect on internalizing problems; 84% of CPRT group children moved from clinical to normal functioning.
Ojiambo & Bratton (2014)	Group CCPT / AC (groups of 3) 16 sessions 2/wk; 30 min Ugandan orphanage school	N = 60 Ugandan orphans Age: 10-12; M=11.2 100% African 50% male	Comorbid Clinical Behavior Problems	According to teachers and housemothers who were blinded to treatment groups, Group CCPT demonstrated statistically significant improvement and moderate to large treatment effects on children's internalizing and externalizing behavior problems compared to the AC (Mentoring). Majority of children participating in CCPT moved from clinical concern to normal functioning following treatment.

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Table 1. Continued

Packman & Bratton (2003)	Group CCPT / WC (groups of 3) 12 sessions 1/wk; 1 hr School for Learning Differences (LD)	N = 24 Students diagnosed with LD Age: 10-12; M=11.4 92% Cauc; 4% Lat, 4% AfAm 75% male	Learning Differences; Comorbid Behavior Problems	According to parent report, Group CCPT demonstrated medium to large treatment effects on all outcome measures compared to the WC. The CCPT group demonstrated statistically significant improvement on internalizing problems as well as overall behavioral functioning compared with the WC. Between group differences were not significant for externalizing behaviors.
Ray et al. (2013)	CCPT / WC 12-16 sessions 2/wk; 30 min School	N = 37, Clinically impaired children Age: 5-8; M=6.3 38% Lat; 32% AfAm; 30% Cauc 78% male	Functional Impairment;	Phase I: CCPT demonstrated a medium treatment effect on children's functional impairment when compared to the WC, although between group differences were not statistically significant. Phase II (both groups received CCPT): within group difference indicated that children in both groups showed statistically significant improvement with large effect sizes as a result of CCPT.
Ray, Schottelkorb, & Tsai (2007)	CCPT / AC 16 sessions 2/wk; 30 min School	N =60 Students with ADHD symptoms Age: 5-11; M=7.5 35% Lat, 17% AfAm, 45% Cauc 80% male	ADHD;	According to teacher report, the CCPT group demonstrated statistically significant improvement on student characteristics, emotional lability, and anxiety/ withdrawal over the AC (Mentoring) group. No significant between group differences were found on children's ADHD symptoms. Post hoc within group analysis revealed that both groups demonstrated statistically significant improvement in ADHD, student characteristics, anxiety, and learning disability.
Schottelkorb et al. (2012)	CCPT / TF-CBT 17 sessions 2/wk; 30 min. School	N = 31 Refugees with trauma symptoms Age: 6-13; M=9.2 67.7% AfrAm; 16.1% Middle Eastern; 9.7% Asian; 6.5% Other 55% male	PTSD Symptom Severity	Results indicate both interventions, CCPT and TF-CBT (SCCAP evidence-based treatment for trauma symptoms), demonstrated a statistically significant reduction in PTSD symptom severity in a subset of study children who met stringent criteria for PTSD; findings indicate both treatments are equally effective for this population
Schumann (2010)	CCPT / COMP 12-15 sessions 1/wk; 30 min School	N = 37 aggressive K – 4th graders Age: 5-12; M=7.3 38% Lat, 24.4% AfAm, 37.8% Cauc 86% male	Aggression; Global Behavior Problems	According to parent and teacher report, Both CCPT and the COMP group (Second Step®, a SAMHSA evidence-based treatment) demonstrated statistically significant improvements in aggression, externalized problems, and internalized problems. Results indicate the effectiveness of both interventions for children identified with aggressive behavior. Qualitative feedback from parents was more positive for CCPT.
Sheely-Moore & Bratton (2010)	CPRT / WC 7 play sessions 1/wk; 30 min Head Start school *CPRT-trained parents	N = 23 At-risk, low-income Pre-K students Age: 3-5; M=4.2 100% AfrAm 62% male	Clinical Behavior Problems	Statistically significant findings and large treatment effects on all measures indicated the effectiveness of culturally-adapted CPRT over the WC on 1) reducing children's global behavior problems, and 2) decreasing parent-child relationship stress. Cultural considerations discussed.

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Table 1. Continued

Shen (2002)	Group CCPT / WC 10 sessions 2-3/wk; 40 min Taiwanese school	N = 30 Children at-risk for maladjustment following earthquake Age: 8-12; M=9.2 100% Taiwanese 47% male	Clinical Anxiety; Suicide Risk	Compared to the WC group, the CCPT group demonstrated statistically significant decreases in their overall anxiety, physiological anxiety, worry/ oversensitivity, and suicide risk. CCPT demonstrated large treatment effects on anxiety, worry, and oversensitivity and small to medium effect on reducing suicide risk.
Smith & Landreth (2004)	CTRT / WC 7 play sessions 1/wk; 30 min Preschool for Deaf *CPRT-trained teachers	N = 24 Deaf & hard of hearing Pre-K children Age: 2-6; M=4.1 33% Cauc; 42% Lat; 25% AfAm 54% male	Behavior Problems; Social-Emotional Functioning	Compared to the WC, 1) children whose teachers participated in teacher-adapted CPRT (CTRT) made statistically significant improvement in behavior problems and social-emotional functioning, and 2) CPRT-trained teachers demonstrated statistically significant gains in their empathic interactions with students according to direct observation by independent raters.
Stulmaker & Ray (2015)	CCPT / AC 15 play sessions 2/wk; 30 min School	N = 53 children who exhibited clinical or borderline levels of anxiety Age: 6-8; M = 6.5 45% Cauc, 21% AfAm, 19% Lat, 13% Biracial, 2% Asian 68% male	Clinical Anxiety	Compared to active control, CCPT demonstrated statistically significant decrease in worry and overall anxiety; treatment effects were large. Children in active control group increased their levels of anxiety and worry.
Yuen, Landreth, & Baggerly (2002)	CPRT / WC 7 play sessions 1/wk; 30 min Community agency *CPRT-trained parents	N = 35 Behaviorally at-risk immigrants Age: 3-10; M=6.4 100% Chinese Canadians 54% male	Comorbid Behavior Problems; Self-Concept;	Compared to the WC, the CPRT group demonstrated statistically significant improvements in 1) child behavior problems, parent-child relationship stress, and parental acceptance according to parent report, and 2) parental empathy according to raters blinded to treatment groups. CPRT group children also reported greater gains in perceived competence and social acceptance

Note: Control group type denoted by WC = waitlist control/delayed start, AC = active control, COMP = comparison treatment
AfAm = African American; Asian = of Asian descent living in U.S.; Cauc = Caucasian/European American; Lat = Latino/Hispanic
*Denotes play therapy intervention delivered by parent/teacher/mentor under direct supervision of a CPRT-trained play therapist

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filial therapy-trained play therapist (noted in Table 1), researchers reported treatment was provided by doctoral or master's level play therapists or advanced play therapy graduate students under the supervision of a professional play therapist. All studies were conducted in the United States or by U.S. research teams. Only 3 studies failed to report the use of manualized protocols; 12 followed CCPT protocol (Ray, 2011), 8 adhered to CPRT protocol (Bratton, Landreth, Kellam, & Blackard, 2006), 2 followed Group CCPT/Activity Therapy protocol (Ojiambo & Bratton, 2014), and 1 used AdPT protocol (Kottman, 2009). The majority of studies published since 2010 reported procedures for fidelity checks to ensure treatment integrity. Unless specified, active control and comparison groups participated in the same intensity and duration of intervention as the experimental group.

A large number of participants (total of 1087 with a mean of 42 participants per study), among the 26 studies reviewed, provides foundation to make several conclusions about play therapy based on the results of reviewing these studies. Outcome research indicated that children's participation in play therapy resulted in positive outcomes for externalized problems, disruptive behaviors, aggression, attention problems, internalizing problems, anxiety, academic achievement, speech problems, trauma symptoms, social emotional functioning, self-concept, co-morbid behavior problems and functional impairment. Table 2 provides a cross-reference of studies by target outcome variables.

Table 2. Cross-reference of Table 1 studies by target outcome variables

Child Outcome Variable/Target Problem	Studies
Internalized Problems including Anxiety	Baggerly & Landreth, 2001; Blanco et al., 2015; Ceballos & Bratton, 2010; Flahive, & Ray, 2007; Garza & Bratton, 2005; Jones et al., 2002; Morrison & Bratton, 2010; Ojiambo & Bratton, 2014; Packman & Bratton, 2003; Fall et al., 2002; Jones & Landreth, 2002; Shen, 2002; Stulmaker & Ray, 2015
Externalized Problems including Disruptive Behaviors, Aggression, ADHD	Ojiambo & Bratton, 2014; Bratton et al., 2012; Carnes-Holt & Bratton, 2014; Ceballos & Bratton, 2010; Flahive & Ray, 2007; Garza & Bratton, 2005; Meany-Walen et al., 2014; Morrison & Bratton, 2010; Ray et al., 2007; Ray et al., 2009; Schumann, 2010
Comorbid/Global Behavior Problems including Functional Impairment	Carnes-Holt & Bratton, 2014; Fall et al., 2002; Flahive & Ray, 2007; Jones et al., 2002; Packman & Bratton, 2003; Ray et al., 2013; Sheely-Moore & Bratton, 2010; Yuen et al., 2002
Trauma/Attachment/PTSD	Carnes-Holt & Bratton, 2014; Schottelkorb et al., 2012
Academic Achievement/ Speech Disorder	Blanco et al., 2015; Blanco & Ray, 2011; Danger & Landreth, 2005; Smith & Landreth, 2004
Social-Emotional Functioning	Cheng & Ray, 2016; Fall et al., 2002; Smith & Landreth, 2004
Self-Concept/Competence	Baggerly & Bratton, 2010; Yuen et al., 2002
Diabetes Adaptation	Jones & Landreth, 2002
Other Target Outcome Variables	Studies
Caregiver-Child Relationship Stress	Ceballos & Bratton, 2010; Sheely-Moore & Bratton, 2010; Yuen, Landreth & Baggerly, 2002
Caregiver Empathy	Carnes-Holt & Bratton, 2014; Jones et al., 2002; Smith & Landreth, 2004; Yuen et al., 2002

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Play therapy appeared effective across cultures including race, ethnicity, and gender. Majority of outcome studies included a diverse sample of ethnicities. Across the 26 studies, over 60% of the participants were non-Caucasian (27.3% Latina/o, 17.7% African American, 14.56% other/biracial/or international population, and 0.56% Asian American), 63% were male, and the vast majority of participants were identified as low-income. Play therapy's successful application across cultural groups is a unique feature of this intervention and is likely a factor of the large number of studies conducted in real-world settings, primarily low-income schools (n = 21). Participants' ages ranged from 2.5 to 13 years indicating play therapy's responsiveness to young children through preadolescence. In view of the shortage of EBTs for young children (Weisz & Kazdin, 2010), it is important to note that over 60% of studies reported a mean age of 6 and younger.

Findings also indicate that play therapy can be used as short-term intervention. The number of play sessions ranged from 7 to 25, with a mean of 13 and a mode of 16. The most frequently occurring format was 30-minute sessions conducted twice per week over approximately 8 weeks (total of 16 sessions) to conform to the needs of the school setting. Only 3 studies reported greater than 17 sessions. These findings represent a noticeable discrepancy from the meta-analytic results of Bratton et al. (2005) and LeBlanc & Ritchie (2001) who reported similar findings indicating optimal number of sessions ranging from 30 to 40 sessions. For the CPRT/filial therapy studies, we indicated session number as the total sessions in which children participated in CCPT-based therapeutic play sessions with their caregivers (mean = 7 sessions) in accordance with CPRT treatment manual and protocol (Bratton et al., 2006). Unless otherwise specified, caregivers and mentors participated in 10 two-hour group CPRT training sessions in addition to conducting 7 play sessions with their child.

The majority of included studies did not report direct caregiver (i.e., parent or teacher) involvement as a component of treatment (n = 16). This finding is due to the large number of school-based CCPT studies following CCPT protocol. Consistent with the foundational philosophical principle of CCPT, that children inherently possess the capacity to experience inward healing and develop coping strategies given the context of a safe and accepting therapeutic relationship, play therapy research supports that children are capable of demonstrating change in emotional and behavioral functioning without direct systemic intervention. Among EBT's recognized for young children under the age of 5 years old, there is a considerable dearth of early mental health interventions that do not require full parental participation (Weisz & Kazdin, 2010; SCAPP, 2016). This finding that young children are capable of change in therapy without direct intervention with caregivers addresses a gap in available EBT's for young children and, furthermore, positions play therapy as a particularly suitable intervention in school settings where it may be difficult to engage parents (Ray et al., 2015). However, the findings from the eight CPRT/filial play therapy studies included in this review, along with meta-analytic research results (Bratton et al., 2005; LeBlanc & Ritchie, 2001) and systematic literature reviews (Bratton et al., 2010; Bratton, 2015), demonstrate that including caregivers in the play therapy process results in stronger outcomes in fewer number of sessions than traditional individual play therapy.

Several well-designed play therapy outcome studies were omitted from this review based on failing to meet the inclusion criteria we established, due to: a) lack of randomization resulting from legitimate constraints of conducting clinical research in real world settings (e.g., Ray, Blanco, Sullivan, & Holliman, 2009; Shen, 2007); b) measuring caregiver-child variables without reporting child outcome variables (e.g., Lee & Landreth, 2003; Ray et al., 2007). Summaries of these studies and others omitted from the present review including studies employing non-randomized control group, single group, and single case experimental designs can be viewed at evidencebasedchildtherapy.com. Similar to previous

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literature reviews (Bratton, 2010; Bratton, 2015; Ray & Bratton, 2010; Ray & Bratton, 2105), we did not include RCT studies that failed to identify child intervention as play therapy, e. g. Parent-Child Interaction Therapy (PCIT; Eyberg, Nelson, & Boggs, 2008), Incredible Years (IY; Webster-Stratton, C., Reid, M., & Hammond, M., 2004), and Child Parent Psychotherapy (CPP; Lieberman, Van Horn, & Ghosh Ippen, 2005) and that had not been included in major contemporary texts on play therapy approaches (O'Connor & Braverman, 2009; Schaefer, 2011). Empirically-supported, play-based interventions that did not meet the criteria established for this review can be found in Reddy, Files-Hall, and Schaefer (2015) and Russ and Niec (2011).

Although individual studies included in this review demonstrated beneficial outcomes on a variety of childhood outcomes, play therapy research noticeably lacks replication and follow-up studies. Replication of well-designed studies targeting specific populations and outcomes, preferably by independent research teams (Chorpita et al., 2011), are needed to further confirm the efficacy of play therapy. Follow-up studies are essential to evaluate maintenance of therapeutic gains and provide information regarding adequate length of treatment relative the sample population. Furthermore, none of the studies reviewed involved multi-site sampling which could increase sample sizes and allow for greater generalizability of findings.

CONCLUSION

In today's climate of managed care and cost-control, mental health professionals are facing more pressure than ever before to deliver evidence-based intervention. In addition to the increased pressure from managed care systems to engage in evidence-based practice, play therapists are also challenged to serve as advocates for the profession in order to promote play therapy as an effective intervention for children who present with myriad difficulties that interfere with their day to day functioning. The current status of play therapy research demonstrated through this chapter's careful review of the most rigorous contemporary studies as well as meta-analytic and systematic reviews of the play therapy research literature indicates that play therapy can be considered an evidence-based approach for responding to the mental health needs of children. Although, as in all research, limitations exist, the body of research findings reviewed for this chapter shows that play therapy is a developmentally responsive and culturally sensitive intervention for children that has extensive scientific evidence to support its efficacy in a variety of settings and across a broad range of presenting concerns and childhood disorders. The empirical support for play therapy's effectiveness across diverse populations of children and its application in real-life settings are particular strengths. It is our hope that play therapists will use the research summaries provided in this chapter to support and defend their own practice as well as advocate for the profession of play therapy as they interact with adults who make decisions regarding children's holistic wellbeing.

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KEY TERMS AND DEFINITIONS

Child Parent Relationship Therapy (CPRT): A filial play therapy approach in which a CPRT-trained mental health professional trains and directly supervises parents/caregivers in the principles, attitudes and skills of child-centered play therapy (CCPT).

Controlled Outcome Research: Research conducted to study treatment effectiveness using a control group design and examining pre to posttest differences, at a minimum, to measure between group differences over time.

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Early Mental Health: A term that conveys the holistic view of young children's cognitive, emotional, social, and behavioral functioning, typically between the ages 2 to 9 years old.

Evidence-Based Treatment: A mental health approach that has been recognized by a governing body as an approach with rigorous controlled outcome research to support its effectiveness.

Filial Therapy: A play therapy approach based on the principles of child-centered play therapy (CCPT) that fosters parents/caregivers to become therapeutic agents in their children's lives.

Meta-Analysis: A research method used to investigate overall treatment effectiveness for a particular intervention by combining treatment effects on specific outcomes across multiple controlled research studies employing the target intervention.

Play Therapy: A developmentally-appropriate mental health intervention for children in which play is acknowledged as children's natural medium of communication and play therapists strive to provide an environment for children in which they can feel fully heard, understood, and unconditionally accepted by returning responsibility, encouraging children's self-directed process, facilitating creativity, and utilizing therapeutic limit setting and choice giving.

Randomized Controlled Trials: Experimental research studies using random group assignment to determine the effectiveness of a treatment compared to a control group by examining pre to posttest differences to measure between group differences over time.

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Chapter 95
User Needs and Limitations of Existing Mobility Devices: A User Perspective

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ABSTRACT

The use of gait assistive devices, although can provide precious help can also have limitations or adverse consequences. The performance of daily activities is partially restrained by a series of factors having to do with the assistive device limitations or the limitations emerged from environmental causes. Valid and reliable assessment tools to classify and clarify their limitations or users' satisfaction do not exist. An extended literature search was performed for some of the most commonly mentioned assistive device limitations or dissatisfaction reasons and identified the most appropriate tools to be able to study such limitations and conclude in valid outcomes. A study was conducted in a rehabilitation hospital using the IPA, EQ5D and SF-12 tools. The size of the sample combined with the uncertainty related to the satisfaction of normal distribution prerequisite, led to use several statistical analysis tools and methodologies. A summary of the results from both the literature review and the real case study on a mixed group of mobility aid users are presented in the paper.

INTRODUCTION

The use of gait assistive devices, although can provide precious help for the elderly (Cetin, Muzembo, Pardessus, Puisieux & Thevenon, 2010) or the mobility-impaired, can also have limitations or adverse consequences. Studies show that 30% to 50% of people prescribed with a gait assistive device abandon their device soon after receiving it, mainly because they do not meet the needs of individuals. In one survey, almost half of the reported problems were associated with the difficulty or risk to use the prescribed device (Bateni & Maki, 2005). Another study reveals that 58.3% of knee osteoarthritis patients abandon the mobility aid due to adverse outcome and feeling of stigmatization (Akinbo, Sokunbi & Ogunbameru,

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2008). According to (Lezzoni, Rao & Kinkel, 2009) the vast majority of persons with multiple sclerosis (MS) own more than one type of mobility aids. Persons with MS appear to "mix and match" different devices to suit their specific mobility needs. Canes and crutches are prescribed for people with moderate levels of mobility impairment, and walkers are prescribed for people with generalized weakness, poor lower-limb weight bearing, debilitating conditions, or poor balance control, while wheeled walkers are favored for patients with Parkinson disease (Minor & Minor, 2013).

Some of the most commonly mentioned assistive device limitations or dissatisfaction reasons, as mentioned by users and health scientists, are: (1) handling the rollator gait assistive device (Brandt, Iwarsson & Ståhl, 2003; Hallén, Orrenius & Rose, 2006), (2) the weight of the device (Brandt, Iwarsson & Ståhl, 2003; Hallén, Orrenius & Rose, 2006; Hill, Goldstein, Gartner & Brooks, 2008), (3) the brake-use of rollator devices (Thomas et al., 2010), (4) users are prone to falling because of the dependence on memory to activate the rollator's parking mechanism, (5) the inability of the current rollator to effectively park when the braking mechanism is engaged (Siu et al., 2008), (6) social stigmatizing (association with aging and physical decline) (Hallén, Orrenius & Rose, 2006) (Hill, Goldstein, Gartner & Brooks, 2008; Thomas et al., 2010; Resnik, Allen, Isenstadt, Wasserman & Iezzoni, 2009), and (7) upper-extremity pathologies because of the extended use of walking aids (i.e. tendonitis, osteoarthritis, and carpal tunnel syndrome) (Bateni & Maki, 2005).

It is evident from the above that the performance of daily activities by device-assisted walkers is partially restrained by a series of factors having to do with the assistive device limitations or/and the limitations emerged from environmental causes. Nowadays, there is no valid and reliable assessment tool able to identify and classify the limitations of walking aids or the users' satisfaction. One of the most common instruments used in the bibliography is the Quebec User Evaluation of Satisfaction with assistive Technology - QUEST 2.0. QUEST 2.0 was designed to measure the level of satisfaction attribute to assistive technologies. It does so by using variables that are scored in terms of perceived importance and satisfaction (Demers, Weiss-Lambrou & Ska, 2000; Demers, Monette, LaPierre, Arnold & Wolfson, 2002; Koumpouros, Karavasili, Papageorgiou & Siavelis, 2016). However, being a generic assessment tool, some potential items, relevant to specific pieces of technology or delivery systems, are absent. For example, for gait assistive devices, the information extracted is limited to describing the satisfaction level of the user in terms of certain aspects (dimensions, safety feeling, effectiveness, etc.) (Demers, Weiss-Lambrou & Ska, 2000). Thus, it cannot be used to point out specific problems or limitations to be exceeded. In our study, we tried to identify the right tools in order to measure the limitations of the most commonly used mobility aids (rollator, frame walker and crutches) from a user perspective.

METHODOLOGY

The study was conducted in a Greek rehabilitation hospital, and utilized semistructured individual interviews for data collection, using a combination of already valid and reliable tools.

Patient Selection

In order to understand the user needs of assistive gait devices and get an impression about their limitations, we interviewed 20 people (8 males and 12 females) depended on mobility aids. The participants were grouped in two main categories: (1) rehabilitation group (the ones that were undertaken rehabilita-

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tion at the time of the study), and (2) the elderly group (the ones aged over 65 years old and did not need rehabilitation). 9 of the participants were currently engaged in rehabilitation and the rest 11 where older adults. According to the inclusion criteria, all subjects should fall under the following categories: (1) being users of a mobility aid for at least four weeks, (2) had no or moderate mental impairment [scored more than 17/30 at the Mini Mental State Examination - MMSE], and (3) had a moderate motor impairment [subject is unable to stand up and sit down unassisted on a standard chair (standardised 100% leg length) without problem, 5-chair stand >16,7 sec and gait speed >0.6 m/sec unassisted].

Tools Selection

Since there is no single tool able to capture the desired data of the current research study, we conducted a thorough survey of the literature in order to identify the most proper ones. Three questionnaires (the Impact on Participation and Autonomy - IPA, the EuroQol EQ-5D - EQ5D and the 12-item Short Form Health Survey - SF-12) were finally chosen from a wide variety of tools, as considered to best match the goals of our research, which are to understand gait-assistive-device user needs and get an impression about the limitations of their mobility aids. Our choice was based on the fact that the EQ5D and the SF-12 are among the most commonly used and the most widely evaluated measures of Quality of Life (QOL). The IPA questionnaire was mainly chosen because of the extensive variety of the described aspects of daily activities, analyzing not only the mobility dimension but also the whole spectrum and needs of the mobility aid users. The advantage of comments by the user on every separate dimension was also taken into consideration since data that could not have been foreseen were allowed to enter, especially data that could lead to a detailed description of problems/limitations of the used mobility aids. The main advantage of generic instruments is that they are suitable for use across a broad range of health problems and that they can also be used with healthy populations to generate normative data that can be used to compare different patient groups (University of Oxford) (for example, as in our case, patients undergoing rehabilitation and elderly people). Disease-specific questionnaires were excluded from the beginning since some of the volunteers would be considered a healthy population and the rehabilitation group did don't face with only one specific disease. Apart from the QUEST 2.0 (which does not fulfil the needs of detailed and extended users' evaluation of mobility aids), there is no other valid and reliable assessment tool able to identify and classify the mobility aids' limitations and the user's satisfaction. Moreover, although QUEST 2.0 could provide valuable data, in our case (three different categories of mobility aids used by the volunteers) could probably lead to collecting insufficient data for all categories of mobility aids. Concluding, information on user needs and limitations of the used mobility aids was extracted from a combination of the three questionnaires. EQ5D, SF-12 and IPA (in this order) are of gradually increasing complexity and specification, all including at least one sector referring to mobility issues but without being narrowed to it.

Tools

EQ5D Questionnaire

The EuroQol EQ-5D is a two-part, generic, preference-based measure of Health-related quality of life (HRQOL) developed by a multidisciplinary consortium of investigators from five European countries (EuroQol, 1990). As a generic tool, rather than being aimed at one particular disease or treatment, it is

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designed for use across a wide range of health interventions (Brooks, 1996). The revised version of the instrument, which has become the most widely used HRQOL instrument for obtaining health state utilities (Whynes, McCahon, Ravenscroft, Hodgkinson, Evley & Hardman, 2013), addresses five domains: mobility, self-care, usual activities, pain/discomfort, and anxiety/depression. A dimension for which there are no problems is said to be at level 1, while a dimension for which there are extreme problems is said to be at level 3. The second part of the EQ-5D consists of a vertical 0 to 100 Visual Analog Scale (VAS), with 0 and 100 representing the worst and best possible health states, respectively. The EQ-5D is a self-report easily completed questionnaire (Stahl, Jansson, Jonsson, Svensson, Lundback & Andersson, 2003; Nilsson, Wenemark, Bendtsen & Kristenson, 2007; EuroQol, 2007). Validity and reliability of the instrument has been tested among the general population and a variety of clinical conditions and for countries inside and outside the European Union (De Smedt et al., 2013; Ware Jr, Kosinski & Keller, 1996; Soer, Reneman, Speijer, Coppes & Vroomen, 2012; Hurst, Kind, Ruta, Hunter & Stubbings, 1997; Yfantopoulos, 2001; Kontodimopoulos, Pappa, Niakas, Yfantopoulos, Dimitrakaki & Tountas, 2008; Papadopoulos, Ikonomakis, Kontodimopoulos, Frydas & Niakas, 2007).

The SF-12 Short Form Health Survey

The SF-12 Health Survey (Ware Jr, Kosinski & Keller, 1996) is a multipurpose short form survey with 12 questions, all selected from the 36-item Short Form Health Survey (SF-36 Health Survey) (Ware, Snow, Kosinski, Gandek & Institute, 1993). The SF-12 and the original SF-36 health survey have been translated into several languages by the International Quality of Life Assessment Project (IQOLA) (Hoffmann et al., 2005). The SF-12, as a brief and reliable measure of overall health status, is often included in substantial population health surveys (Vilagut et al., 2013). The 12 items instrument is summarized in two indices exploring the physical health (physical component summary - PCS-12) and the mental health (mental component summary - MCS-12) (Pezzilli et al., 2006). The benefit of reduced administration time and the ability to validly measure physical and mental components makes the SF-12 a reliable outcomes tool (Globe, Levin, Chang, Mackenzie & Azen, 2002). The SF-12 is weighted and summed to provide easily interpretable scales for physical and mental health. The data obtained with the SF-12 has been developed, tested and validated in several studies (Utah Department of Health, 2001; Gandek et al., 1998; Fong et al., 2010; Kontodimopoulos N., Pappa, Niakas & Tountas, 2007; De Smedt et al., 2013; Globe, Levin, Chang, Mackenzie & Azen, 2002; Rubenach, Shadbolt, McCallum & Nakamura, 2002; Lim & Fisher, 1999; Vilagut et al., 2013). However, for the purpose of our study, since we are looking for the needs of gait assistive device users and the limitations of their mobility aids, we focused on the item-by-item qualitative information that can be extracted, rather than the overall scaled data that can only provide general (physical and mental) health status information.

IPA Questionnaire

The outcome measure “Impact on Participation and Autonomy - IPA” was developed in 1999 by (Cardol, de Haan, van den Bos, de Jong & de Groot, 1999). According to the developers, it is a generic outcome measure that can be used in populations or with individuals with a range of diagnoses. Rather than focusing on ability or capacity, the IPA questionnaire focuses on autonomy and participation of people with chronic disorders. The IPA questionnaire examines autonomy as opposed to dependency, by measuring several aspects of participation. Participation, can be defined as “the involvement of an

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individual in life situations in relation to health conditions, body function and structures, activities and contextual factors" (Cardol, de Jong & Ward, 2001) or as "persons' own lived experiences of their involvement in a life situation" (WHO, 2001). That is a new concept in the context of the World Health Organization's classification of health outcomes and has replaced the concept "handicap" (WHO, 1980). The IPA questionnaire quantifies limitations in participation and autonomy and examines the extent to which these limitations are experienced as "problematic". The IPA has been validated in several cases (Sibley, Kersten, Ward, White, Mehta & George, 2006; Cardol, de Haan, de Jong, van den Bos & de Groot, 2001; Vazirinejad, Lilley & Ward, 2003; Kersten, Cardol, George, Ward, Sibley & White, 2007).

PROCEDURE

The volunteers were officially informed about the purpose and the procedures of the research through a written form and were also asked to sign a consent form. At the next step, they were given the questionnaires above: the IPA, the EQ5D, and the SF-12. The questionnaires were given in random order to prevent any order effect. The subjects completed the forms following the clear guidelines, with the presence and, if required, with the explanations/assistance of a physical therapist. Whenever needed, the assisting physical therapist would either read or explain the questions to the volunteer, avoiding using other phrases than the ones used in the questionnaire. As far as the IPA questionnaire is concerned, wherever the tool foresaw open-ended questions (in the form of comments), the assistant reviewed the previous questions (for which the comments were asked). Maximum completion time of the three questionnaires was approximately 35 minutes.

STATISTICAL ANALYSIS

For the purpose of statistical analysis, the Statistical Package for Social Sciences (SPSS, version 20) was used. The size of the sample (N=20) combined with the uncertainty related to the satisfaction of normal distribution prerequisite, led to use of non-parametric tests such as Wilcoxon–Mann–Whitney and Kruskal-Wallis non-parametric ANOVA in the event of comparison between groups of participants with quantitative measurements.

In cases where values are discretional, for the purpose of patients' groups' comparison Exact (Significance) Tests for Contingency Tables were used. In the event of multiple comparisons, a Z-Test was used for comparing whose results are noted on the respective tables. Statistical significance for all the above tests was determined at p=0.05.

RESULTS

The current section presents the results of the measurements that took place in a rehabilitation center in Greece. The five domains of the EQ-5D were answered by the participants regarding the level of significance for each one of them. Figure 1 presents the findings from the EQ-5D questionnaire.

The mean scores of the EQ-5D VAS [Kruskal Wallis chi-square ($df = 2$, $N = 20$) = 0.31, $p = 0.86$] are presented in Table 1.

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Figure 1. EQ-5D dimensions

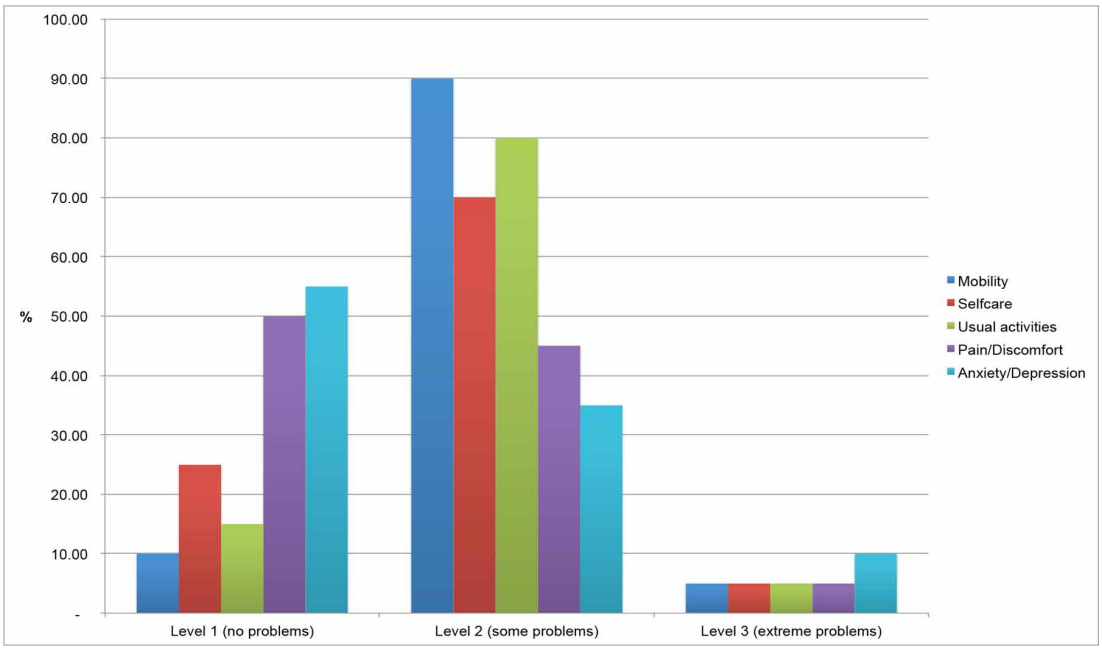

Table 1. Means and standard deviations of EQ-5D VAS scores in three walking aids groups (N=20)

Mobility Aid	Mean	N	Std. Deviation
ROLLATOR	67,14%	7	9,94%
CRUTCHES	62,50%	4	15,00%
FRAME WALKER	63,89%	9	25,47%
Total	64,75%	20	18,53%

Table 2 presents the category frequencies of the SF-12 items. All participants answered the SF-12 questions taking into account their health status as it was the last 30 days (when supported by the mobility aid).

Table 3 presents detailed data on the category frequencies of SF-12 questions for the two groups of participants (rehabilitation patients group and elderly group) per walking aid. Table 4 presents the analytical findings on the means and standard deviations of IPA subscales for both groups per walking aid.

Note (for Table 3 and 4): Values in the same row and subtable not sharing the same subscript are significantly different at $p< 0.05$ in the two-sided test of equality for column proportions. Cells with no subscript are not included in the test (this category is not used in comparisons because its column proportion is equal to zero or one). Tests assume equal variances (tests are adjusted for all pairwise comparisons within a row of each innermost subtable using the Bonferroni correction).

Detailed frequency distribution of the IPA questions is presented in Table 5 and 6.

The referred comments from the frequency distributions of the IPA open questions were coded and categorized into six main domains (see Figures 2, 3 and 4).

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Table 2. Category frequencies of SF-12 questions

		Count	%
In general, would you say your health is:	Excellent	2	10,0%
	Very Good	5	25,0%
	Good	6	30,0%
	Fair	4	20,0%
	Poor	3	15,0%
Moderate activities, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf	Yes, limited a lot	13	65,0%
	Yes, limited a little	6	30,0%
	No, not limited at all	1	5,0%
Climbing several flights of stairs	Yes, limited a lot	8	40,0%
	Yes, limited a little	9	45,0%
	No, not limited at all	3	15,0%
Accomplished less than you would like	NO	10	50,0%
	YES	10	50,0%
Were limited in the kind of work or other activities	NO	6	30,0%
	YES	14	70,0%
Accomplished less than you would like	NO	10	50,0%
	YES	10	50,0%
Did work or other activities less carefully than usual	NO	13	65,0%
	YES	7	35,0%
During the past four weeks, how much did pain interfere with your regular work (including both work outside the home and housework)	Not at all	11	55,0%
	A little bit	3	15,0%
	Moderately	5	25,0%
	Extremely	1	5,0%

DISCUSSION

Even though no significant differences in the mean scores of the EQ-5D VAS were found among users of different types of mobility aids [Kruskal Wallis chi-square (df=2, N=20)=0.31, p=0.86], participants that use a rollator as a mobility aid (N=7) characterize their health state with relative higher scores than the ones that use the other two mobility aids (crutches N=4, frame walkers N=9) (see Table 1). An explanation to this could be that those using a rollator may have comprehended their health situation (as a lifetime status), while the others (using crutches or frame walkers) are in a psychological situation that cannot still accept their health status. Persons belonging in the latter category are on the edge of independent living, and this may be a criterion of continuous thoughts about their health status and agony about not being entirely independent of mobility aids. That is also in line with the fact that 90% of the subjects face depression and anxiety symptoms (Figure 1).

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Table 3. Category frequencies of SF-12 questions

		Mobility Aid									
		Rollator		Crutches		Frame		Elderly Group		Rehab Group	
		Count	%	Count	%	Count	%	Count	%	Count	%
SF_12_2b Climbing several flights of stairs	Yes, limited a lot	2_a	28,60	2_a	50,00	4_a	44,40	3_a	27,30	5_a	55,60
	Yes, limited a little	3_a	42,90	2_a	50,00	4_a	44,40	6_a	54,50	3_a	33,30
	No, not limited at all	2_a	28,60	1	0,00	1_a	11,10	2_a	18,20	1_a	11,10
SF_12_3a Accomplished less than you would like	NO	3_a	42,90	2_a	50,00	5_a	55,60	5_a	45,50	5_a	55,60
	YES	4_a	57,10	2_a	50,00	4_a	44,40	6_a	54,50	4_a	44,40
SF_12_3b Were limited in the kind of work or other activities	NO	2_a	28,60	1_a	25,00	3_a	33,30	4_a	36,40	2_a	22,20
	YES	5_a	71,40	3_a	75,00	6_a	66,70	7_a	63,60	7_a	77,80
SF_12_7 During the past four weeks, how much of the time has your physical health or emotional problems interfered with your social activities (like visiting friends, relatives, etc.)?	All of the time	1	0,00	1_a	25,00	1	0,00	1_a	9,10	1	0,00
	Most of the time	1_a	14,30	1_a	25,00	1_a	11,10	3_a	27,30	1	0,00
	Good bit of the time	1	0,00	1	0,00	1	0,00	1	0,00	1	0,00
	Some of the time	1_a	14,30	1	0,00	4_a	44,40	2_a	18,20	3_a	33,30
	Little of the time	1	0,00	1	0,00	1_a	11,10	1_a	9,10	1	0,00
	None of the time	5_a	71,40	2_a	50,00	3_a	33,30	4_a	36,40	6_a	66,70

Table 4. Means and standard deviations of IPA subscales

	Mobility Aid																
	Rollator			Crutches			Frame			Elderly Group				Rehab Group			
	M	Median	SD	M	Median	SD	M	Median	SD	M	Median	N	SD	M	Median	N	SD
Autonomy indoors	$1,27_a$	1,43	0,69	$0,71_{ab}$	0,71	0,58	$0,60_b$	0,43	0,45	$0,69_a$	0,57	11	0,51	$1,06_a$	1	9	0,71
Family role	$1,92_a$	2,14	1,06	$1,75_a$	1,57	0,67	$1,78_a$	1,86	0,4	$1,82_a$	1,86	11	0,73	$1,83_a$	1,86	9	0,72
Autonomy outdoors	$1,60_a$	1,4	0,87	$1,85_a$	1,8	0,3	$1,58_a$	1,6	0,95	$1,60_a$	1,6	11	0,72	$1,69_a$	1,6	9	0,93
Social life	$0,24_a$	0,14	0,24	$0,14_a$	0,14	0,16	$0,44_a$	0,29	0,44	$0,19_a$	0,14	11	0,25	$0,46_b$	0,29	9	0,4
Work education	$1,43_a$	1,83	0,95	$2,04_a$	2,08	0,83	$2,06_a$	2	1,3	$1,95_a$	2	11	1,29	$1,69_a$	1,67	9	0,85

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Table 5. Frequency distributions of IPA questions (N=20)

	0	1	2	3	4	Total	%
	Count	Count	Count	Count	Count	Count	Score 3-4
@1a	9	6	5	0	0	20	0%
@1b	10	6	4	0	0	20	0%
@1c	1	5	7	6	1	20	35%
@1d	1	2	2	8	7	20	75%
@1e	3	9	7	1	0	20	5%
@2a	6	1	12	1	0	20	5%
@2b	5	4	9	2	0	20	10%
@2c	10	9	1	0	0	20	0%
@2d	10	9	1	0	0	20	0%
@2e	12	6	1	0	1	20	5%
@2f	5	13	2	0	0	20	0%
@3a	2	4	7	5	2	20	35%
@3b	8	3	4	4	1	20	25%
@3c	2	3	4	7	4	20	55%
@3d	4	4	6	4	2	20	30%
@3e	2	0	6	6	6	20	60%
@3f	3	2	8	6	1	20	35%
@3g	2	10	8	0	0	20	0%
@4a	15	3	1	0	1	20	5%
@4b	17	3	0	0	0	20	0%
@5a	8	5	4	3	0	20	15%
@5b	7	7	6	0	0	20	0%
@6a	18	1	1	0	0	20	0%
@6b	19	0	0	0	1	20	5%
@6c	19	0	1	0	0	20	0%
@6d	15	4	1	0	0	20	0%
@6e	17	2	1	0	0	20	0%
@6f	11	7	1	0	1	20	5%
@6g	8	3	6	2	1	20	15%
@6h	7	10	3	0	0	20	0%
@7a	12	5	2	1	0	20	5%
@7b	13	4	3	0	0	20	0%
@8a	1	5	3	5	6	20	55%
@8b	2	3	5	3	2	15	33%
@8c	10	1	2	2	0	15	13%
@8d	8	0	3	4	0	15	27%

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Table 5. Continued

	0	1	2	3	4	Total	%
	Count	Count	Count	Count	Count	Count	Score 3-4
@8e	2	2	2	4	5	15	60%
@8f	2	5	8	0	0	15	0%
@9a	10	6	1	1	2	20	15%
@9b	10	9	1	0	0	20	0%
@10	7	9	3	1	0	20	5%

Table 6. Frequency distributions of IPA questions per walking aid group

		Mobility Aid					
		Rollator		Crutches		Frame	
		Count	%	Count	%	Count	%
@1a	0	2_a	28,6%	1_a	25,0%	6_a	66,7%
	1	1_a	14,3%	3_a	75,0%	2_a	22,2%
	2	4_a	57,1%	0^1	0,0%	1_b	11,1%
@1b	0	3_a	42,9%	1_a	25,0%	6_a	66,7%
	1	1_a	14,3%	3_a	75,0%	2_a	22,2%
	2	3_a	42,9%	0^1	0,0%	1_a	11,1%
@1c	0	1_a	14,3%	0^1	0,0%	0^1	0,0%
	1	2_a	28,6%	0^1	0,0%	3_a	33,3%
	2	1_a	14,3%	3_a	75,0%	3_a	33,3%
	3	3_a	42,9%	1_a	25,0%	2_a	22,2%
	4	0^1	0,0%	0^1	0,0%	1_a	11,1%
@2c	0	2_a	28,6%	2_a	50,0%	6_a	66,7%
	1	5_a	71,4%	2_a	50,0%	2_a	22,2%
	2	0^1	0,0%	0^1	0,0%	1_a	11,1%
@2d	0	1_a	14,3%	$2_{a,b}$	50,0%	7_b	77,8%
	1	5_a	71,4%	2_a	50,0%	2_a	22,2%
	2	1_a	14,3%	0^1	0,0%	0^1	0,0%
@3a	0	1_a	14,3%	0^1	0,0%	1_a	11,1%
	1	1_a	14,3%	3_b	75,0%	0^1	0,0%
	2	3_a	42,9%	0^1	0,0%	4_a	44,4%
	3	1_a	14,3%	1_a	25,0%	3_a	33,3%
	4	1_a	14,3%	0^1	0,0%	1_a	11,1%

Note: Values in the same row and sub-table not sharing the same subscript are significantly different at $p<0.1$ in the two-sided test of equality for column proportions. Cells with no subscript are not included in the test (this category is not used in comparisons because its column proportion is equal to zero or one). Tests assume equal variances (tests are adjusted for all pairwise comparisons within a row of each innermost subtable using the Bonferroni correction).

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According to the findings of Table 2, the vast majority of mobility aid users (95%) reported limitations in moderate activities (such as moving a table, pushing a vacuum cleaner, etc.), while 65% of them were "limited a lot". Moreover, a high percentage (85%) of the users reported having limitations at climbing several flights of stairs, and 70% were limited in work or other activities as a result of their physical health condition.

According to the data of Table 3, no significant differences were noticed for the selected items. However, as seen at the SF-12, item 7, problems regarding social activities were least frequently mentioned by rollator users (N=5, 71.4%), and more frequently by crutches users (N=2, 50%) and frame users (N=3, 33.3%). Another interesting finding is the 2b item of the SF-12 (limitations when climbing several flights of stairs), where rollator users that answered "not limited at all" are significantly more than frame and crutches users giving the same answer. The results revealed that both groups present similarly high percentage of limitations when climbing several flights of stairs (elderly group N=9, 81.8% and for the rehabilitation group N=8, 88.9%), as it was anticipated due to their overall health condition. However, the elderly (N=3, 27.3%) reported being "limited a lot" significantly less frequently than the rehabilitation participants (N=5, 55.6%).

Table 4 shows that all participants score high rates (0=very good, 1=good) at "social life" subscale, with the elderly group scoring significantly higher rates (M=0.190) than the ones from the rehabilitation group (M=0.46). At the remaining subscales, group differences are not significant. Both groups score high rates at the "social life" and "autonomy indoors" subscales. On the mobility type-based grouping, frame-walker users score significantly higher rates at "autonomy outdoors" subscale (M=0.60) than the rollator ones (M=1.27). No significant differences between the two groups were noticed for the remaining subscales.

According to the findings of Table 5, as it was expected, mobility aid users report severe limitations in activities including outdoor transportation (1d, 3e, 1c), indoor role fulfilment (3a, 3c, 3f) and job-related problems (8a, 8b, 8e). Rollator users reported more significant difficulties in moving around the house. 57.1% of them stated having fair chances of getting around in the house, while all crutches users and 88,9% of frame walker users state to have "very good" or "good" chances of achieving it. The vast majority of the participants (95%) claimed to have "very good" or "good" chances of getting up and going to bed whenever they decide to. Depending on the mobility aid, frame users have significantly better chances of answering "very good" at the IPA_2c question than rollator users. Although 95% of all participants have "very good" or "good" chances of going to the toilet when they wish or need, significant differences appear between rollator users and frame users. As seen at IPA_2d, rollator users have 14.3% chances of answering "very good" at the question, while the respective percentage for frame-walker users reaches 77.8%. For question IPA_3a (my chances of contributing to looking after my house the way I like are), most of the answers for frame-walker users (44.4%) and rollator users (42.9%) were "fair", and no other significant differences for the two groups were found.

More than half of the participants (55%) mentioned difficulties when attempting other activities while using their mobility aid. These difficulties mostly affected frame-walker users (88.9%), while rollator and crutches users were affected at a percentage of 28.6% and 25% respectively. Insecurity while walking on uneven surfaces was mentioned from 50% of the sample. This sense was reported by 71.4% of rollator users, while frame walker users and crutches users reported it as a percentage of 44.4% and 25% respectively. Difficulties in transferring objects were mentioned from 40% of the sample. This restriction mainly concerned frame walker users (77.8%), while for rollator users it affects only 14.3% of them. On the other hand, 55.6% of the rehab group reported the same difficulty. Sit-to-stand transfers are reported

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as a difficult task or as an insecurity-causing task by 25% of the sample. Insignificant differences exist between mobility aid groups and rehabilitation/elderly categorizations. Finally, crutches users (15%) were the only group that mentioned "sense of insecurity while walking on slippery surfaces, independent of the group they were belonging.

No significant differences were found at "autonomy outdoors" subscale scores of the IPA questionnaire between the three answer categories of the SF_12_2b item, despite the interesting differences observed. These differences describe smaller autonomy level (M=2.00) for those who answered: "Yes, limited a lot" compared to those who answered "No, not limited at all" (M=0.80). Referring to the correlations between 3a and 3b (agreement or disagreement in both questions 3a & 3b of SF-12) and the question 10 of IPA, this was also found insignificant (p=0.08). Mobility aid users that answered "Yes" at both 3a and 3b questions mentioned a lower level (35% scored "2" or "3" at IPA_10 item) compared to those who answered "No" at both 3a and 3b questions (0% scored "2" or "3" at IPA_10 item). That means that those who accomplished less than they would like and were also limited in their work or other activities as a result of their physical health had worse chances of living life the way they want to.

Even though it is significant for a group of older adults with mobility impairments to use the frame walker, it has been observed a difficulty to take the stairs or go up and down on a slope while using the walker. That may occur because of two primary reasons: (1) they are physically too weak to accomplish the previously mentioned functions, and therefore they need assistance from another person, and (2) the design of walkers themselves is not functional for the previous activities. Our results are in line with another study that recommends an improved walker design for older adults (Cherng-Yee Leung & Po-Chan Yeh, 2008).

Figure 2. Frequency distributions of IPA open questions (N=20)

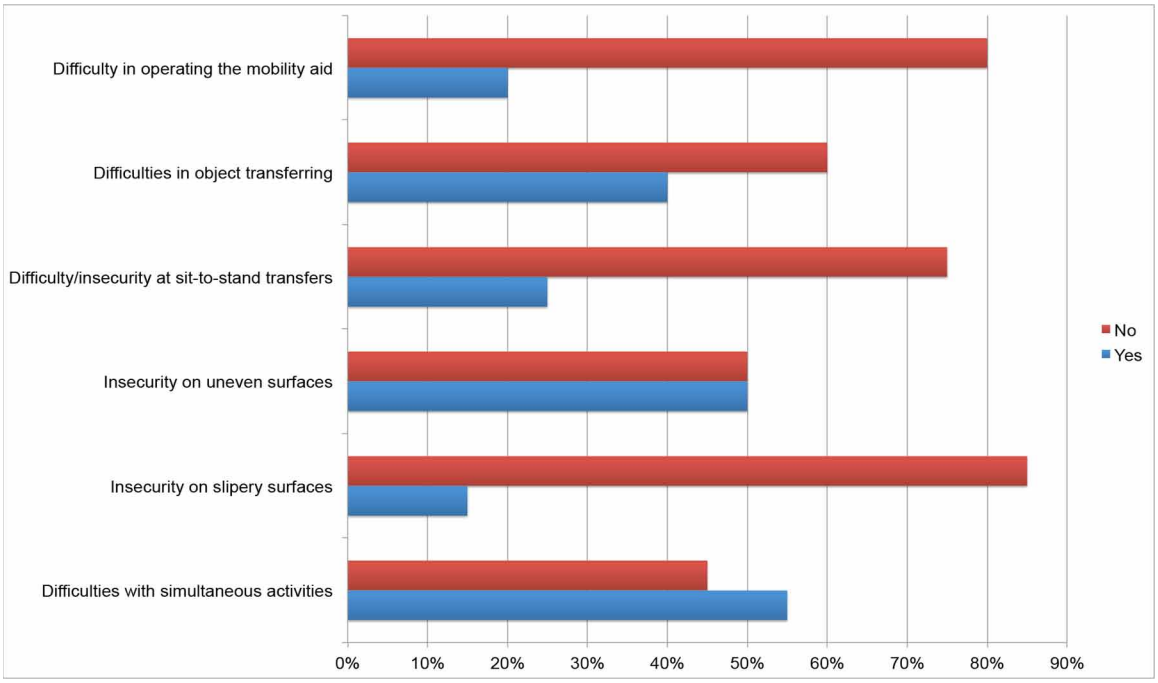

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Figure 3. Frequency distributions of IPA open questions per walking aid group

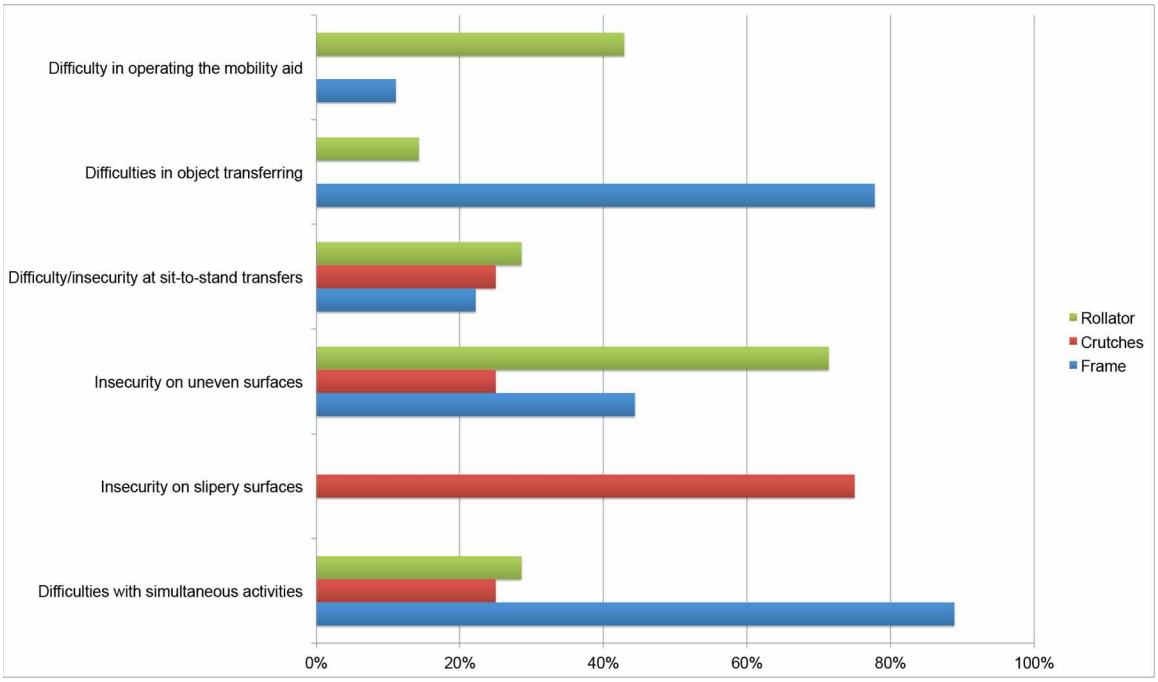
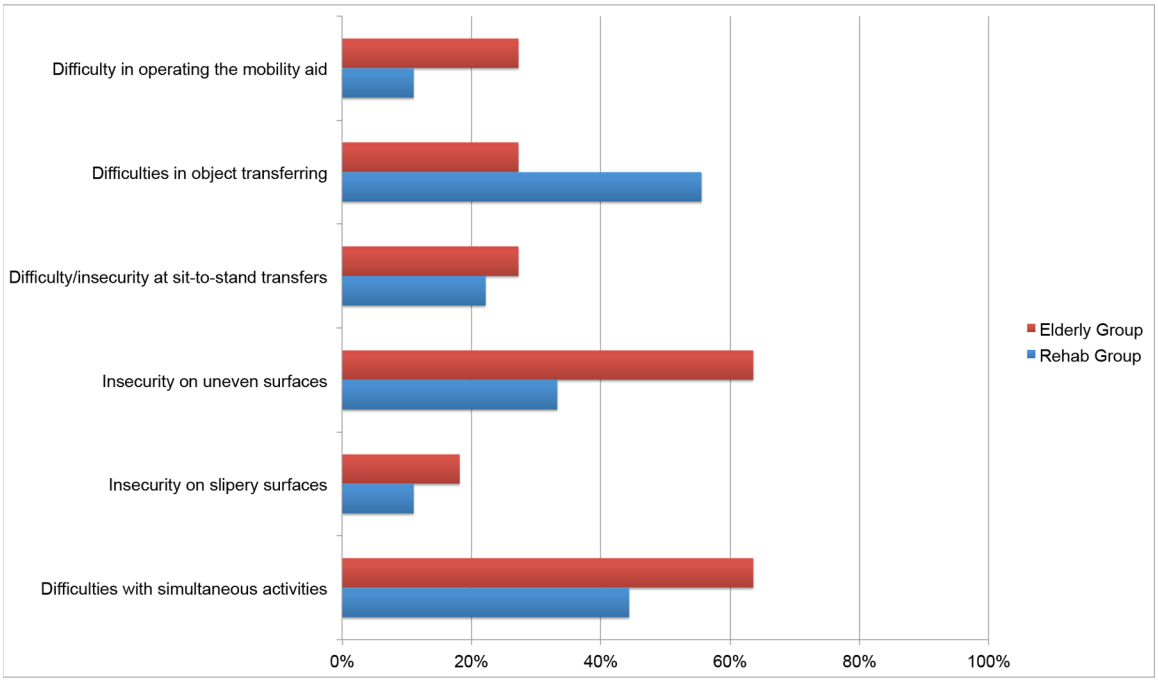


Figure 4. Frequency distributions of IPA open questions for the rehabilitation group and the elderly group



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Apart from all the above, many other issues are related to the dangers associated with mobility aids. For example, it is possible that the act of lifting the mobility aid (referring to walking frames) can lead to instability in the same way that lifting the foot can cause the Centre of Mass (COM) to fall toward the unsupported side during unassisted gait. By suddenly reducing the Base of Support (BOS), lifting the device could create a state of imbalance in which the COM lies outside the BOS limits. Moreover, the tendency of the walking frame to tip increases with the magnitude of the applied horizontal force and with the height of the walker (Bateni & Maki, 2005). When it comes to gait speed, the use of any walking aid, in particular walkers, results in slower gait speed and requires considerably more energy and cardiovascular fitness than walking unassisted (Martins, Frizera-Neto, Urendes, dos Santos, Ceres & Bastos-Filho, 2012). Also, as mentioned by (Cetin, Muzembo, Pardessus, Puisieux & Thevenon, 2010), with a fixed frame walker, Physiological Cost Index (PCI) was higher in a weakened elderly individual due to heart rate increase and lower walking speed. Several studies have found that use of a mobility aid is a prospective predictor of increased risk of falling in older adults or is associated with falls and related injuries. Furthermore, it appears that frame-walker-related injury can occur as a result of contact and/or "catch" of the mobility aid with environmental objects, such as carpets and doorframes that would not usually be considered obstacles (Bateni & Maki, 2005). Fall-related injuries among older adults are also associated with substantial social and economic costs (Solway, Brooks, Lacasse & Thomas, 2001; Beaupre, Jones, Johnston, Wilson & Majumdar, 2012; Stevens, Thomas, Teh & Greenspan, 2009). There is little evidence to suggest whether the use of a walking aid alone leads to this risk or if it is related to the decreased level of physical function, increased frailty, and poorer general health that users of walking aids may have. However, inappropriate walking aid prescription, inadequate training of the user and un-prescribed use of walking aids are likely to exacerbate the problem (Thomas et al., 2010).

According to the findings of the research, it is crucial to provide new technological solutions to support the needs and overcome most of the problems faced by mobility aid users. Apart from the underlying pathology, mobility aids have been proved crucial for the everyday living of their users. The adoption of some technological innovations could enhance the performance and the acceptance rate of the already existing mobility aids. To this end, several new functionalities could be proved valuable for the mobility aid users. More specifically, sit-to-stand support seems to be crucial for most of the users, while a mobility aid that could enhance the safety feeling when moving around slippery and uneven surfaces is also considered critical. Apart from the above, according to open-ended interviews we had with the participants, another critical issue identified was to support them in navigating in unknown spaces. Functionalities that could support them to reach the mobility aid when it is at a distance could also provide great support. Finally, providing help when it comes to climbing stairs is valuable, whereas the existence of sitting support while walking is also considered extremely helpful.

The functionalities above can be implemented using the latest robotics and human-computer interaction techniques. In this direction, there are some recent examples of experimental prototypes that utilized audio-gestural controls, navigation functionality and an actuated robotic rollator (Koumpouros et al., 2017a; Efthimiou et al., 2016; Fotinea et al., 2014). However, further research is required in the above directions in order to conclude in marketable products (lightweight, low cost and highly aesthetics) that can support mobility aid users more efficiently and intuitively. A critical point in the development and further enhancement of mobility aid devices is the successful evaluation of all phases (research, design, development, market entering). However, as already stated in the Introduction section of the paper, no single instrument can capture the subjective satisfaction of the end users. A recent effort in this direc-

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tion proposes a newly developed tool called PYTHEIA with encouraging results (Koumpouros, 2016; Koumpouros et al., 2016; Koumpouros, Papageorgiou & Karavasili, 2016).

Although our sample size can be considered adequate for reasoning, it is rather small, thus limiting the statistical power of our study. In order to generalize the findings a more significant sample is necessary. Moreover, the study was designed in only one center. A multi-center or even multi-country approach would add significant value.

CONCLUSION

The current study attempted to reveal mobility aid user needs and limitations of the most commonly used mobility aids. The user evaluation of assistive devices has been proved to be very challenging (Koumpouros et al., 2017a; Koumpouros et al., 2017b; Efthimiou et al., 2016). A bibliographic survey followed by a real case study on a small size of the population with specific characteristics (mobility aid users, rehabilitation patients or older adults, independent of any associating disease). From the beginning of our searching a necessary assumption was made: the concept of "user needs", being mandatorily unable to be separated from every single dimension that could claim a portion of existence in every individual's needs spectrum will have –as mandatorily- to be described as a multi-dimensional, broad and complex field. Trying to reach conclusions on the relationships between all these complex data (social, psychological, mental, and biological) that will come up whenever entering this field would be a duty that exceeds the capabilities -although not the interests- of this attempt. We attempted, instead, by using three different valid questionnaires that try to extract from very general to precise information, to cover many aspects of self-perceiving ones' mobility and overall condition. Using multi-dimensional questionnaires helped us consider the full spectrum of user needs and at the same time to correlate data from different dimensions (e.g. mobility limitations and social life). From the EQ5D questionnaire very general limitations on physical, mental and social functionality can be confirmed and classified. The SF-12 questionnaire includes some targeted questions from which user needs can be specified in more details, exploring in a more detailed level the physical and mental dimensions of QOL. Finally, the more extended IPA questionnaire, has a range of specified questions which cover nine different aspects of participation and autonomy (such as mobility, activities in and around the house, etc.) and also has predicted open-ended comments for each different aspect, allowing user-derived information and ideas on needs and limitations (in general and also in specific for mobility aids, if they exist) to enter the form. Recent studies reveal the lack of appropriate instruments to measure and assess the subjective opinion of users of assistive devices (Koumpouros, 2016) while proposing new tools to this direction (Koumpouros, Papageorgiou & Karavasili, 2016; Koumpouros, Papageorgiou, Karavasili & Koureta, 2016). It is evident that there is a great need for better, more intuitive and adaptable mobility aid devices capable of covering the needs of their end users in the modern era.

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Chapter 96
An Examination of Selfish and Selfless Motives:
A Review of the Social Psychological and Behavioral Economics Literature

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ABSTRACT

Current behavioral economics/game theory and social psychology literature have been captivated by the idea of altruism and egoism. In large part, these two disciplines have tried to determine the foundation of selfish and selfless behavior, without much result. The current chapter examines the root issues associated with this inquiry and argues for a shift in attention towards factors associated with cooperation. As such, empirical research from both disciplines is presented to show the advancements in relation to identification of these factors. Additionally, the authors offer a possible solution to the fractured literature in the form Weber, Kopelman, and Messick's (2004) dual process model in an effort to merge findings from both disciplines in an attempt progress this line of research.

INTRODUCTION

The topic of selfish and selfless behavior has captured the interest of philosophers, academics, researchers, and practitioners across a variety of disciplines, including biology, mathematics, sociology, psychology, economics, and political science. As a species, we have pondered the antecedents to, benefits of, and meaning behind selfish and selfless thoughts and behaviors. This duality is exemplified by Ayn Rand "greed is good" vs Louis Blanc "to each according to his needs". Why have so many dedicated so much time to these two motives? Perhaps it is because as humans we have encountered both motives

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in our own lives and have found them appealing and valuable. Additionally, it is common for humans to seek information out about a situation in order to understand and predict behavior and outcomes. As such, we are frequently evaluating our own and other people's intentions. Thus our ability to recall past experiences and form predictions of human behavior allows us to also postulate about the benefits and risks inherent in both strategies.

The original intent of this chapter was to provide a review of the literature in selfish and selfless motives and behavior. However, there is a great deal of information from a variety of disciplines that at times seems to contradict itself. In part, this is due to the use of multiple terms for the same process or variable. Thus, the authors of this chapter will first provide a list of terms and their definitions that will be used throughout. These terms and definitions are important as they may help clarify some of the inconsistent results in the cross-discipline literature.

Following the definitions, this chapter will examine selfish and selfless motives and behavior by reviewing the social psychological and behavioral economics literature. In particular, the chapter will examine factors that influence selfish (i.e., non-cooperative) vs. selfless (i.e., cooperative) behavior in both disciplines. The authors will then discuss how the selfish/selfless literature in both disciplines can be synthesized by a dual process model. Finally, the authors will briefly discuss how the literature in this area may benefit business management, politics, and social issues.

BACKGROUND

In order for selfish or selfless behavior to occur there must be at least two individuals, the target of the behavior and the executor of the behavior. Additionally, selfish or selfless behavior can only occur within the exchange of a resource (e.g., time, money).

Social Dilemmas

According to Van Lange, Balliet, Parks, and Van Vugt (2014) a social dilemma is a situation whereby non-cooperation, or a selfish action, is beneficial for the individual in the short-term; however, non-cooperation by the group will be detrimental for the group members in the long run. The dilemma occurs when an individual is forced to choose between their own well-being now (i.e., selfish behavior) or work with the group in a long-term (i.e., selfless) investment of the resource. Similarly, Dawes and Messick (2000) goes further by suggesting that the dilemma occurs when "reasonable and rational" decisions at the individual level lead to less benefits, thus coaxing the individual to act "unreasonably and irrationally" (p. 111). Social dilemmas have been a pervasive issue addressed in religion, philosophy, natural and social sciences, politics and business.

Mixed Motives

Social dilemmas present a problem because of mixed motives. Mixed motives are dueling or inconsistent motives that have the potential to influence an individual in seemingly unpredictable ways. In the case of social dilemmas, an individual must choose between actions based on pure self-interest or actions with the group in mind. According to Van Lange et al.(2014) mixed motives are based off of three main

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arguments: individuals are driven to do well for oneself, the outcome of a situation is, in part, based on others' actions, and non-cooperative behavior on an individual's part opens up the door for possible retaliation from others (p. 13). Thus, an individual's actions in a mixed-motive situation take into account the potential outcomes, the individual, the group, and the exchange between the individual and group.

MAIN FOCUS OF CHAPTER

Issues, Controversies, Problems

A great deal of literature and research has gone into understanding how individuals will behave in these situation. Of particular interest is whether individuals will behave altruistically or egoistically. Unfortunately, the literature does not provide a clear answer on the basis of altruistic or egoistic behavior. The authors of the current chapter suggest that a major issue preventing clarity in the literature is ambiguous terminology. As such, this chapter will first identify and define some of the more commonly used terms in the literature.

Definitions

1. **Prosocial Behavior:** According to Dovidio et al.(2006), prosocial behavior includes a broad range of actions that benefit other individuals outside of the agent, or executor. According to Dovidio et al.(2006) there are various types of prosocial behavior including helping, altruism, and cooperation.
2. **Helping:** Dovidio et al.(2006) define helping as "an action that has the consequence of providing some benefit to or improving the well-being of another person" (p. 22). It is important to note that the intent of the executor is not a significant factor in the definition but that there is a difference in power between the two parties involved, such that the target and executor in a helping relationship are "not equal partners" as the executor has a resource the target needs (p. 27).
3. **Altruism:** The distinguishing trait between helping and altruism is the intent behind the prosocial behavior. While altruism is still decidedly prosocial behavior it is based on the ultimate well-being of another person, outside of the executor (Batson, 1991; Dovidio et al.,2006). As such, Dovidio et al. (2006) defines altruism as a helpful act that, "is carried out in the absence of obvious and tangible rewards for the helper" (p. 26).
4. **Cooperation and Non-Cooperation:** Dovidio et al. (2006) suggest cooperation is based on group members participating in various forms to achieve the group's common goal. Thus, cooperation is an exchange between group members for the benefit of the overall group. Non-cooperation, then, is when an individual, or group of individuals, choose to not participate in the group exchange. This lack of cooperation impacts the group and promotes self-interest.
5. **Egoism:** According to Dovidio, Piliavin, Schoeder, and Penner (2006) egoism occurs when an individual in focused on his/her own welfare. Dovidio et al.'s definition is broad and intent based. Being egoistical, therefore, does not preclude an individual behaving positively towards another person. In fact, there is an long-running and ongoing debate on whether egoism is at the base of prosocial behavior (Batson, Ahmad, and Stocks, 2011; Dovidio et al., 2006).

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While social psychological literature focuses on terms such as altruism and egoism, prosocial and self-interest, and selfish and selfless, the behavioral economics literature relies on terms such as cooperation and non-cooperation. Although these labels are often used interchangeably we suggest that these terms imply different phenomenon and should be used according to the appropriate context.

The terms altruism/egoism and selfish/selfless all imply intent and allow for a subjective evaluations of the agent as either good or evil. Additionally, by using these judgment-based terms, we are in effect implying that one behavior is preferred over another.

In a similar vein, the use of self-interest/prosocial behavior also is prone to subjective evaluations; however, the intent of the action appears to be clearer in these terms such that we are focused on the self or the group. The self-interest and prosocial terms are similar to the cooperative and non-cooperative terms used in the behavioral economics literature

The behavioral economic literature's use of cooperative and non-cooperative behavior focuses on the outcome. While this type of research does commonly vary factors in the research design, the dependent variable is consistently behavior. Consequently, the behavioral economics literature allows us a largely unbiased view of the factors that influence cooperation versus non-cooperation. As such, we will use the terms cooperative/non-cooperative for the remainder of the chapter.

The remainder of the chapter is an attempt to identify the major factors in both behavioral economics and social psychology that impact cooperative behavior. Each of these disciplines has strengths and weaknesses in this literature. For example, the behavioral economics literature presents an opportunity to examine decisions in a variety of scenarios. These scenarios help explain what structural and situational factors influence cooperation. Unfortunately, traditional game theory has focused on rational choice and expected utility models that have not addressed varying motives behind decisions. The social psychological literature attempts to addresses factors such as motives, values, identity, and the impact of group forces on the individual. Unfortunately, the social psychological literature has not adopted a unifying model or strategy for examining decision making in different scenarios.

Thus, the authors begin by examining factors associated cooperation in behavioral economics and game theory then follow up with an examination of factors related to social psychology and cooperation.

Behavioral Economics/Game Theory: Factors Influencing Cooperation

Both behavioral economics and game theory are in the business of examining decision making. However, while behavioral economics integrates the fields of economics and psychology, game theory involves the use of models, or strategic games (Osborne, 2004). These strategic games allow us to examine individual and group preferences, choices, and, ultimately, behaviors in a variety of interactive situations. Strategic games consist of one or more players, or decision makers, who are given a set of actions they can take in the game. Each player is also assumed to have a set of preferences, or ideal outcomes with respect to how other players and he/she will respond in the game. Thus, once a player understand the rules and potential outcomes of a strategic game, his/her future actions are to some extent based on the expectations formed of the other players.

Parks (2015) identifies the two modern approaches to cooperation in social dilemmas as the "economic" approach and the "sociability" approach. According to the author, the economic approach, "assumes that humans are inclined against cooperation" while the sociability approach, "assumes that humans are inclined towards cooperation" (p. 527). The behavioral economics and game theory literature provides mixed findings on whether humans are inherently cooperative or non-cooperative. Instead, the

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behavioral economics and game theory research provides us with rich literature addressing the factors that increase and diminish cooperation. While the literature in this area provides a variety of factors, we have narrowed down the focus to two major areas of interest: game structure and individual differences.

Cooperative Games: Game Structure

It is important to note that cooperative and non-cooperative behavior can be influenced by the type of strategic game he/she is playing. Although there are a variety of strategic games (see Osborne, 2004), Parks (2015) distinguishes between three social dilemma games of particular importance: the Prisoner's Dilemma Game, the public goods game, and the common pool game.

In all three instances the player must choose between maximizing their own utility (i.e., proself behavior) and cooperating with the group to maximize the group's outcome (i.e., prosocial acts). An individual's preferred set of actions, or game strategy, varies for each game as each game reflects a different set of possible payoffs. These payoffs are based not only on the individual's action but also the action of the other players in the game. Thus, each individual player has an opportunity to affect each other's payoffs through his/her actions.

Prisoner's Dilemma

In the Prisoner's Dilemma Game, each player can either cooperate with the other player or make a selfish decision and save himself/herself. Because the player's outcome is in part dependent on the choice made by the other player, each player optimal choice should be to forego the cooperative route and be selfish.

Public Goods Game

In a public goods game, players contribute a certain amount of money to a group fund. Any money not allocated to the group remains as a payoff for the individual. However, group members can receive a bonus if the group fund meets a threshold. Thus, it benefits the players in the group to cooperate by allocating funds to the group.

The Common Pool Dilemma

The common pool dilemma is similar to the public good game in that individuals will benefit when the group works together. In this scenario group members can harvest from a group resource but must manage their size of their harvest so as to not overuse and deplete the resource. Group members can harvest large quantities thus gaining more resources than other group members; however, depletion of the resource ends the game and prevents further harvesting. It is in the group members' best interest to cooperate by maintaining the resources adequately replenished while simultaneously harvesting from the pool.

The manner in which these games are structured and framed reward (or punish) certain strategies. Thus, cooperation or non-cooperation is, in part, based on the structure of the game employed.

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Game Information

According to Parks (2015), "in the typical social dilemma, information is sparse". However, information can be manipulated in experiments. Moreover, the amount and type of information provided to participants has been shown to influence cooperation or non-cooperation.

For example, players will modify their behavior depending on the amount of information regarding the resource pool in a public goods game. In fact, proselfs are more likely to maintain consistently high consumption of the group resource regardless of whether the group resource was being depleted (Brucks and Van Lange, 2007). This is untrue for prosocials which attempt to protect the group resource unless prosocial learn that other members are not cooperating, in which case prosocials abandon their cooperative behavior.

Information can also take the form of other player's previous behavior. Boone, De Brabander and Witteloostuijn (1999) found that players, who were originally proself in a one-shot Prisoner Dilemma game increased their level of cooperation when the game extended into rounds. These authors surmise that players understood the benefits of cooperating in these repeated games.

On a similar note, Ockenfels and Werner (2013) asked players in a dictator game to estimate the amount typically transferred to recipients by other dictators and the amount expected by recipients using scales with varying midpoints (i.e., low midpoints vs. high midpoints) before sending their recipient any funds. The results from this study indicated that dictators who viewed a scale with a higher midpoint and who guessed the average amount expected by the recipient sent on more money, on average, to their recipient. This suggests that the manner in which the information is framed will affect the degree an individual cooperates.

Individual Factors

In addition to game structure factors, the literature also identifies certain factors related to the individual that influence cooperation. Individual factors include, among other things, values and personality traits. Both values and personality traits are considered to be stable phenomenon that influence behaviors. Values are beliefs that individuals have regarding the worthiness of a particular object, person, or idea. Personality traits are aspects of an individual's unique characteristics that remain fairly stable through time and situations. While some will argue that individual differences are important in the decision making research, the literature has provided conflicting results. Research in this area has examined whether different personal value systems and personality traits will sway an individual to cooperate or not cooperate.

Social Value Orientation (SVO)

SVO can be defined as an individual's tendency in evaluating his/her own self-interest and the interest of other people (Balliet, Parks, and Joireman, 2009). SVO is thought to be a relatively stable value that dictates to what degree individuals are proself or prosocial (Bogaert, Boone, and Declerck, 2008; Haesevoets, Folmer, and Van Hiel, 2015). However, the relationship between SVO and cooperation is dependent on the game structure and situational factors.

For example, Haesevoets, Folmer, and Van Hiel (2015) examined whether scores on social value orientation, social dominance orientation and right-wing authoritarianism would predict behavior across games. The authors found only weak to moderate relationships between behaviors across games based

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on these beliefs. The authors conclude that behavior in one game is insufficient to predict behavior in another game. Similarly, Balliet, Parks, and Joireman's (2009) meta-analysis on social value orientation in social dilemmas found only weak to moderately strong relationship between social value orientation and cooperation in social dilemmas. This relationship was moderated by the game structure (i.e., public good dilemma vs. resource dilemma) and whether the participants were paid or not paid based on their decisions.

Personality Traits

Boone, De Brabander and Witteloostuijn (1999) examined how four personality traits (i.e., locus of control, self-monitoring, sensation seeking, and Type A behavior) influenced cooperative/non-cooperative behavior in five different Prisoner Dilemma scenarios. Two of the scenarios were one-shot situations, where participants either did not receive information regarding the other player's past behavior (i.e., game #1) or did receive information regarding the other player's past behavior (i.e., game #2). The remaining three scenarios included multiple rounds where players made simultaneous choices. In game #3, players knew there was a total of 12 rounds to play, in game #4, players were unaware of the number of rounds to be played, and in game #5, players were notified that 12 rounds would be played but the payoff matrix was modified to reinforce cooperation.

Boone et al, (1999) found that individuals high in internal locus of control were more likely to cooperate than individuals high in external locus of control, high in self-monitoring, and high in sensation seeking were more likely to cooperate consistently than individuals who scored low on these traits. While not statistically significant, the authors also found that individuals low in Type A behaviors were more likely to cooperate in these scenarios than individuals high in Type A behaviors.

Other research on traditional personality traits such as the components of the Big Five personality traits (i.e., Openness, Conscientiousness, Agreeableness, Extraversion, and Neuroticism) are less straightforward.

For example, Hirsch and Peterson (2008) found that certain aspects of Agreeableness and Extraversion have an impact on cooperative/non-cooperative behavior. In their study, Hirsch and Peterson used a repeated Prisoner's Dilemma scenario, where players participated in 10 trials with the same partner. In this study, players who scored high on the withdrawal aspect of Neuroticism or scored high on the enthusiasm aspect of Extraversion were more likely to cooperate with the other player. The authors suggest that the Neuroticism-withdrawal and Extraversion-enthusiasm components trigger punishment and reward systems, respectively, and thus influence cooperation.

Koole, Jager, van den Berg, Vlek, and Hofstee (2001) found main effects of Agreeableness and Extraversion on cooperative behavior. Moreover, these researchers also found that the structure of the game impacted cooperation/non-cooperation in conjunction with these measured personality traits.

Koole et al, (2001) examined cooperation in a public goods game between players and simulated others. In addition to measuring Agreeableness and Extraversion, the researchers also manipulated the feedback players received regarding the use of resources such that some participants were told that the resources were being used reasonably (i.e., sustained) or overused (i.e., rapid depletion).

Interestingly, Koole et al. (2001) found a quadratic trend that reflected an increase of resource use in the first trials followed by a decreases of resource use in the future trials. In line with the idea that personality traits can influence cooperation/non-cooperation, Koole et al.(2001) also found that individu-

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als high in Extraversion were less likely to cooperate than individuals low in Extraversion. As expected, individuals high in Agreeableness were more likely to cooperate than individuals low in Agreeableness.

In fact, both the main effect of Extraversion and main effect of Agreeableness on cooperation were further explained by three-way interactions between Personality (i.e., Extraversion or Agreeableness), resource use feedback, and the quadratic trend. In fact, these researchers found that players with high Extravert scores in the sustained-use condition consumed more of the resource than players with low Extravert scores in the same condition. Likewise, players who scored high on Agreeableness were more likely to cooperate, or consume less of the resource, than players who scored low on Agreeableness in the sustained-use condition.

Additionally, players with high Extravert scores in the rapid-depletion condition used the resource consistently throughout the rounds while players with low Extravert scores first increased then decreased their consumption of the resource. Players in the rapid-depletion condition who scored high on Agreeableness were more likely to maintain a consistently low consumption rate of the resource when compared to players who scored low on agreeableness in the same condition.

Both personality traits and value systems are considered to be static qualities that should, in theory, lead to consistent behavioral outcomes across situations. The inconsistent results in the literature does not generally take into consideration the possibility that these personality traits and values are dynamic and inclined to change. In their proposal for synthesizing economics and personality research, Borghans, Duckworth, Heckman, and ter Weel (2008) argue that personality traits do change in time.

Another possibility, as evident by the Koole et al. (2001) research is that the mixed findings on the impact of personality traits on cooperation/non-cooperation may be further clarified by examining the interaction between personality, or individual traits, and the situation.

Whereas behavioral economics has examined the structural and individual factors that influence cooperation and non-cooperation, very little has been done to examine the impact the group's influence on the individual has on the process. This is where social psychology can provide some insight into cooperative versus non-cooperative behavior in groups.

Social Psychology: Factors Influencing Cooperation

Psychology is the scientific study of human behavior both internal (e.g., emotions, thoughts, beliefs) and external (e.g., overt behavior). Psychology, in general, focuses on the individual. Social psychology, a subfield in psychology, is interested in examining the exchange between the individual and the group. In particular, social psychology proposes that other people, real or imagined, will have an impact on individual's emotions, thoughts, and behaviors. Similarly, social cognitive psychology examines how cognitive processes, such as information storage, retrieval, and recall, will be influenced by other people.

It is easy to imagine how another individual may force or manipulate an individual into modifying their behavior; however, social psychology and social cognitive psychology explain more than these obvious examples of social forces on individual reactions. In fact, both social psychology and social cognitive psychology suggest that individuals modify their behavior on their own, without direct influence from other people, when other people are around or even suspected to be around. Consequently, even the mere idea of another person is sufficient to have an impact on an individual.

Why do we grant such power to other individuals?

A major tenet in both social and social cognitive psychology is that we are not single agents living in a vacuum. Our internal behavior, decisions, and overt behavior are, in part, based on the environment.

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Although not traditionally viewed as such, other humans are elements of the environment and thus have the potential to impact human behavior.

Group Factors

Social Motivation

As such, we are motived to seek out other individuals and form groups, participate in interpersonal activities, and maintain in good standing with society. This is the premise behind social motivation (Forgas, Williams, and Laham's, 2005). Consequently, humans are thought to hold other individuals, and the group, in high regard because of our innate need to affiliate with other individuals.

Baumeister and Leary (1995) theorize that individuals have a need to belong which is characterized by the need:

1. Frequent interactions with others, and that
2. These interactions elicit a sense of attachment which can be represented by a need to continue the relationship, emotionally involvement, and perceived stability (p. 500).

These authors clearly identify this as a need, not a drive, and suggest that this need must be met in order to attain psychological and physical well-being. The need to belong theory is well regarded and accepted in social psychology. The subsequent theoretical and empirical work that stems from this theory suggest that it benefits us to behave positively towards the group as our membership can be revoked.

Interdependence

The need to belong strongly suggests that affiliating ourselves with others is adaptive. We function easier in a group and benefit psychologically and physically from the interactions. Thus, interdependence occurs when individuals in the group are impacted, physically and psychologically, by the other group members' behaviors. As such, group members come to realize that behaving positively towards the group will, in the long run, benefit them as well. Van Lange et al.(2014) point out that an individual realizes that his/her outcomes are, in part, based on the group's behavior. Consequently, interdependence is functional in so much as our own survival and maximum potential are impacted by the group and its other members. Thus, the individual's efforts should be focused on benefit the group, as well as maximizing their own individual outcome.

Interestingly enough, a set of people in a group begin to function as an entity with the overall group's well-being in mind. As such, rules and norms are developed and enforced in an effort to maintain the group working effectively. Norms, then, are behavioral guidelines established by the group for the benefit of the group and its members. Norms can take the form of scripts and schemas. Scripts are a delineated outline of expected behaviors that an individual adheres to when in a particular social situation, such as the set of behaviors a person performs when eating out or entering an elevator. Social schemas are a set of predetermined and generally agreed upon traits and expected behaviors associated to a categorical stimulus, such as an accountant, athlete, or academic. We use schemas to predict the utility of and behavior from the individual. Norms provide us information regarding procedures, allow

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us more predictive power in our social interactions, and can provide a sense of security from ambiguous stimuli, forces, or processes.

For the most part, norms are considered beneficial for the group, in that they maintain order, and for the individual, in that they provide clarity. It is important to remember, however, that norms are a means of enforcing group behavior from an individual. It is equally important to remember that groups are dynamic entities and, as such, are bound to change. Consequently, the norms formed in these groups are also bound to change.

The authors of the current chapter suggest that cooperative and non-cooperative behavior can be considered a norm.

Norm of Reciprocity

Once such norm is the norm of reciprocity, which states that individuals are prone to reciprocate others' behaviors. According to Gouldner (1960) the norm of reciprocity is based off of two principles: (a) individuals will help individuals that have helped them in the past and (b) individuals will not harm individuals that have helped them in the past (p. 171).

In respect to group behavior, then, individuals are expected to reciprocate cooperative and non-cooperative behavior exhibited by other group members.

There is research to support the idea that individuals attempt to modify behavior of others when they deviate from the script. Gintis, Bowles, Boyd, and Fehr (2003) call this strong reciprocity. According to the authors, strong reciprocity is a schema that promotes personal cooperation with others and the punishment of those who are non-cooperators. Fehr and Fischbaher (2004) and Fehr and Rockenbach (2004) review literature suggesting that strong reciprocity is evident at the neural level such that the brain responds to cooperators and punishment of defectors in a positive manner and inequitable outcomes in a negative manner. These reviews points to the enforcement of cooperative norms in human behavior.

Individual Factors

Goals

Human behavior is thought to be driven by goals. Goals are a desired outcome or objective that can manifest either consciously or automatically but will, inevitably, influence an individual's behavior. We are thought to have a hierarchy of goals that are activated at different times and in different situations. Ultimate goals are the end goal while instrumental goals are benchmarks used to reach the ultimate goal.

There is a potential for these goals to contradict or overpower each other. Huang and Bargh (2014) propose the idea that that goals themselves are "selfish" in that activation of a goal motivates the individual to complete the goal without much thought to other factors. In fact, Noval (2016) found that by reducing an individual's focus on the desired outcome, she was able to also decrease unethical behavior.

Goal activation and completion are dependent on the individual and the situation. For example, Batson (1991) claims that, "both egoistic and altruistic motives may evoke a variety of behaviors or no behavior at all. A motive is a force. Whether this force leads to action depends on the behavioral options available in the situation, as well as on the strength of both the motive and of congruent and conflicting motivational forces present at the time" (p. 9).

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In respect to cooperative and non-cooperative behavior, we suggest that identifying the active goal will help determine the course of action an individual may take. However, the context in which the individual finds himself/herself will determine which goal is activated.

Contextual Factors

For the purposes of this chapter, context is more than the situation. The context of a situation is the phenomenon that is developed from the exchange between the individual, the group, and the environment. The context is not merely the situation but rather the interpretation of the situation by an individual.

The self is a term used in psychology to understand the individual, his motives, and his actions. It represents the malleable knowledge an individual has about himself. The agent self is a component of the overall self that acts as the executor of the individual's will. Thus, the concept of the self is important to our current conversation as it the self is the starting point of an individual's identity. Additionally, the individual's active self-dictates which goals are activated.

For example, Frimer, Shaefer, and Oakes (2014) manipulated whether individuals saw themselves as an agent ("self as executor") or an actor ("watched self"). Frimer et al, found that individuals modified their goals based on whether they were in an actor mode or an agent mode, with actors agreeing with more prosocial motives and agents agreeing with self-interest motives.

The importance of the context on cooperative/non-cooperative behavior is becoming evident in the literature (Fortat, Denant-Boemong, and Funaki, 2012, Henrich, Boyd, Bowles, Camerer, Fehr, Gintis, and McElreath, 2001; La Barbera, Ferrara, and Boza, 2014). Lozada, D'Adamo, and Fuentes (2011) argue that altruism is not only intrinsically rewarding but also based on the social context. The authors point out the importance of the individual and the collective group in influencing cooperation within an organization. Similarly, Dovidio et al. (2006) point out that prosocial behavior is defined by society, thus a "given behavior is not inherently or universally prosocial (or antisocial for that matter)" (p. 21). A behavior is deemed prosocial or antisocial by society, which is susceptible to change. Thus, any behavior can be regarded as positive or negative. It is important to note this as it speaks to the dependence of prosocial, or cooperative/non-cooperative, behavior on the context.

We suggest that the context is the crucial component in understanding cooperative and non-cooperative behavior. Importantly, a context can be learned, primed, or at least manipulated in settings. As such, organization behavior can be modified according to the context presented to the individuals.

We briefly identify three major factors we believe have an impact on cooperative/non-cooperative behavior in a group or an organization. These factors are: group identity (i.e., in-group/out-group), trust, and procedural justice. At the core, these three factors reflect the importance of the context, or the individual's perception of the group, its function, and its reliability.

In-Group and Out-Group Identity

In-group/out-group bias are two theories that often get grouped together; however, it is important to note that they are two distinctive theories. These two theories are closely related and are two sides of the same coin. In-group bias, also called in-group-out-group bias, in-group bias, intergroup bias, or in-group favoritism bias is a theory that purposes individuals favor or more highly regard the individual's in-group positively. Out-group bias is also known as out-group homogeneity effect or out-group homogeneity

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bias. Out-group bias purposes that individuals in the out-group will more likely to be categorized and stereotypes/overgeneralizations will be attributed to them.

Individual group membership is a fluid item, hierarchical, has varied strength, and is a perception of the individual. The individual does not have to be 'part' of the team, but they perceive themselves to be part of the team (e.g. sports fans that consider themselves or identify with a certain team or club). Some identities are relatively fixed such as an individual's race, age, or gender where other can change with time or situational context. While going to school an individual will identify with individuals in the school, but more closely related to those in their own class. After graduation and many years have passed the 'all alumni' identity will get stronger for that institution and 'class of 2010' identity will fade. What is important about in-group bias is the positive aspects individuals give to the members of their in-group and similarly out-group derogation of the out-group being a threat to the in-group. Literally, in-group members are better, nicer, more trust worthy, and individuals are more likely to share resources with then those in the in-group then those in the out-group. Social identity theory posit that a portion of the individual's self-concept (and thus self-esteem) is derived from their group memberships. So the individual is not being magnanimous when they perceive their in-group to be more trustworthy, they are part of the trust worthy group and are themselves more trustworthy. When the group does well, they are part of the good. Realistic conflict theory (also known as realistic group conflict theory) is a theory that posit that the intergroup conflict that arises between the in-group and out-group are a result of conflicting goals or finite resources (i.e. limited resources or fixed pie scenario). This theory would suggest you would see less cooperation and more competition with individuals in the out-group versus those in the in-group.

On the flip side of the coin regarding out-group bias, the in-group is heterogeneous, the out-group is homogeneous. We are unique but they are alike. This thought pattern can lead to stereotypes and ethnocentrism which can modify the cooperative behavior with out-group individuals.

Optimal Distinctiveness Theory

At the very least, what we can take away from this is the importance the group has on the individual. In some cases, the group conformity does overwhelm the individual but the individual can also go against the group. It should be noted, however, that the individual and the group work in unison. In the optimal distinctiveness theory, Marilyn Brewer (1991) suggests that individuals attempt to find a balance between the group identity and the individual identity such that individuals are motivated to seek the optimal balance of the two extremes of in-group distinctiveness and in-group assimilation in order to maintain group membership. In a nutshell, individuals all want to be special, but individuals don't want to be different from the group. Optimal distinctiveness theory is especially interesting, an individual will only be as different as the group allows so they can remain a part of the group. So non-conformist will adhere to their non-conformist peers' conformity. So those social 'rebels' that dress in goth, dye their hair weird colors, or have unusual hairstyles, will conform to their in-groups standards. Thus they won't dress in a traditional prom dress out of fear of being expelled/teased/rejected by their peers for not being a non-conformist.

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Trust

From an interpersonal perspective, trust is the ability to depend or rely on another individual. Trust in an individual is based on the principle of reciprocity such that your behavior will be reciprocated in kind and you will not subject to unnecessary harm. In essence, an individual makes themselves susceptible to others' actions but anticipates equal treatment. Trust can take many forms, according to Dunning and Fetchenhauer (1991) trust can manifest in the beliefs we have of others or actions towards others.

Interestingly enough, the literature makes a strong general assumption that humans should not be trusted. This assumption crosses sociological, psychological and economic literature. In fact, Dunning and Fetchenhauer (1991), and others, go so far as to argue that trusting other individuals is irrational.

Nevertheless, trust is a crucial component examined in the behavioral economics and social psychological theories and research. While trusting may be considered irrational, it occurs quite frequently in the literature. The literature is riddled with examples of trust being a core issue in group decisions. For example, Yamagashi and Cook (1993) examined the effects of trust, group dynamics (i.e., group-generalized structure vs. network-generalized structure), and dissemination of group member actions on average contribution in multiple trials. These authors found that an individual's general level of trust, which was measured prior to participating in the study, was related to the average amount contributed such that those high in trust contributed significantly more than those low in trust.

Yamagashi and Cook also found a trust X structure interaction such that individuals with higher trust in the network-generalized exchange structure contributed on average more than individuals low on trust in the same structure and more than both trust types in the group-exchange structure. This interaction is important, in light of the main effect of trust the authors also found, because this speaks to the importance of context. According to the authors, the group-exchange structure is susceptible to free loading and thus even individuals high in trust will be weary to trust others in this situation. Thus, Yamagashi and Cook state that "the relationship between trust and generalized exchange varies depending on the structure of the generalized exchange situation.

Procedural Justice

Procedural justice looks to the fairness in group processes and social interactions. If a group executes suitable procedural justice, then members in the group are treated fairly and equitably. Thus, procedural justice ties into both in-group and out-group identity and trust.

Additionally, seeking equity through procedural justice may be a motive unto itself.

Batson (1991) argues that some motives may be neither egoistic nor altruistic and uses the advancement of justice as an example, which he calls "upholding a principle of justice" (p. 9). Batson, Ahmad, and Stocks call this "principlism" or "upholding a moral principle" (p. 106).

In either case, focusing on a principle such as procedural justice has the benefit of creating group cohesion (i.e., in-group bias), setting a goal for the group, and reinforcing trust with the group members.

One common thread amongst in-group/out-group, trust, and procedural justice is that these reflect the interaction between the group and the individual.

The individual seeks information from the group in order to determine whether they are vulnerable or protected, whether the group has a reasonable sense of justice, and whether they will be treated equitably.

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SOLUTIONS AND RECOMMENDATIONS

Dual Process Models

Thus far the behavioral economic and social psychological approaches, while similar, have remained fairly distinct from each other in this chapter. Luckily, Weber, Kopelman, and Messick (2004) address how these two fields can be integrated through the lens of a dual process model in their seminal review of decision making in social dilemmas. This dual process model outlines how individuals can process information and select appropriate situational rules using either shallow processing based on heuristics or a more complex and adaptive approach.

According to Weber et al. (2004), the individual assesses the situation, or context, before choosing a set of rules to follow. In assessing the situation, the individual takes into consideration situation cues and personal identity. This information allows the individual to determine which rules are appropriate the individual in a particular situation. The shallow process is analogous to quick decisions based on automatic processing and behavior whereas the more complex processing requires more conscious thought. According to the authors, we move from the shallow processing, which requires less energy and less deliberation to a more conscious and considered processing, when

1. Two or more conflicting values are made salient,
2. An individual is confused about the norms or rules required in a particular situation, or
3. The situation itself is "vague, ambiguous, or unpleasant" (p. 286).

Weber et al.(2004) suggest that individual differences such as social motives, personality, and personal history and situational factors such as task structure, decision structure, and perceptual factors will are important factors in assessing the situation. As been noted earlier in the chapter, behavioral economics and game theory have taken exceptional steps in addressing similar situational and individual factors that influence decision making. Add to that information acquired by social psychology regarding social influences in cooperation and this model has the potential to have strong predictive power in the realm of cooperative behavior.

FUTURE RESEARCH DIRECTIONS

Both behavioral economics and social psychology have amassed a treasure trove of empirical literature that helps to explain cooperative behavior in individuals and groups. With the introduction and integration of dual process models in the literature it is highly likely that a clearer picture of the factors influencing cooperation will develop. The impact of the current and future research in this area has the potential to influence business management, political, social, and educational realms.

According to Parks (2015) the literature on cooperation in social dilemmas may help dissuade the "lone wolf" phenomenon, whereby individuals refute the potential effectiveness and efficiency associated with groups. That is not say that individual work may in some instances be more productive than group work; however, humans have traditionally not functioned well in solitude. In fact, humans are considered both social and cultural animals that prosper in groups. As such, it would benefit us all to understand

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when cooperation would benefit the individual and the group. Additionally, we should examine how factors related to the individual, the group, and the context impact cooperation.

For example, we find more direct and effective methods of reducing depletion of resources (e.g., community office supplies, travel funds, energy consumption) in the workplace by understanding how individuals perceive these resources. Additionally, we may find ways motivate potential voters to participate in local and federal elections by understanding the impact of social value orientations on social issues. Similarly, by understanding how social value orientations and personality influence community action for individuals from different cultures and socioeconomic statuses.

CONCLUSION

On a final note, although the literature continues to debate whether humans are inherently selfish or selfless, we might be better served to synthesize the theories and literature in both behavioral economics/game theory and social psychology. Both disciplines have focused on different perspectives based on their unique strengths and weaknesses. While consolidating the literature may initially prove difficult, the benefits would certainly outweigh the costs. Additionally, the literature in both domains may progress to future questions, such

1. To what degree can cooperative behavior be learned and fostered, and
2. What the long term effects of cooperative behavior are for the individual and the group.

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Section 7
Emerging Trends

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Chapter 97
A Happier Balance:
Positive Interventions for Intentional Well-Being in Psychotherapy

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ABSTRACT

This chapter describes how intentional well-being interventions integrate the development of character strengths and activation of positive emotional resources while reducing risks and alleviating symptoms of depression and poor health. The emergence of these interventions reaches back nearly half a century and each layer of development has led to a more robust platform for implementing these approaches. Now, based on the evidence-based principles of positive psychology, these positive interventions help to cultivate hope through a more balanced approach to well-being than traditional deficit-oriented methods of psychotherapy. This chapter looks at the history of development of these interventions and their likely next phase of development.

INTRODUCTION AND HISTORY

The history of psychology has been to create interventions and practices, which while alleviating suffering, did little to enhance well-being. However, not being depressed isn't the same as being happy, and the rich area of research initiated by positive psychology has enhanced our understanding of what it takes to feel good—and what intentional well-being interventions can do to help balance out the traditionally deficit-oriented methods of psychotherapy.

About fifty years ago, psychologists began developing evidence-based theories and practices about happiness that are now gaining momentum. From the human potential movement of the 1960s through the current proliferation of professional societies and discipline-specific journals and degree-granting programs, there has been a greater push for research on the effectiveness of positive interventions. In the nearly twenty years since positive psychology was labeled and formally initiated, a plethora of research from every corner of the world has been published in peer-reviewed journals.

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Martin Seligman, former president of the American Psychological Association, made his 1998 presidential term a transformative platform for the development of positive psychology (Seligman & Csikszentmihalyi, 2000). In its first 20 years, this new sub-field of psychology has become a highly comprehensive, evidence-based perspective (Seligman, 1992, 2002, 2011; Seligman, Ernst, Gillham, Reivich, & Linkins, 2009; Reivich, Seligman, & McBride, 2011). Through these contributions, Seligman promotes a science that gives well-being a prominent position. His goal is not to usurp the work of psychologists and psychology, but rather to add to the ever-increasing knowledge of human behavior. Seligman's work has been crucial in initiating change within the field. Prior to these advances, the goal of psychologists and other purveyors of psychotherapy has been to relieve the burden of emotional distress. However, this new research invites us to now include ways to promote sustainable well-being. Although the current practice of psychotherapy is significantly better than placebos, and in many instances better than medications (Castonguay, 2013; Leykin & DeRubeis, 2009), traditional psychotherapy can no longer be accepted as a sufficient treatment protocol. The need and research to support the effectiveness of these new interventions is at a tipping point. Positive interventions to promote intentional well-being are now necessary additions to the therapist's toolbox.

Seligman was influenced by and has built on the work of many pioneers who have come before him, and the contributions of some of his predecessors are particularly worth noting. Specifically, the work of humanistic psychologists Carl Rogers and Abraham Maslow—both of whom also served as presidents of the American Psychological Association—stand out. Rogers and Maslow positioned psychology at the center of a major transition in society and became part of what was known as the human potential movement. At a time when the theories of Freud (1977) and Skinner (1972)—psychoanalysis and behaviorism, respectively—dominated the academic and clinical literature, Rogers and Maslow made a push for a more positive approach to individual therapy and to conceptualizations of human nature. Rogers's "client-centered therapy" (1951) helped psychology move away from the medical model and a disease orientation by promoting that psychologists refer to the people they work with as "clients" rather than "patients." Abraham Maslow (1954, 1962) theorized that people have a hierarchy of needs, and argued that as more basic needs (food, shelter) were satisfied, there would be a natural tendency to move toward full personal potential, which he called self-actualization. These two approaches reflected a departure from the psychoanalytic and behavioral models and were major influences on the culture. One important shortcoming of this "third way" proposed by Maslow and Rogers, however, is that although the human potential movement drew a very wide range of thinkers and followers, very few of them carried out evidence-based research on these emerging ideas. As a result, the humanistic theories did not have a substantial empirical base (Seligman & Csikszentmihalyi, 2000).

Despite this shortcoming, the work of Rogers and Maslow opened the way for other psychologists to develop alternatives to psychoanalysis and behaviorism. Albert Ellis and Aaron Beck are two of these psychologists. Both Ellis and Beck were trained in psychoanalysis, but found those methods to be unsatisfactory for many of their clients, particularly those struggling with depression. Albert Ellis (1962) had been writing about the ways humans think about situations and how our beliefs change as a result. He proposed the A-B-C model, designed to help understand beliefs that occur in response to life events and the resulting consequences. In this model, A = "Activating event," the thing that causes us to respond; B = "Beliefs" about the causes of the event; and C = "Consequences," emotional and behavioral results of these beliefs. There usually are direct connections between beliefs and consequences and there often are patterns in how these connections occur. The A-B-C model is important in the history of positive interventions because it made beliefs a subject for scientific study. Aaron Beck (Beck

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et al., 1961; Beck, 1967; Braff & Beck, 1974), the father of cognitive behavior therapy (CBT), was also interested in beliefs. He noticed depressed patients had automatic thoughts about themselves, the world around them, and the future. By identifying these situational automatic thoughts and challenging patients to think differently, Beck could demonstrate that a person's core beliefs and consequent feelings could change. The interested reader is directed to a wonderfully articulated workbook integrating CBT with psychodramatic theory and practice by Tom Treadwell and his colleagues (Treadwell, Dartnell, Travaglini, Staats, & Devinney, 2016).

Seligman's research on helplessness built directly on the work of Ellis and Beck. Behaviorism had argued that in each situation the opportunity to gain a reinforcer or avoid an unpleasant stimulus would predict the organism's behavior. But in Seligman's research, an organism exposed to a helpless situation that it cannot control creates a perceived absence of control over the outcome in another situation. Seligman termed this "learned helplessness." Through a series of experiments (Seligman & Maier, 1967; Seligman, 1975), he demonstrated that dogs that were shocked without an opportunity to escape the pain gave up, failing to take advantage of subsequent opportunities of earning a desired reinforcer. The work of Ellis and Beck flew in the face of psychoanalysis and behaviorism and helped shift therapeutic approaches toward helping clients gain control of their own lives by taking control of their beliefs. In a similar way, the results of Seligman's experiments challenged the existing mechanics of behaviorism and allowed for a connection to be made between the dogs who had no control and depressed clients. Seligman hypothesized that a perceived inability to control the outcome of a condition or situation can activate a sense of helplessness, which in turn can lead to depression. This was revolutionary and led to Seligman writing the trade book: *Learned Helplessness: On depression, development, and death* (1975), which changed the way psychologists around the world begin treating depression.

Not all the dogs became helpless, however, and this needed to be understood. Some of the dogs (about one-third) that were studied did not become helpless and overcame the learning of the original experiment, finding ways out of the situation. The dogs' behavior provided speculation about how humans might overcome helplessness. One possibility was to understand how people explained what had happened to them. This was dubbed attributional style or explanatory style. Attributional reformulation (an explanatory style of the situation) was created to account for people's optimistic or pessimistic reaction styles to difficult situations. Seligman had capitalized on Ellis's and Beck's work with his own experiments and demonstrated that people could choose how they think. This was revolutionary. He then began to focus on explanatory style and our ability to change it. Demonstrating that individuals with a pessimistic style could learn to be optimistic, he made the transition from understanding the mechanics of helplessness to teaching people how to be optimistic (Peterson, 2000). He eventually published another groundbreaking book, *Learned Optimism: How to Change Your Mind and Your Life* (Seligman, 1992), which deepened the public's understanding of explanatory style. In this work, he skillfully outlined the patterns through which people could become optimistic. He could demonstrate more positive and optimistic ways people could think, primarily by studying people with high levels of optimism, including successful insurance salespeople.

Seligman showed that successful people's thinking patterns and behaviors could be taught. Optimistic people have a specific thought pattern when it comes to bad events because they view negative events as temporary hurdles, see these bad events as isolated occurrences, and believe that with effort and skill the bad events' effects can be dealt with and overcome. Optimistic thinkers largely are more immune to depression and have better physical health and greater, more sustainable achievement. The pessimist, in direct contrast, will respond to setbacks by experiencing a sense of helplessness. Pessimists believe nega-

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tive events are permanent and compromise everything they do; they believe they bear sole responsibility for the event's occurrence. As simple as it sounds, this was a huge boost for positive psychology. Prior to this, psychologists were battling thoughts as givens instead of variables. Seligman's work on optimism helped establish a theoretical and empirical base for his positive psychology platform as president of the American Psychological Association in 1998 (Seligman & Csikszentmihalyi, 2000; Seligman, 2002). He suggested that psychology include a model of building strengths—promoting mental health, rather than only treating mental illness.

In the same timeline as Seligman's *Learned Helplessness*, another researcher (Fordyce, 1977) had pioneered a series of happiness interventions, such as increasing socialization, becoming more active, and deepening one's relationships. He found students trained in a variety of 14 different approaches demonstrated fewer symptoms of depression and were, in general, happier than a control group. Deci and Ryan (1985), along with a few others (e.g., Fordyce, 1977; Csikszentmihalyi, 1976, 1990; Diener, Emmons, Larsen, & Griffin, 1985) moved the theoretical into the empirical, substantively ushering positive psychology to its current position. Evidence-based interventions demonstrating effective changes toward increased well-being and flourishing are now the standard (Seligman, Steen, Park, & Peterson, 2005). Indeed, the fact that we have this current focus in positive psychology is a direct outgrowth of more than two decades of empirically validated treatments and research studies. Positive and transcendent experiences are now investigated with rigorous scientific methods and robust results.

While Seligman was unraveling the dynamics of depression, another researcher, Mihaly Csikszentmihalyi, published *Flow*: *The Psychology of Optimal Experience* (Csikszentmihalyi, 1976/1990). It was groundbreaking on many levels because it was considering a very different type of human experience. It offered up an experience that many people could relate to but did not fully understand. Perhaps it could be said that Csikszentmihalyi did for flow what Sigmund Freud (1977) did for dreams: He identified and analyzed something most people experienced, but that no one had yet studied. Csikszentmihalyi brought a powerful, positive, and mysterious experience closer to our understanding. When flow happens, external or internal demands cannot be reached. A person has entered an altered state of consciousness and the usual rules of engagement with one's surroundings have changed drastically.

Flow has been in the global consciousness since the book was released. Back then it was revolutionary—shocking, even—both to label a universal experience and to identify its features. But now "flow" is woven into our popular language and culture. We have heard about it, read about it, and want it in our lives.

In his own words, Csikszentmihalyi said that flow is "being completely involved in an activity for its own sake. The ego falls away. Time flies. Every action, movement, and thought follows inevitably from the previous one, like playing jazz. Your whole being is involved and you're using your skills to the utmost" (1990, p. 1). At a presentation at the European Positive Psychology Conference (EPPC) in Moscow (EPPC June 26, 2012), Csikszentmihalyi added a nuance to this definition. He spoke of flow as a more transcendent experience as it begins: "You are at this blessed moment when this feeling is about to come." In his book, Csikszentmihalyi (1990) identifies some specific features of the experience of flow. Flow tends to occur, he argues, when the following statements hold true:

- The event is freely chosen
- The goal is clear
- There is a high degree of focus
- A loss of self-consciousness occurs by engaging in the action
- Time is distorted

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- Feedback on performance is immediate and concrete
- There is a sense of control in the situation or activity
- The challenge is high, but there is balance between ability and the task
- Bodily needs are less noticed
- There is effortlessness in the activity because it is intrinsically rewarding

It is the balance between the challenge and our skill that keeps us engaged in flow. When the balance is off, we experience the other end of the spectrum: boredom or anxiety. Flow is a very enjoyable experience marked by a sense of timelessness and engagement, and something about the experience makes us want more of it. Once we have experienced a flow moment in our lives, we usually crave it again. It certainly makes intuitive sense that we would want to repeat such an enjoyable experience. But this craving may also be one of the most important features of positive psychology since it shows that positive emotional experiences can initiate an upward spiral (Fredrickson & Joiner, 2002; Fredrickson, 2001). Such an upward spiral can counteract depression's downward pull. Even more important, this may be the essence of what makes positive changes sustainable (Frederickson, 2001).

Just as Seligman's work has inspired ongoing research, so has Csikszentmihalyi's. The flow experience was initially described as an individual phenomenon. Walker (2010)[1] suggests that well-being may exist on a continuum, finding that when comparing solitary vs. co-active or interactive social flow, the two social conditions were more enjoyable, with interactive social flow being the most pleasing. Co-active social flow occurs when we are part of a group doing something, from watching TV with friends to participating in a foot race. Interactive social flow is enhanced through social interdependence. This occurs when we are part of a collectively competent group where there is complementary participation and a surrender of the self to the group. People participating in this have surrendered the self and acquired a collective sense of purpose and meaning, such as might happen on a successful athletic team.

Many of the indicators for social flow are like the well-known attributes experienced in solitary flow, but with some interesting additions. There is emotional communication throughout the group as members are participating—an emotional broadcast and resonance within the group and external observers. Members feel joy, elation, and enthusiasm throughout the group performance. Finally, rituals are put in place to institutionalize social flow. The participants want to find ways to make it happen again. In other words, doing things together is better than doing things alone.

The two important works we have examined from Seligman (1975) and Csikszentmihalyi (1976), which were published within a year of each other, together created a paradigm shift in understanding human nature. By delineating the conditions under which depression can be alleviated and flow can be activated, psychology charted a new, albeit tentative, direction—the science behind well-being and human flourishing. These pioneers initiated a research platform for positive psychology that continues to thrive today. For Seligman, using Ellis's A-B-C model and Beck's cognitive therapy helped him shift from learned helplessness to learned optimism. The publication of these trade books (*Helplessness: On Depression, Development and Death* (1975) and *Learned Optimism (1990*) took the science of psychology out into the public arena. While the research for both landmark works was stellar, the description of it in a more accessible form inspired people to change. Seligman's work on optimism has served as a foundation for positive interventions, residing at the core of the Penn Resiliency Program (PRP) for the prevention of depression (Seligman, Ernst, Gillham, Reivich, & Linkins, 2009), and finding its way into education (Reivich, Gillham, Chaplin, & Seligman, 2005) and the military (Reivich, Seligman & McBride, 2011).

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Classically, psychologists were taught to diagnose what is wrong and use techniques to promote change. Then, once the presenting symptoms are gone, therapy is over. Does this work? Yes. Does it work well? No. To illustrate the ineffectiveness of the current approach, consider that the prevalence of depression is increasing in the USA (Pietrzak, Kinley, Afifi, Enns, Fawcett, 2012) and researchers estimate up to 80 percent of people with depression relapse (Kuyken, Hayes, Barrett, Byng, Dalgleish, Kessler, & Causley, 2015). Once people get out of their depression, they do little to stay out of it. They stop moving away from their pain, stop taking medicine, and stop working to feel better or move toward something good in their life. Once people feel bad enough, they'll seek treatment again—but the cycle continues. With all the resources available to treat something as ubiquitous as depression we would expect better results. Traditional psychology and medicine were designed to do only half the job, which lends itself to this cycle.

Seligman, (2002, 2011) originally proposed that the science behind happiness be targeted toward three domains: positive emotions, engagement, and meaning. Expanding this, Peterson (2006) proposed that positive psychology look at what makes for positive experiences, traits, relationships, and institutions. Instead of looking at what happens when things go wrong, positive psychology asks a different question: What happens when things go right? (Gable, Reis, Impett, & Asher, 2004). What has evolved is a psychological construct that identifies five scientifically measurable components: positive emotions or pleasure, engagement, relationship, meaning and achievement or accomplishment. This approach to well-being is commonly referred to by PERMA, the acronym created by the first five letters of these elements (Seligman, 2011).

The creation of positive interventions that can be tested for effectiveness is central to this effort to measure and manage the understanding of well-being. A meta-analysis of randomized control studies of positive interventions shows that they tend to improve well-being while decreasing depression (Bolier, Haverman, Westerhof, Riper, Smit, & Bohlmeijer, 2013). A positive intervention is an intentional act that has the goal of increasing happiness. Seligman, Steen, Park, and Peterson (2005) have identified this emphasis in positive psychology by declaring, "The causal efficacy of happiness has focused our research group on one practical matter: interventions that build happiness" (p. 414). The application of positive interventions is important because among other benefits, research shows happier people live longer (Danner, Snowdon, & Friesen, 2001); are kinder (Otake, Shimai, Tanaka-Matsumi, Otsui, & Fredrickson, 2006); are more successful (Lyubomirsky, King, & Diener, 2005); and have better relationships (Scinta & Gable, 2007). The results of these studies and many others have prompted Seligman, Steen, Park, and Peterson (2005) to note: "…the efficacy of psychological interventions [is] in many ways the bottom line of work in positive psychology" (p. 432).

At the base of these intervention is a strength-based approach originated by the publication of *Character Strengths and Virtues: A Handbook and Classification* (Peterson & Seligman, 2004). It was designed to offer a compendium of what is right and virtuous in human beings and was created in direct contrast to balance out the *Diagnostic and Statistical Manual*'s list of what is wrong.

The development of a character strength survey by the VIA Institute on Character (viacharacter.org) allowed people to learn their strengths to develop them and to begin using their top ones in new and different ways. Peterson and Seligman's (2004) research classified character strengths and virtues into 24 categories organizing them into six types. The character strength survey based on this research has radically changed how character strength is understood and used around the world, particularly when it come to the use of character strengths to activate experiences of flow, and other positive experiences. (Park & Peterson, 2009**;** Peterson, Ruch, Beerman, Park, & Seligman, 2007, Niemiec, 2013).

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The six virtues followed by their 24 character strengths are:

1. **Wisdom and Knowledge:** Creativity, curiosity, open-mindedness, love of learning, perspective, innovation
2. **Courage:** Bravery, persistence, integrity, vitality, zest
3. **Humanity:** Love, kindness, social intelligence
4. **Justice:** Citizenship, fairness, leadership
5. **Temperance:** Forgiveness and mercy, humility, prudence, self-control
6. **Transcendence:** Appreciation of beauty and excellence, gratitude, hope, humor, spirituality

The advent of this classification of character strengths created a platform onto which positive interventions could be added to promote positive psychotherapy. While the complete list and analysis of these interventions is beyond the scope of this chapter the interested reader is referred to the work of Tayabb Rashid, (2015) and his colleagues (Slade, Brownell, Rashid, & Schrank, 2017) who have offered a comprehensive view of these interventions, and to the work of Gander, Proyer, Ruch, and Wyss, (2012) who have shown how these interventions can enhance happiness while reducing depression. There is also a thought-provoking article on how character strengths may be used in the future to assess and understand the cause and correction for mental illness (Seligman, 2015).

This effort, spearheaded by Peterson and Seligman's work, was not the first attempt in creating a more positive approach to psychotherapy. In 1968 Nossrat Peseschkian, a psychiatrist working in Germany, proposed "positive psychotherapy" as a theory and collection of interventions that promoted well-being. Heavily influenced by the humanistic movement, Peseschkian took a positive view of human nature (Cope, 2014). Inspired by personal encounters with prominent psychotherapist and psychiatrists, such as Viktor Frankl, Jacob L. Moreno, Heinrich Meng, the teachings of the Bahá'í Faith, and transcultural observations in more than 20 cultures, Peseschkian began searching for a combined method that was both integrative and culturally sensitive. This humanistic, psychodynamic therapy was built on a positive conception of human nature, which includes a holistic approach to well-being, containing spiritual aspirations and influences (Cope, 2014). This early version of positive psychotherapy (as there is a newer one that will be discussed below) was built on the principles of hope and moderation as a representation of social identity and consultation. This pioneering effort, like other initiatives of that time, offered inspiring views of approaches to therapy without broad evidence-based support.

The principle of hope is a worldview founded on the idea that every person is good by nature (EAP, 2011). In addition, every person is endowed with different capabilities and potential. Each person is seen as having the major virtues of love and knowledge, and through these virtues various interventions are used to motivate the process of healing. The major goal of the therapeutic process is balance, helping the client to actualize his or her abilities.

The second principle is that of moderation, as a representation of social identity. The encouragement is to develop all areas equally, with the distribution of energy to be balanced when tending to the body, work, relationships, and the future (Peseschkian, 2012).

The final principle of Peseschkian's positive psychotherapy is consultation. This is the essence of the therapeutic process and employs a five-stage process. In this manner, the client is led to address his conflicts based on symptoms. But the interventions here are framed in non-pathological ways, and the examples drawn from daily life situations or what Peseschkian referred to as "micro-traumas" of daily living (Peseschkian, 2012, 1998).

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This five-stage process involves observation, taking inventory, situational encouragement, verbalization, and broadening of goals. During the observation phase, the client is taught to see his or her problems more precisely. The taking inventory phase emphasizes the distinctions between *I*, *you*, and *we* in discerning and understanding what happens during daily life encounters. The essence of situational encouragement is to then look at the history of how conflicts have been successfully resolved. Finally, the expansion of goals places the emphasis on a future perspective (Peseschkian & Tritt, 1998).

This version of positive psychotherapy is a culturally sensitive method (Peseschkian Foundation, 2016), the premise being that each person is impacted by the cultural environment where he or she developed, influenced by the family they are born into, and altered by the individuals they've encountered along the way. Yet the underpinning of the goals of this approach to positive psychotherapy is transcultural, meaning that goals and interventions are universally human. The tools of the therapist involve using words of wisdom, humor, storytelling, and introducing moments of surprise through the session.

However, with the advent of Seligman's positive psychology the empirical basis for psychotherapeutic interventions blossomed, and positive psychotherapy (now abbreviated as PPT) evolved as a way to access the positive resources of clients in addition to treating symptoms of psychopathology. With this approach, there is a more direct emphasis on character strengths, positive emotions, and meaning (Rashid, 2015).

Growing out of his work at the University of Pennsylvania, Seligman began focusing on the use of positive intervention in a psychotherapy environment and began showing very promising effectiveness (Duckworth, Steen, & Seligman, 2005). Tayyab Rashid has furthered the research base of this form of positive psychotherapy separate and apart from Peseschkian's work (Seligman, Rashid, & Parks, 2006). The use of positive interventions in a structured way engages clients in activities and events that utilize the activation of positive emotions as a foundation for change.

This version of positive psychotherapy is based on three assumptions that are like Peseschkian's, but have some important differences derived from the research on positive interventions. First, clients inherently desire growth, fulfillment, and happiness, not just the avoidance of depression and anxiety. This simultaneously includes the need to reduce symptoms while increasing well-being. Second, positive resources such as strengths are viewed as just as real as symptoms and disorders. Their acknowledgement, activation, and encouragement are central features in PPT as they have been shown to directly promote well-being. The classification of character strengths is a major addition to the use of interventions for intentional well-being in psychotherapy. It provides an empirical foundation for positive psychotherapy, which had not yet been developed during Peseschkian's pioneering work.

Finally, effective therapeutic relationships can be formed through conversation and the use of positive resources, not just thorough analysis of weaknesses and deficits (Seligman, Rashid, Parks, 2006; Rashid & Ostermann, 2009).

By including strength-based positive interventions into the practice of traditional forms of psychotherapy, a more robust dynamic than removal of symptoms is introduced into sessions. This is important since research shows that the experience of positive emotions broadens a person's repertoire of thought and action, which in turn facilitate well-being. This dynamic has been researched and articulated by Barbara Fredrickson (2004, 2009) and is known as the 'broaden and build' theory of positive emotions. Further, understanding character strengths and being able to use your own and spot them in others has been central to advances in psychotherapy. Christopher Flückiger (2008) and his colleagues have developed a procedure, resource priming, where facilitators of psychotherapy take 5 minutes before their sessions to focus on the strengths of their individual clients. The result is that the priming leads to resource activation whereby participants focus on the positive perspective of their behavior, which in turn leads

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to better progress in therapy as measured by greater reduction in symptoms and higher levels of well-being. Such a simple initiative has also been shown to foster a stronger practitioner-client relationship and greater sense of accomplishment and mastery by the client.

Research on the use of positive interventions have shown that participants in studies not only show greater improvement when these methods are used, and their improvement continues beyond the use of the interventions. (Bolier et.al., 2013;) People who gain the tools to alleviate suffering and learn how to thrive are less likely to relapse. They learn how to get out of a bad place, stay out, and engage in activities to feel better. Brief exposure to these interventions has demonstrated a decrease in depressive symptoms with an increase in well-being with sustainable results. (Sin & Lyubomirsky, 2009).

Consider one of the studies in positive psychotherapy conducted in a group therapy format (Seligman, Rashid, & Parks, 2006). Forty mild to moderately depressed University of Pennsylvania students were divided into a treatment group and a non-treatment group. The treatment condition consisted of two groups of 8-11 participants seen for six weeks for two-hour sessions. Each session was half a discussion of the exercise assigned from the previous week and half an introduction to the new exercise. The participants carried out homework assignments and reported back each week on their progress. The first week, participants were asked to take the VIA survey (mentioned above) and use their top five strengths more often in their day-to-day lives. Week two involved the participants writing down three good things that had happened during the day and why they thought they had occurred. The third week, participants were asked to write a brief essay on what they want to be remembered for the most; a biography of having lived a satisfying life. The next session involved composing a letter of gratitude to someone they may never have thanked adequately, and then reading that letter to the person, personally or by phone.

During the fifth session, the members were asked to respond very positively and enthusiastically each day to good news received by someone else (known as Capitalization with Active Constructive Responding (Gable, Reis, Impett, & Asher, 2004). The final session involved savoring daily events in their lives that they normally did not take the time to enjoy and journaling about how the experience differed from their normally rushed schedules. Time was also spent during this last session on tailoring the exercises for the participant's use following the end of the study.

Each intervention consisted of the use of five top strengths from the character strength survey, three good things that happened and why, a written biography of having had a satisfying life, a letter of gratitude, and enthusiastically responding to someone else's good news are all well-known and established positive interventions, as is the savoring and planning for future exercises following the end of the study. When used in this weekly series format, the results were notable.[2]

As one might expect, the group PPT participants did better than the no-treatment group on assessments of depression and satisfaction with life. But there is a powerful finding beyond this positive change. The gains made by the PPT groups were maintained with no other intervention by the researchers throughout a one-year follow-up, while the baseline levels of depression for the non-treatment group remained unchanged.

Six sessions and twelve hours, with no booster sessions during the year. This is very unusual in the study of depression and highlights how the use of these exercises involved self-maintaining features that served the participants beyond the intervention.

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THE FUTURE OF HOPE

Before looking at what positive interventions in the future may entail, it is helpful to revisit one of the key pieces of research upon which positive psychology grew.

The latest research by Maier and Seligman (2016) revisits the original work on learned helplessness. This body of investigation is the research foundation that generated the inquiry leading to learned optimism—and the eventual development of the field of positive psychology. Back then, now more than fifty years ago, their research showed that once animals learned that nothing they did mattered, they stopped trying to escape—even when escape was possible. Maier and Seligman have now concluded that their original hypothesis that animals could learn that their actions do not affect outcomes, was incorrect.

Through a series of intricate studies, Maier and Seligman have demonstrated the original conclusion was the opposite of what they now hold to be true. By investigating the neural circuitry that regulates our fight/flight and fear/anxiety responses, it was discovered that both escapable and inescapable shocks activate the dorsal raphe nucleus (DRN). Further, they found that when the ventromedial prefrontal cortex (vmPFC), a part of the brain associated with risk processing, detects that shocks are escapable, it inhibits the DRN and turns off the effects of the shock. Passivity, giving up, is now understood to be a default reaction to extended aversive events. Nothing was "learned" about helplessness. What is learned is the possibility of control. In their own words:

Rather, passivity is an unlearned, default response to extended aversive events. Animals overcome this passivity by learning control, and the expectation of control mediates future responses to aversive events.

The circuit created between the DRN and vmPFC has been identified by Maier and Seligman as the hope circuit, noting that hope is likely the best defense against helplessness.

Extrapolating from this research, overcoming the default response to passivity it is the expectation of control that determines future responses. It is the anticipation of having control that facilitates the ability. Toward this end, the use of imagination to generate future scenarios of control, or reclaiming a sense of control from prior inhibition through reframing past occurrences is a fertile ground for new interventions. The first of these interventions has begun to show up in the research that highlights a connection with a future self through writing (Peters, Flink, Boersma, & Linton, 2010; Hershfield, Cohen, & Thompson, 2012), immersive virtual reality (Hershfield, Goldstein, Fox, Yeykelis, Carstensen, & Bailenson, 2011), and the creation of 15 year older future-self interactive avatars on Facebook (Gelder, Luciano, Kranenbarg, & Hershfield, 2015). The results show those who engage in various future-self conditions show fewer negative behaviors and more virtuous activities.

Research also demonstrates that control over past conditions for future benefit is possible by recasting and refocusing the experience through the lens of potential positives that may have been eclipsed by a negative or traumatic experience (Calhoun & Tedeschi, 2006; Tedeschi, Calhoun, & Groleau, 2015). Such interventions, either through future projection or untangling from past inhibitors through recasting offer a greater sense of control and hope in embracing the future.

Finally, new methods and efforts to reach underserved populations are emerging such as techniques for working with people with intellectual disabilities (Tomasulo, 2014) and people experiencing episodes of psychosis (Slade, Brownell, Rashid, & Schrank, 2017).

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The International Positive Psychology Association (IPPA) is supporting the effort to extend the type and impact of new interventions and in 2017 the Positive Clinical Psychology Division held their first avant-garde clinical intervention contest. The virtual gratitude visit (VGV) was selected as an exemplar.

NARRATIVE ENACTMENT: THE VIRTUAL GRATITUDE VISIT (VGV)

Expressing gratitude as a positive intervention has been central to the positive psychology movement. The gratitude visit, where participants write and deliver letters of gratitude to people they feel they have not properly thanked, was one of the first positive interventions studied (Seligman et al., 2005). In the initial report, when compared to other interventions, those who performed the gratitude visit were found to be the least depressed and the happiest of all the participants. As discussed by Tomasulo (2014), gratitude has also been found to enhance self-esteem (McCullough et al., 2002), life satisfaction (Kashdan Uswatte, & Julian, 2006), prosocial behavior (Wood et al., 2008), and better interpersonal relationships (Algoe et al., 2008; Tsang, 2007). It was also found to directly influence the capacity to broaden and build positive emotions (Fredrickson, 2004, 2009) and was noted by Lyubomirsky, Sheldon, and Schkade (2005) as one of the main interventions that can lead to sustainable happiness. But not all gratitude exercises are the same and there have been some surprising results of such. Boehm and Lyubomirsky (2009) studied participants who savored positive events by writing in an gratitude journal five things they were grateful for either once a week or three times a week, and then compared them with a control group that did not keep journals. Pre- and post-measures on well-being revealed that gratitude journaling worked better once a week rather than three times a week or in the control group. In fact, the once a week approach was the only condition in which improvement in well-being was noted. The authors theorize that the success of a positive intervention depends not only on what the intervention is, but also how it is delivered. Expanding on the method of delivery is where the VGV finds applicability. New research by O'Connell, O'Shea, and Gallagher (2017) focuses on the enhanced power of expressing gratitude to others. They compared a gratitude journal group to a similar group that, in addition, verbally expressed their gratitude. The researchers found the expressive group did better than gratitude journaling alone or the control group. In the expressing-to-others group, negative emotions and depression decreased, which provided greater emotional balance. The authors concluded that other-oriented gratitude is enhanced when it is outwardly expressed. It is the deliberate verbal expression to others that has relevance to the VGV.

There are three ways the traditional methods and research of a gratitude letter and visit can be re-envisioned and restyled with the VGV. First, most evidence-based interventions concerning gratitude involve writing and/or reading through the use of journals, letters, and sharing of the same. As O'Connell et al.'s (2017) article highlights, expressive writing is only one means by which a therapeutic improvement can happen. The VGV uses an enactment of feelings of gratitude in a role-play with an empty chair. Importantly, the VGV format liberates the technique from a written procedure, as the enactment with the empty chair is unscripted. This unscripted enactment has the potential to reap the benefits of expressing gratitude toward others, yet can be accomplished without them present. Drama therapy (Tomasulo & Szucs, 2016), psychodrama (Fong, 2006; Yazdekhasti, Syed, & Arizi, 2013), and role-playing (Nikzadeh & Soudani, 2016) are all methodologies that have shown to offer therapeutic gains (Kipper & Ritchie, 2003), and delivering gratitude with such enactment methodologies is worthy of further investigation. Additionally, the usefulness of the VGV as a non-reading and non-writing intervention could have tremendous value for the more than 775 million adults in the world who are illiterate (Wiki-

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pedia, n.d.). Interventions that can address the need to deliver the advantages of expressing gratitude to these individuals deserve research and application attention. People with concomitant intellectual and psychiatric disabilities who have no or low literacy are a primary clinical interest to the author, and the use of VGV in this context for the interested reader can be found elsewhere (Razza & Tomasulo, 2005; Tomasulo, 2014; Tomasulo & Szucs, 2016).

Second, the delivery of a gratitude letter as originally intended involves the availability of a live recipient. As the VGV uses role-playing with an empty chair to enact a gratitude visit, the intervention can include others who are unavailable. Using this empty chair approach may be helpful in four ways:

1. The person one has gratitude for may no longer be living and an enactment would be one way to activate the positive effects of the relationship.
2. The person may be alive, yet unavailable. As an example, it may be a person from childhood who has moved or a friend one has lost contact with.
3. As internal family systems have shown, there may be "parts" of ourselves that we have gratitude toward (such as a time when we had more resilience, grit, or joy in our lives). An enactment with these parts may be helpful in activating strength from another memory point in time. Role-playing allows this type of intra-psychic exploration of gratitude to take place.
4. Expressing gratitude toward God through an enactment may be particularly helpful.

Research by Rosmarin, Pirutinsky, Cohen, Galler, and Krumrei (2011) has shown (as others have) that gratitude is significantly correlated with religious commitment. But their research also found that the relationship between these two variables is fully mediated specifically when gratitude is directed toward God. They looked at 405 adults of varying religious backgrounds through an online survey and used gratitude questionnaires that measured both religious and non-religious expressions of gratitude. These results were then compared to measures of religious commitment. (Religious commitment was determined by a person's degree of belief in God, importance of religion, and religious identity). Happiness, satisfaction with life, positive and negative affect and physical and mental health were measured using well-known scales or adaptations of them. They found that general gratitude was predictive of all the outcome variables. This means that gratitude in general, as other studies have shown, works very well. What was interesting in this study is that the degree to which a person is religiously committed enhances the effect of the gratitude. As the authors put it, "We propose that religion facilitates gratitude through a religious lens…"[3]

With the VGV, using an unscripted monologue of God-directed gratitude toward an empty chair highlights this specific intention. It has also been demonstrated that when there is spiritual content in an enactment, mental health, happiness, and joy can be positively affected (Yazdekhasti, Syed, & Arizi, 2013).

Finally, a VGV performed in-vivo in the therapist's office allows for both immediate feedback about its effectiveness and integration of the experience with the therapist. Accordingly, the client may be inspired to continue the work with more traditional positive clinical interventions beyond the session. In fact, recent research by Shahar, Bar-Kalifa, and Alon (2017) has shown specifically that the use of empty chair role-playing will help do just that.

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VGV Technique

(This description is taken largely from the article by Tomasulo, 2014). For this technique, two chairs are arranged, one for the protagonist and the second the (auxiliary) empty chair for the unavailable/other. The protagonist arranges the chairs in a way that symbolically depicts the relationship; that is, are the chairs close? Far apart? Side by side? One behind the other? The chairs' arrangement sets the emotional tone for the encounter. The protagonist then sits in his or her chair and expresses gratitude toward the imagined unavailable/other in the empty chair. Following this, the protagonist reverses roles and becomes the auxiliary. In doing so, the protagonist responds as if the gratitude had just been expressed to him or her. This auxiliary role is then relinquished and the protagonist returns to the original chair, saying a closing remark to the empty chair. This ends the enactment.

The empty chair technique with a role reversal has the potential to activate several therapeutic elements. First, it allows for an unscripted expression of gratitude. There is no reading or writing involved. This would be a significant shift in how gratitude is studied and delivered. The research on expressing gratitude in written form demonstrates the power of expression. The VGV extends the method of expression, which appears to be both a necessary and natural extension of the ways gratitude can be used effectively in a clinical setting.

Second, the understanding accrued by reversing to the other role employs elements of empathy and learning of the other through theory of mind (Goldstein & Winner, 2012). This role-reversal allows for an amplification of the positivity of gratitude and integration as it is experienced as both sender and receiver. This learning helps to facilitate what Moreno referred to as a catharsis of integration:

Mental catharsis is here defined as a process which accompanies every type of learning, not only release and relief but also a catharsis of integration (Moreno, 1953/1993, p. 206).

Inspire to Rewire: Use of the VGV in Group Therapy

As a member of a group using a VGV, a member can not only enact his or her gratitude, but also witness the expression of gratitude by others. Thus, even in an audience or participant/observer role, a client may derive benefit. Group therapy has traditionally provided a dynamic, low-cost treatment opportunity. By adding the VGV to the toolbox for group therapists, the collective well-being of the group can be enhanced.

There are several reasons this approach is a valid and fruitful avenue for future research. First, psychodramatic role-playing has been shown to be effective within a wide variety of clinical conditions (Kipper & Ritchie, 2003; Hurley, Tomasulo, & Pfadt, 1998).

Second, at its core, the VGV is a narrative, which is one of the most pervasive and promising elements of positive interventions. As discussed by Tomasulo and Pawelski (2012), stories play a significant role in both psychological research and application. The expression of gratitude is a narrative of the benefits of the relationship. Several key positive interventions use participants' narratives as components of the research (Danner, Snowdon, & Friesen, 2001; Pennebaker, 1997, 2004; Seligman et al., 2005). Furthermore, three of the first five positive interventions reported on by Seligman and his colleagues (Seligman et al., 2005) involved the use of autobiographical narratives: the gratitude visit, you at your best, and three good things in your life. Storytelling was also a central feature in the teaching of positive psychology as Seligman and Chris Peterson began their first course with "serious introductions," where each

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person tells a story about being his or her best self, and Paul Zak (Future of Storytelling) has articulated the biochemical changes that take place during an engaging story.

Other major positive intervention programs and research use storytelling as a central element in the means to deliver or facilitate the intervention. In fact, the Penn Resiliency Program (PRP), the world's most widely researched program for the prevention of depression (Seligman, Ernst, Gillham, Reivich, & Linkins, 2009), includes storytelling as a central component. Jonathan Haidt (2006) believe there is great power in the use of story as a vehicle to extend empathic understanding. They believe the development of empathy using story may be part of the core dynamic inherent in why stories and psychodramas work.

Finally, a positive emotional enactment, as would be demonstrated by a VGV, has the power to activate *elevation* as defined by Haidt (2003) as an emotion elicited by witnessing virtuous acts of human goodness. Watching others express their gratitude is such an act, and there is direct evidence that elevation can uplift depressed clients (Erickson & Abelson, 2012). Through the established elements of elevation and clinical role-playing in groups, a VGV can elicit a positive emotional response simply by watching others express their gratitude. It is elevation that makes the expression of a positive emotional experience in a group setting an important feature for psychodramatists to amplify in enactments. The research on elevation shows that we are wired to notice human goodness. Haidt (2006, 2003) notes there are three main features of elevation: First, we are drawn to those scenes and stories that are elicitors, such as acts of courage, kindness, loyalty, or any other act of human goodness. Second, there is often a phenomenological and physiological reaction, such as a calm/relaxed, a warm/open/pleasant feeling in the chest, sometimes getting "choked up." Finally, we are motivated by the elicitors to emulate and self-improve. Haidt (2003) noted that the motivational tendencies that elevation produces include merging with, opening to, and helping others. Psychodramatists are in a particularly good position in a group to use the methods of enactment to take advantage of the natural benefits of elevation. In Haidt's words, we "inspire to rewire."

CONCLUSION

To summarize:

- A VGV uses an unscripted enactment with an empty chair to express gratitude.
- It uses a role–reversal with the empty chair to integrate the emotional experience.
- It extends the method by which the positive intervention of a gratitude visit is delivered.
- Since an empty chair is used, gratitude can be expressed to individuals no longer alive.
- The empty chair also allows for an encounter with other stronger parts of the self.
- It can be used with people with low or no literacy.
- It can be used for spiritual growth by expressing gratitude toward God.
- It is an intervention that can be delivered face-to-face with the therapist during the session.
- In a group, it can benefit the protagonist and members due to the phenomenon of elevation.
- A VGV is a narrative intervention, a storytelling approach, amplified through role-playing.

As recent research and publications have confirmed (Slade, Brownell, Rashid, & Schrank, 2016), the need to extend positive interventions, particularly to difficult populations, is necessary.

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The history of positive psychotherapy has a rich ancestry and a very hopeful future. Clinicians are encouraged to examine which of these interventions thy can begin to fold into their current practice. Using the character strength survey (via character.org) as a free assessment tool during an intake might be the easiest and most direct way to signal to the client that the approach in therapy will be one to not only alleviate suffering, but also enhance well-being. This is an exciting time for psychotherapists as the range of tools available to use, and the need for research for new positive interventions, creates a powerful opportunity to practice a method that helps to prevent relapse and offer greater hope. As practitioners, our future and our clients are limited only by our imagination, and, as Albert Einstein has suggested: "Imagination is everything. It is the preview of life's coming attractions."

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ENDNOTES

1. A version of the material in this section has been discussed in a blog written by the author: http://psychcentral.com/blog/archives/2010/06/21/shall-we-flow/
2. A version of the material in this section has been discussed in a blog written by the author:https://psychcentral.com/blog/archives/2013/01/27/moving-from-whats-wrong-to-whats-strong-introducing-positive-psychotherapy-ppt/
3. A version of the material in this section has been discussed in a blog written by the author: http://psychcentral.com/blog/archives/2011/12/11/can-god-and-gratitude-help-your-mental-health/

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Chapter 98
Foundations and Future of Well-Being:
How Personality Influences Happiness and Well-Being

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ABSTRACT

This chapter begins by exploring subjective well-being and its origins dating back to ancient thinkers such as Aristotle. It discusses two main forms of subjective well-being; eudaimonic and hedonic well-being. The chapter then delves into the roles of personality, emotional intelligence, positive emotions, economics and religion in influencing subjective well-being. Measures of well-being are discussed as well as the notion of the Hedonic Treadmill and how it operates with the Set-point Theory of happiness. In addition, this chapter also presents the latest research from neuroscience and discusses how neuroscience potentially challenges personality and set-point theories. A few practical steps for subjective well-being are also discussed. Overall, this chapter covers the historical and contemporary theories of subjective well-being and explores a new positive direction on the association of personality, health and subjective well-being.

INTRODUCTION

The pursuit of happiness and wellbeing has recently gained attention among academics despite being a subject of inquiry since ancient times. Aristotle, in his book *Nicomachean Ethics*, spent a great deal discussing *eudaimonia*, which translates as 'happiness' or 'well-being'. The Aristotelian concept of eudaimonia has provided a mechanism for recent theories on wellbeing and positive psychology. The association between personality, health, and well-being has relationship with moral philosophy and positive psychology. Traditionally psychology has focused on the negative side of human behavior patterns.

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Whereas, recent theories on well-being argue for new ground, based on human strengths. Furthermore, the study of personality traits has provided further clarity to the mechanisms of wellbeing. In addition to personality, this chapter also takes into account concepts from moral philosophy, neuroscience, and positive psychology in addressing wellbeing. Overall, the goal of this paper is to describe various approaches to wellbeing.

BACKGROUND

Subjective Well-Being

The concept of subjective well-being refers to an individual's evaluation of overall life satisfaction and feelings (Kesebir & Diener, 2008; Marks & Shah, 2005; Seiligman & Csikszentmihalyi, 2000). It includes positive and negative evaluation of cognitive, emotional, economic and social aspects of one's life. Interventions such as positive thinking, exercise, eating well and spirituality help to promote subjective well-being (Ryff, 2014). Life satisfaction (including pleasure and enjoyment), personal development (engagement in life, social cohesion, curiosity and resilience), and general social wellbeing (positive attitudes and belongingness in social activities) are important dimensions of subjective well-being (Marks & Shah, 2005). Well-being and happiness is also associated with success in various domains of life (Lyubomirsky, King, & Diener, 2005).

Origins of Research on Well-Being

The underpinnings of well-being are ancient and have existed since Aristotle's times. For Aristotle, the essential philosophical roots of *eudaimonia* (happiness) were not about feeling good or satisfying hedonistic appetites, but rather practicing and acting according with virtue, (i.e "activity of the soul in accord with virtue" (p.11) and exercising unique human potential (Ryff, 1989; 2014). Aristotle banded virtues such as courage, temperance, patience, friendliness, and honor that can lead to *eudaimonia*. Similarly, philosophers Socrates and Plato, were in tune with the good life as the result of practicing virtuous living. Aristotle was the disciple of Plato and Plato was the disciple of Socrates. Similar to Aristotle, Plato suggested that desire and doing good things leads to happiness (Plato, 1999). In addition to Aristotle's *eudaimonia*, ataraxia which is aimed at finding happiness within, existed among Greeks (Leahey, 2000). Similar to Aristotle, other Stoic philosophers endorsed happiness as the result of leading a virtuous life. The current notion of subjective well-being in positive psychology is slightly contrasted with Aristotle's *eudaimonia* despite its underpinnings of ancient views on happiness.

The research on subjective well-being in positive psychology has focused on the hedonic view of well-being. Yet the Aristotelian concept of *eudemonia* has been used by recent scholars on wellbeing (e.g. Seligman, 2002). The positive psychology notions of 'flourishing', 'wellbeing' and 'happiness' are also used in the Aristotelian view of *eudemonia*. Seligman has contributed to positive psychology through utilizing ideas from moral philosophy. Living well in terms of intellectually, and morally is associated with happiness (Spieker, 1999). A healthy life is acting virtually and employing excellence in physical and mental activities leading to sustainable happiness. Based on this tradition, practicing excellence in virtues leads to a state of well-being.

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Peterson and Seligman (2005) proposed 24 signature strengths which are further grouped in 6 virtue clusters (Seligman, Steen, Perk & Peterson, 2005); they are, Wisdom and knowledge (creativity, curiosity, open-mindedness, love of learning, perspective and wisdom); Courage (Authenticity, Bravery, Persistence, Vitality/Zest); Humanity (Kindness, love, social intelligence); Justice (Fairness, Leadership, Teamwork); Temperance (Forgiveness, Modesty, Prudence, Self-regulation); and Transcendence (Appreciation of beauty and excellence, Gratitude, Hope, Humor, Religiousness). Some of these signature strengths (e.g. Justice, Courage) are inspired by Aristotle's book Nicomachean Ethics and theological roots (e.g. Temperance and Transcendence). Overall, Aristotle's view of *eudemonia* is a subjective view and current theories are more accommodative of a prescriptive view of wellbeing and happiness (Kesebir & Diener, 2008). Both the subjective and prescriptive views are important based on their positive influence on human wellbeing.

Table 1 Classification of 6 virtues and 24 character strengths

Virtue and Strength	**Definition**
1. Wisdom and knowledge	Cognitive strengths that entail the acquisition and use of knowledge
Creativity	Thinking of novel and productive ways to do things
Curiosity	Taking an interest in all of ongoing experience
Open-mindedness	Thinking things through and examining them from all sides
Love of learning	Mastering new skills, topics, and bodies of knowledge
Perspective	Being able to provide wise counsel to others
2. Courage	Emotional strengths that involve the exercise of will to accomplish goals in the face of opposition, external or internal
Authenticity	Speaking the truth and presenting oneself in a genuine way *Not* shrinking from threat, challenge, difficulty, or pain
Bravery	Finishing what one starts
Persistence	Approaching life with excitement and energy
Zest	Interpersonal strengths that involve "tending and befriending" others
3. Humanity	Doing favors and good deeds for others
Kindness	Valuing close relations with others
Love	Being aware of the motives and feelings of self and others
Social intelligence	Civic strengths that underlie healthy community life
4. Justice	Treating all people, the same according to notions of fairness and justice
Fairness	Organizing group activities and seeing that they happen
Leadership	Working well as member of a group or team
Teamwork	Strengths that protect against excess
5. Temperance	Forgiving those who have done wrong
Forgiveness	Letting one's accomplishments speak for themselves
Modesty	Being careful about one's choices; *not* saying or doing things that might later be regretted
Prudence	Regulating what one feels and does
Self-regulation	Strengths that forge connections to the larger universe and provide meaning
6. Transcendence	Noticing and appreciating beauty, excellence, and/or skilled performance in all domains of life
Appreciation of beauty and excellence	Being aware of and thankful for the good things that happen
Gratitude	Expecting the best and working to achieve it
Hope	Liking to laugh and tease; bringing smiles to other people
Humor	Having coherent beliefs about the higher purpose and meaning of life
Religiousness	

Source: Seligman, M. E. P., Steen, T. A., Park, N., & Peterson, C. (2005), Positive psychology progress: Empirical validation of interventions. *American Psychologist*, 60, 410-421. (p. 412)

The Influence of Moral Philosophy on Well-Being

It is evident that the current theories on well-being have integrated ancient Aristotle's *eudaimonia.* As Aristotle suggested that "living well and doing well "are important aspects of *eudaimonia* (happiness or wellbeing) (p. 3), Seligman (2011) similarly states, "if we want to flourish and if we want to have well-being, we must indeed minimize our misery; but in addition, we must have positive emotion, meaning, accomplishment, and positive relationships" (p.57).

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Forms of Well-Being

As discussed above, there are two main forms of well-being; eudaimonic and hedonic well-being. Eudaimonism is based on Aristotle's view of virtues and Hedonic well-being refers to pleasure orientation. There is conceptual overlap between Aristotle's *eudaimonia* and current theories of psychological well-being. Philosophical theories of happiness provide underpinnings to recent positive psychology theories.

Ryff (2014) utilized philosophical, developmental and clinical psychology to put forth her concept of well-being that contains six key components; autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance. These components have their foundations Rogers, Maslow and Jung theories (See Figure 1). Ryff has tried to address the question "What constitutes essential features of well-being?" (p.11). Ryff has substituted Aristotle's virtues with dimensions of psychological well-being; purpose in life, autonomy, personal growth, environmental mastery, positive relationships, and self-acceptance. Life satisfaction was strongly associated with Environmental mastery and self-acceptance (Ryff, 1989). Ryff also integrated concepts from Aristotle' *eudaimonia*, mental health and life span development to propose positive psychological functioning.

Figure 1. Ryff's (2014) core dimensions of psychological well-being
Source: Ryff, C.D. (2014). Psychological Well-Being Revisited: Advances in the Science and Practice of Eudaimonia, Psychther Psychosom, 83, 10-28. (Page 11)

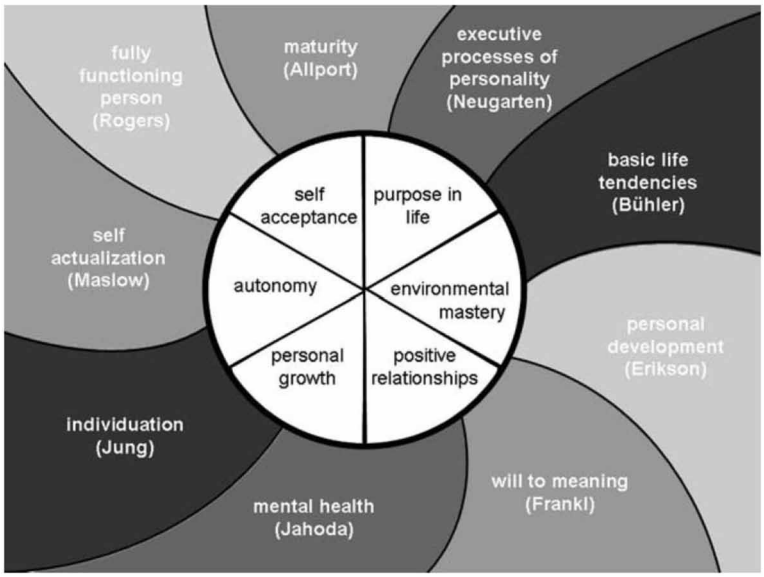

Table 2 outlines definitions of Ryff 's (2014) model of psychological well-being that includes six key components; autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance.

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Table 2. Definitions of theory-guided dimensions of well-being

Autonomy High scorer: Is self-determining and independent; able to resist social pressures to think and act in certain ways; regulates behavior from within; evaluates self by personal standards.
Low scorer: Is concerned about the expectations and evaluations of others; relies on judgments of others to make important decisions; conforms to social pressures to think and act in certain ways.
Environmental mastery
High scorer: Has a sense of mastery and competence in managing the environment; controls complex array of external activities; makes effective use of surrounding opportunities; able to choose or create contexts suitable to personal needs and values.
Low scorer: Has difficulty managing everyday affairs; feels unable to change or improve surrounding context; is unaware of surrounding opportunities; lacks sense of control over external world.
Personal growth
High scorer: Has a feeling of continued development; sees self as growing and expanding; is open to new experiences; has sense of realizing his or her potential; sees improvement in self and behavior over time; is changing in ways that reflect more self-knowledge and effectiveness.
Low scorer: Has a sense of personal stagnation; lacks sense of improvement or expansion over time; feels bored and uninterested with life; feels unable to develop new attitudes or behaviors.
Positive relations with others
High scorer: Has warm, satisfying, trusting relationships with others; is concerned about the welfare of others; capable of strong empathy, affection and intimacy; understands give and take of human relationships.
Low scorer: Has few close, trusting relationships with others; finds it difficult to be warm, open, concerned about others; is isolated and frustrated in interpersonal relationships; not willing to make compromises to sustain important ties with others.
Self-acceptance
High scorer: Possesses a positive attitude toward the self; acknowledges and accepts multiple aspects of self, including good and bad qualities; feels positive about past life.
Low scorer: Feels dissatisfied with self; is disappointed with what has occurred in past life; is troubled about certain personal qualities; wishes to be different than what he or she is.

Source: Ryff, C.D. (2014). Psychological Well-Being Revisited: Advances in the Science and Practice of Eudaimonia, *Psychther Psychosom,* 83, 10-28. (Page 3)

Causes of Well-Being

Individual Differences

The study of psychological well-being has been an important aspect of personality and health psychology. Even though well-being was and has been the main area of interest for Aristotle and the study of positive psychology, empirical and longitudinal studies point out that personality provides effective scientific foundation to subjective well-being (Steel, Schmidt, & Shultz, 2008; Diener & Lucas, 1999). Diener and Lucas (1999) suggested that subjective well-being is the result of personality traits. There is a relationship between subjective well-being and personality traits (Steel, Schmidt, & Shultz, 2008). Personality plays a significant role in predicting subjective wellbeing (DeNeve & Cooper, 1998).

The Big Five personality traits known as Extraversion, Neuroticism, Agreeableness, Conscientiousness and Openness (see Table 3) have been linked to much research on well-being. Research suggests that individuals who score high on conscientiousness and low on neuroticism maintain health-promoting behaviors (Bogg & Roberts, 2004). Similarly, the same personality traits (high conscientiousness and

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Table 3. The big five personality factors

Big Five Dimensions	Facet
Extraversion	Sociable, Assertiveness, Energetic, Outgoing, Activity, Excitement-seeking, Enthusiastic, Warmth
Agreeableness	Warm, Trusting, Altruism, Compliance Modesty, Tender-mindedness
Conscientiousness	Competence, Keep things in Order, Dutifulness, Achievement striving, Maintain Self-discipline, Deliberation
Neuroticism	Anxious, Irritable, Self-consciousness, Impulsiveness Vulnerability, Less-confident
Openness	Curious, Imaginative, Aesthetics, Wide interests, Unconventional

Source: John, O. P., & Srivastava, S. (1999). The Big-Five trait taxonomy: History, measurement, and theoretical perspectives. In L. A. Pervin & O. P. John (Eds.), *Handbook of personality: Theory and research* (Vol. 2, pp. 102–138). New York: Guilford Press.

low in neuroticism) predict healthy sleep patterns (Duggan, Friedman, McDevitt, & Mednick, 2004). Research also points to positive correlation between agreeableness and conscientiousness (DeNeve & Seligman, 2002; Lucas, 2008). Therefore, agreeableness and conscientiousness influence health behaviors.

Conscientious individuals by trait exhibit self-control, diligence, goal-oriented behavior, life satisfaction and positive health behaviors (Friedman, 2000; Israel & Moffitt, 2014). Therefore, individuals who score high on Conscientiousness are likely to live longer. Research also suggests that Extraversion is positively associated with subjective well-being and Neuroticism is negatively associated with subjective well-being (Lucas, 2008) and greater happiness (Cost & McCrae, 1980). All these associations point to personality playing a "substantial role" in predicting subjective wellbeing (Diener and Lucas, 1999). Individuals who score high on Extraversion positively respond to social interactions and Neurotic individuals intensely respond to negative experiences. Neuroticism has been associated with poor mental health such as depression (Enns aa& Cox, 1997) and increased mortality (Shipley, et.al. 2007). Generally, individuals with high Extraversion and Conscientiousness, low Neuroticism are associated with wellbeing (Ryff, Keyes & Shmotkin, 2002). Individuals with high conscientious report positive mental well-being due to their sense of confidence (Löckenhoff, Sutin et al., 2008). Life experience plays a pivotal role in providing stimuli for personality traits and influencing well-being (Larsen and Ketelaar, 1991). Based on the empirical evidence personality is a better predictor of long-term subjective well-being (Steel, Schmidt, & Shultz, 2008).

Type A and Type B Personality Factors

Individuals with Type A personality are defined as competitive, ambitious, impatience, aggressive, hostile and show physical tenseness; whereas individuals with Type B personality are defined as easy going, less hostile and relatively leading calm lives (Caracciolo & Molinari, 1986). Individuals with Type B personality maintain effective social support and lead reasonably relaxed lives. Therefore, Type B individuals have more well-being orientation compared to Type A personality individuals. Their "upright" and "laid back" nature has a direct influence on subjective wellbeing:

- **Emotional intelligence:** Emotional Intelligence can further shed light on the association of personality, health and well-being. Both from the trait and emotional perspective, emotional intelligence sheds further understanding of subjective well-being. The ability to understand, manage own emotions is an integral part of emotional intelligence (Mayer & Salovey, 1997; Salovey,

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Mayer, & Caruso, 2002). Moral emotions have significant influence on wellbeing. They are the result of concern for conscious response to right and wrong (Kroll, Egan, Erickson, Carey, & Johnson 2004). Recently Athota and O'Connor (2014) established a moral component of emotional intelligence. According to Salovey and Mayer (1990), emotional competence is an ability to understand and control emotions, both in the self and in others. Responding to empathetic emotions avoids psychological conflict and positively influences experience of wellbeing. Goleman (1995) suggested that emotional control (expressing emotions at the right time to the right degree) is the bedrock of character, which has similarities to Aristotle's *eudaimonia* concept. Research also suggests that positive emotions play an important role and act as a buffer to deal with tough situations in life and promote subjective wellbeing (Kahneman & Krueger, 2006; Seligman, 2002). Responding to empathetic feelings also influences psychological wellbeing (Pizarro & Salovey, 2002). New paradigms for emotional intelligence are still evolving (MacCan & Roberts, 2008). Further empirical work is needed in specifically targeting subjective well-being;

- **Positive emotions:** The importance of flourishing through positive emotions and activities is encouraged (Fredrickson, 1998; Ryff, 2014; Seligman, 2011). Positive emotions have been associated with longevity (Danner, Snowdon, & Friesen, 2001). Positive emotions are directly associated with overall success and health (Lyubomirsky, King, & Diener, 2005). Health benefits include fewer colds (Cohen, Alper, Doyle, Treanor, & Turner, 2006), reduced risk of cardiovascular disease (Boehm & Kubzansky, 2012) and mortality (Chida & Steptoe, 2008). Positive emotions influence overall cognitive abilities, that help individuals to utilize their ideas effectively (Fredrickson, 1998) and increase personal resources like mindfulness, social support and decrease illness symptoms (Fredrickson, Cohn, Coffey, Pek, & Finkel, 2008). Positive emotions have the ability to influence the cognitive aspect and biochemistry of individuals. Therefore, induced positive memories can also have a potential positive effect on health;
- **Religiosity:** According to Divine Command Theory, happiness is achieved through divine laws and morals given in sacred texts. The philosophical foundations of this theory have conceptual overlap with Aristotle's concept of *eudaimonia.* Professor Andrew Clark and Dr. Orsolya Lelkes in their longitudinal study in 2005 found that religious people maintain higher wellbeing. Specific activities such as church going and prayer provide a buffer against stressful events of life and leave a positive impact on life quality. Individuals with intrinsically motivated religious beliefs like Mother Theresa, operate with empathy. Research suggests that empathy helps to understand the needs of others and promotes positive social interaction (Eisenberg, Shea, Carlo, & Knight, 1991; Haidt, 2006; Pizzaro, 2000). Furthermore, the Sermon on the Mount by Jesus of Nazareth makes an association between virtues of humility, compassion and happiness (Matthew 5, New International Version). Research also points to moral emotions resolves emotional conflict and facilitates altruistic behavior (Kroll, Egan, Erickson, Carey, & Johnson 2004). Belief in positive religious teaching helps in dealing with existential crisis as well as terror management. Overall, subjective well-being is enhanced through participation of religious practices and prayers (Diener et al. 1999).

Measures of Well-Being

Despite the popularity of the concept of subjective well-being, evidence points to measures of subjective well-being in its early stage. One of the main reasons is that well-being is a multidimensional concept

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and there are potential challenges in measuring well-being. The existing research has relied on self-report scales. Well-being is generally associated with life satisfaction, using the Life Satisfaction Index. (Neugarten, Havigburst, & Tobin,1961); Fordyce Emotions Questionnaire (Fordyce, 1988); and Subjective Happiness Scale (Lyubomirsky & Lepper, 1999). The Ryff Scales of Psychological wellbeing (Ryff & Keyes, 1995) utilized theory-guided dimensions of well-being to measure self-acceptance, positive relations with others, autonomy, environmental mastery, personal life and personal growth. Despite a few available scales, the qualities of self-reports also need to be improved (Kahneman and Krueger 2006; Schwarz and Strack 1999). A battery of advanced longitudinal and experimental measures are needed to measure experiences, biological traits, and cognitive abilities. Caution must be exercised in measuring wellbeing as Daniel Kohonmen indicates that there are different ways of achieving well-being. Some caution must be exercised in measuring well-being.

Hedonic Treadmill: Heritability and Well-Being

Research suggests that genetics plays an important role in wellbeing. Over all our hedonic methods make individuals happy to an extent. Genetics factors have been found to play role in subjective wellbeing. Research conducted among fraternal twins at University of Minnesota found that genetics play an important role in the experience of happiness. Lykken and Tellegen (1996), in their 10-year longitudinal twin study found that genetic factors generally influence 44 -52% of subjective well-being. Approximately 10% of well-being is due to life circumstances and 40% of well-being is due to general attitude influence subjective well-being. Recent research also points out that 80% of wellbeing is the result of genes (Nes, Roysamb, Tambs, Harris, and Reichborn-Kjennerud, 2006). Therefore, long-term well-being is the result of internal characteristics (Steel, Schmidt, & Shultz, 2008).

The notion of the Hedonic Treadmill operates with the Set-point Theory of happiness. According to this theory, individuals have fixed or average range happiness and well-being in response to their experiences. Brickman and Campbell (1971) suggested that an individual's state of happiness depends on inbuilt psychological mechanisms. Despite positive and negative experiences and circumstances, adaptation occurs quickly, and people can get back to their original state of nature within two months (Suh, Diener, & Fujita, 1996). Brickman and Campbell described this a *hedonic treadmill*. Research also suggests that lottery winners and accident victims are not going to be forever happy or sad (Brickman, Coates, & Jahoff-Bulman, 1978). The definition by David Myers (1992) provides further clarification, "The point can- not be overstated: *Every* desirable experience—passionate love, a spiritual high, the pleasure of a new possession, the exhilaration of success—is transitory" (p. 53). Earlier personality theories also supported this notion of a set point (Costa and McCrea, 1980).

Challenge to Traditional Set-Point Theory of Happiness

The Set-point theory was challenged by Easterlin (2005). Easterlin (2005) suggested that some tough experiences are life changing and leave permanent scars. Recent development in the theories of personality also suggests that personality can change, this points to some kind of hope for misery (Davidson & Lutz, 2008; Lutz, Slagter, Dunne, & Davidson, 2008). Hope can play a pivotal role in promoting psychological well-being (Valle, Huebner, & Suldo, 2006). The Hedonic Treadmill concept still complements personality theory despite of recent research development. Recent development in neuroscience

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has the potential to pause a challenge to the influence of traditional personality and set-point theory on subjective well-being.

Brain science explains that human experiences significantly influence neural activity in the brain (Ramachandran & Oberman, 2006). There are 100 billion neurons in the human brain. Each neuron makes 1000 to 10,000 contacts with other neurons in the brain. Vence, Roberson, McGuinnies, and Fazel, (2010) suggest, "the process by which the brain and nervous system produce morphological and structural changes in the brain in response to environmental stimuli" p. 29). Positive feelings are the result of brain activity in the left side of the pre-frontal cortex and negative feelings are due to the brain activity in the right side of the brain. Compassionate meditative experiences significantly influence changes in brain activity due to increased activity in left pre-frontal cortex (Lutz, Slagter, Dunne, & Davidson, 2008). Therefore our positive and negative experiences, emotions and actions immensely influence neurons in our brain (Davidson & Lutz, 2008). Professor Richard Davidson from the University of Wisconsin-Madison, a leading neuroscientist, suggests that changes in the brain are possible through training the mind. These recent neuroscience findings may challenge traditional set-point theory and provide further hope for increased wellbeing or happiness.

Well-Being through Meaning

Victor Frankl, in his book, *Man's search for meaning*, suggested that a will to meaning is the key to leading a satisfied life. Frankl invented *Logotherapy,* which means "therapy through meaning'. Frankl's personal experience in a concentration camp gives him an authentic position to comment on human misery. Helping suffering people was the primary source of Frankl's motivation to find meaning in life. Meaning does not come easily but a deeper understanding of the human condition and creating hope through helping creates meaning. Instead of focusing on psychological afflictions, meaning can be found by focusing on the positive side of human strengths. One's ultimate meaning of life is unique to one's own life and situation. Therefore, meaning cannot be invented but must be discovered according one's own values.

Economics and Well-Being

The concept of subjective wellbeing has also become a subject of interest for economists, sociologists and policy makers in order to improve quality of life. Subjective wellbeing of individuals is valuable at an individual level as well as societal level (Diener & Seligman, 2004). Research has established the association between happiness and income (Diener and Suh, 1997; Kahneman and Krueger, 2006; Rojas, 2007; Zhou, 2012). The influence of income on people's feelings and behavior is complex. The extent of individual's happiness to income is limited, both positive and negative experiences of wealth eventually fade with time (Diener, Lucas, & Scollon, 2006). Kahneman and Deaton (2010) examined whether money influences happiness and wellbeing among 1,000 US residents. An annual income of up to $75,000 influenced health, emotional well-being and subjective well-being. It was concluded that wealth is associated with satisfaction but happiness is not guaranteed. Low income negatively influenced emotional well-being and subjective well-being (Kahneman and Deaton, 2010).

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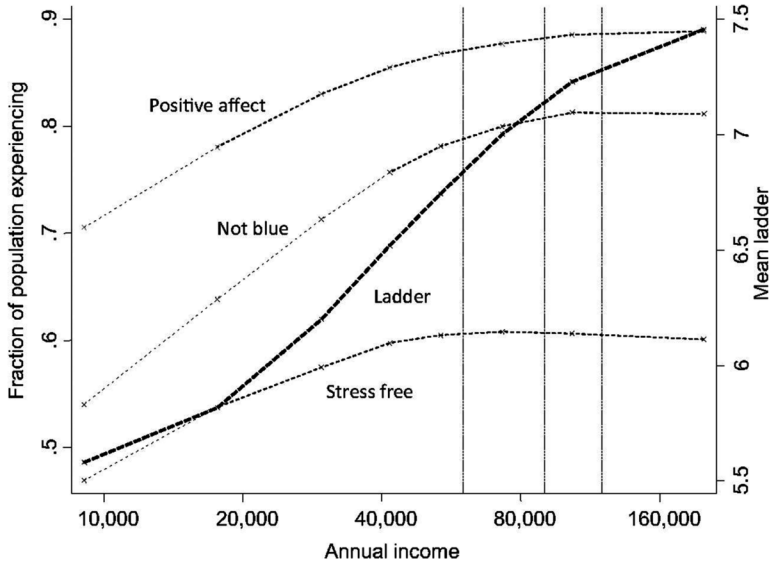
Figure 2. High income improves evaluation of life but not emotional well-being (Kahneman and Deaton, 2010)
Note: Positive affect, blue affect, stress, and life evaluation in relation to household income (Kahneman & Deaton, 2010)



Practical Tools for Health and Well-Being

According to World Health Organization (1946), Health and well-being is holistic, where complete achievement is of physical, mental and social well-being. Despite personality and genetic explanations for well-being, some practical tools can be employed to enhance well-being. Research suggests that positive health habits can be very beneficial in influencing subjective well-being.

Positive habits such as healthy nutrition, physical exercise, social relationships and resting well are important to enhancing well-being. Healthy nutrition involves a diet that consists of 45% to 65% carbohydrates, 20% to 35% healthy fats, 10% to 35% protein. Physical exercise that involves walking, aerobic exercise and swimming can also be very useful. Strong social relationships also play an important role in enhancing well-being. Furthermore, it is also important to have enough rest and holidays to rejuvenate health and wellbeing.

Using Technology to Your Advantage

In the age of technology, where facebook, emails, apps…etc. constantly demand our attention, it is important to use them positively and set up healthy boundaries in order to protect our health and well-being. Research suggests that individuals who score high on Extraversion and Neuroticism are likely to practice excessive internet usage (Widyanto & McMurran 2004; Wolfradt & Doll 2001).

Recent devices such as a wrist step count like Fitbit can help to track physical activity and sleep habits. There may be some health benefits in using technology like this.

In her book, *The How of Happiness: A New Approach to Getting the Life You Want,* Sonja Lyubomirsky (2007) suggested 12 activities to enhance happiness "express gratitude, cultivate optimism, avoid overthinking and social comparison, practicing acts of kindness, nurturing social relationships,

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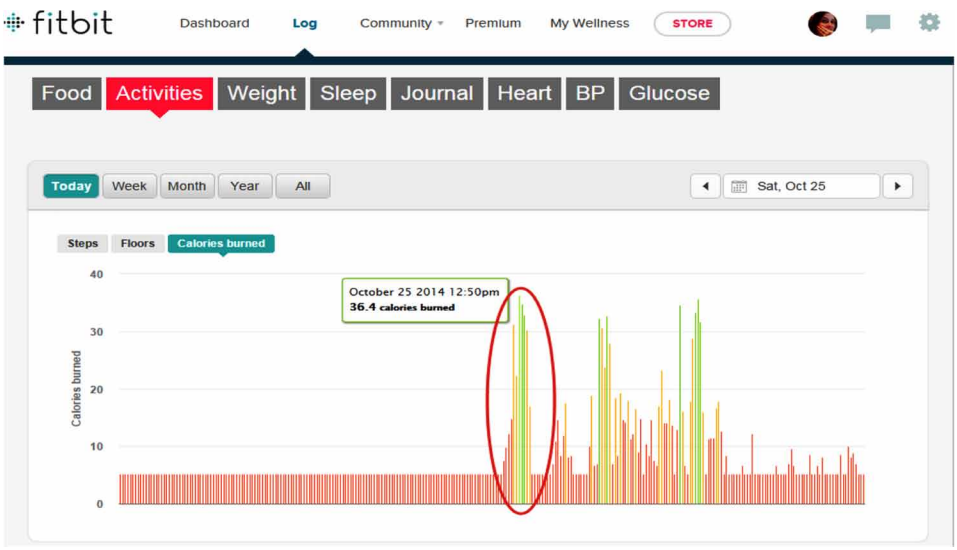
Figure 3. Utilizing Fitbit to track physical activity
Source: http://help.fitbit.com



developing strategies for coping, learning to forgive, increasing flow experiences, savoring life's joys, committing to your goals, practicing religion and spirituality, and taking care of your body." (p. 2-3). These can help as a proactive measure to protect health and well-being. Purposeful engagement of various activities that promote growth and self-realization assist in living healthy lives (Ryff, 2014). Further advances in well-being research ought to be done on how personality can be changed, and in the influence of change on health and well-being. Each of us is different with our unique values and manual for health and wellbeing. Further empirical research is required on the role of values in health and wellbeing.

CONCLUSION

In this chapter we have reviewed the association between personality, health, and well-being as well as the foundational conceptual links with ancient philosophy and positive psychology. The ancient concept of happiness from Aristotle's *eudaimonia* and current theories of positive psychology provide mechanisms for wellbeing. Ancient and modern views of happiness and subjective well-being contrast yet conceptually overlap in their applications. It was found that certain personality traits are effective predictors of subjective well-being. Personality theories have further provided a set-point theory of happiness and well-being. The new developments in neuroscience is challenging the set-point nature of well-being.

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Chapter 99
Sexual Boundary Violations in Counselor Training and Supervision

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ABSTRACT

Professional boundaries represent the sets of behaviors and interactions that are considered appropriate and ethical between people in professional relationships. These can be defined by considering the roles of the people involved, the scheduled times for these interactions, and the designated places for them. Boundary violations happen when interactions deviate markedly from the social conventions of professional relationships. Sexual boundary violations happen when sexual behavior is introduced into the training relationship. Because of the inherent power differential, sex in trainer-trainee relationships is considered unethical and harmful. This chapter will discuss sexual boundary violations in counselor training including incidence rates, perceptions of trainers and trainees, ethical and legal implications, how sexual boundary violations begin, solutions and recommendations, and suggestions for future research.

INTRODUCTION

Counselor training is different from other professional disciplines as it revolves around interpersonal relationships, deals with sensitive personal information, and involves self-reflection and self-exploration. Consequently, counseling trainers are likely to find themselves with deeply personal knowledge of their trainees. In addition to coursework, counseling trainees are required to complete a practicum and an internship where they develop their counseling skills in a clinical environment with clients under the direct supervision of an experienced trainer. Clinical supervision focuses on the development of the

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trainee's clinical skills while at the same time ensuring the safety and wellbeing of the client (Goodyear & Bernard, 1998; Kozlowski, Pruitt, DeWalt, & Knox, 2014). In clinical supervision, the trainer meets with the trainee to discuss their work with their clients as well as their own issues in working with these clients. Similar to other aspects of counselor training, clinical supervision can become quite personal as the trainee deals with their own personal and professional development. Indeed, some have suggested that the clinical supervisory relationship shares many similarities with the counselor-client relationship (Bartell & Rubin, 1990) or even the parent child relationship (Friedlander, Dye, Costello, & Kobos, 1984).

The purpose of this chapter is to describe the problem of sexual boundary violations in counselor training, to discuss risk factors and barriers, to provide tools to assist in decision-making, and to offer suggestions for further research. By the end of this chapter, the reader should be able to define professional boundaries and, specifically, sexual boundary violations. More importantly, however, the reader should have tools that can be used to aid in effective decision making about whether and when a specific situation constitutes a threat to the integrity of the professional relationship in counselor training.

BACKGROUND

Counselor educators and counseling supervisors as trainers have a great deal of power over their trainees. Power has been defined as "the ability to get one's way in a social situation" (W. French & Bell, 1995, p. 303). Trainers are granted special privileges as members of the community place their faith in the trainer's distinctive skill, knowledge, and experience. Trainees need the trainer, which gives the trainer power over trainees (Peterson, 1992). Five types of power have been identified (P. French & Raven, 1959): (a) reward power (trainers provide something that is valued by the trainee); (b) coercive power (trainers can inflict punishment on the trainee); (c) legitimate power (trainer gets their power from their title and credential); (d) referent power (trainee holds the trainer with high regard); and expert power (trainee thinks they need the trainer's information or expertise).

Thus, trainees are vulnerable to potential abuses of power by trainers through dual-role relationships and boundary crossings, which can eventually lead to sexual boundary violations. Dual-role relationships are defined as occurring when "one person simultaneously or sequentially plays two or more roles with another person" (Kitchener, 1988, p.207). Unlike counselor-client relationships, trainer-trainee relationships often include inevitable overlapping roles that are necessary for trainee development (Kitchener, 1988). Therefore, trainers need to evaluate power differentials and establish boundaries in the dual-role relationships undertaken during the course of training.

Establishing boundaries better ensures autonomy for those with diminished power in the relationship and mitigates harm (Austin, Bergum, Nuttgens, & Peternelj-Taylor, 2006). Professional boundaries are defined as "the parameters that describe the limits of a fiduciary relationship" (Gabbard & Nadelson, 1995, p. 1,445) and provide a framework for understanding appropriate versus inappropriate behaviors. Professional boundaries distinguish "the 'edge' of appropriate behavior" (Gutheil & Gabbard, 1998, p. 410) with one side deemed appropriate and the other side deemed inappropriate.

Boundary crossings are unusual and diverge from common practice. They can be benevolent, limited, and acceptable departures from common practice, but always have the potential to turn ego-centric, extended and unacceptable. Boundary crossings attempted by trainers and trainees should be considered against motivations, contexts, and intents for departing from common practice (Glass, 2003). Boundary violations "reflect exploitation of the supervisee, a supervisor's loss of objectivity, disruption of the

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supervisory relationship, or the reasonable foreseeability of harm" (Gottlieb, Robinson, & Younggren, 2007, p. 241). Boundary violations of a sexual nature are referred to as sexual boundary violations and can include a broad range of behaviors including leering looks, sexually suggestive comments or jokes, flirtation and seduction, suggestive touch/hugging, asking out on dates, and sexual contact. These behaviors range from mild sexual behaviors that may make the recipient feel uncomfortable to consensual and nonconsensual sexual contact.

INTERPRETATIONS OF SEXUAL BOUNDARY VIOLATIONS BY TRAINERS AND TRAINEES

A survey of trainers and graduate level trainees found that the majority thought consensual sexual relationships between the two groups raised ethical concerns, increased conflicts of interest, elevated abuses of power, and compromised objectivity (Stites, 1996). Sixty-seven percent of female graduate students and 87% of male faculty members believed it to be unethical to engage in a supervisory relationship with a trainee when the two were sexually involved. Among the female clinical psychologists surveyed by Glaser and Thorpe (1986), 97.5% judged sexual contact coercive in a working relationship. Brown (1993) found that a majority of clinical psychologists viewed sexual contact as coercive (72%) and unethical (89%) during a working relationship.

Almost all (95%) female members of the American Counseling Association indicated their belief that sexual contact exemplified professional misconduct and was destructive to professional relationships and trainees (Thoreson, Shaughnessy, & Frazier, 1995). In a study that compared members of the National Association of Social Workers (NASW) with members of the American Mental Health Counselors Association (AMHCA), approximately 7% of participants reported seductive behavior from a trainer during their training (Barnett-Queen, 1999). Interestingly, members of the AMCHA were more likely than members of the NASW to report sexual boundary violations. While Barnett-Queen (1999) concluded that social work must be a safer discipline than professional counseling, it could be that social work trainers are more likely to be female than counselor educators. Boundary violations were reported by 33% of graduate-level psychology trainees and resulted in harm to the trainee, the supervisory relationship, relationships with other trainers, and clients (Hardy, 2012).

Gibbs, Sigal, Borowitz, Orosy-Fildes, and Ivy (1993) surveyed psychology educators and found that 52% reported knowing of at least one sexual relationship between a colleague and a trainee and 24% had knowledge of a colleague's sexual harassment of a trainee. Respondents' most common reaction (34%) was to remain silent about a colleague's sexual relationship with a trainee (Gibbs, Sigal, Borowitz, Orosy-Fildes, & Ivy, 1993). The second most common response (22%) was to talk directly with the colleague. Other responses included telling the dean (18%), another faculty colleague (15%), or the department chair (8%). In a study by Hardy (2012), most respondents (48.8%) described awareness of a peer's supervisory boundary crossing experience, which most often (62.5%) had a negative effect on the peer. Peers who knew of a supervisory boundary violation involving other trainees kept silent 72.5% of the time.

Thornton (2003) reported that counselors found personal relationships between counselors and clients as the least acceptable relationship, while relationships between trainers and trainees were rated as more acceptable. Further, they perceived social relationships with clients and trainees as the most acceptable, business relationships with clients and trainees as moderately acceptable, and romantic relationships with clients and trainees as the least acceptable (Thornton, 2003).

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Hardy (2012) had psychology graduate trainees rate the impact of boundary crossings. The trainer self-disclosing details about their own sexual behavior, not holding required supervision meetings, exploiting trainees to do parts of the trainer's job, recruiting study participants who do not meet inclusion criteria, giving clients incorrect diagnoses, requesting the trainee lie about their sexual orientation, and having the trainee tell clients untruthfully that they were in recovery all were rated as the most problematic. Surprisingly, a majority of trainees reported problems with trainers wanting to do personal counseling with the trainee or turning supervision sessions into personal counseling sessions. This behavior took away from the supervision of counseling with clients and forced the disclosure of serious personal information. Most respondents reporting a boundary violation said it occurred during practicum (Hardy, 2012). The most frequent boundary violations reported by subjects in the study were sexual in nature. Respondents stated that boundary crossings and boundary violations eroded trust in the training relationship and led trainees to withhold information.

Because they need to complete training requirements, trainees may feel obligated to stay in bad training relationships. Most (67.9%) graduate trainees reported no training in boundary crossings and boundary violations (Hardy, 2012). Trainees taking more ethics courses and having an increased familiarity with the code of ethics were more likely to report boundary crossings and violations during training. This suggests that those who have not received ethics training are less likely to recognize boundary crossings and boundary violations when they happen, which make them more vulnerable to these acts. Ethics training is especially important given that one third (35.7%) of study respondents reported previous personal histories of boundary violations in other life contexts. Half of the participants with previous personal histories of boundary violations stated feeling vulnerable in supervision and 70% reported an increased level of awareness and vigilance about boundaries in supervision (Hardy, 2012).

Reports of Sexual Boundary Violations by Trainees

Sexual contact (either genital stimulation or intercourse) with at least one trainer was reported by 3% of male and 17% of female doctoral psychology students (Pope, Levenson, & Schover, 1979). The researchers reported that 6% of females and of 20% males in the same population admitted to having sex with their own trainees or clients post-graduation. Robinson and Reid (1985) found that 48% of female psychology doctoral students experienced some form of seductive behavior during their training. Seductive behaviors included flirting, joking and excessive attention came most often from educators (86%) as compared to clinical supervisors (50%). Sixty-percent of those who reported being the targets of seduction were married and 28% had children. Interestingly, trainees in clinical programs were more likely to be subjected to seductive behaviors than those in non-clinical psychology programs. Fourteen-percent of Robinson and Reid's (1985) respondents reported having sexual contact during their role as trainees. The most likely trainees (76%) to have had sex with a trainer were younger than 24 years old. Glaser and Thorpe (1986) found 17% of female clinical psychologists reported sexual contact with at least one of their trainers. Thirty-one percent of those reported sexual contact with more than one of their psychology trainers. A time analysis revealed that the more recently the respondent had graduated, the more likely they were to have had sex with a trainer.

Thoreson, Shaughnessy, Heppner and Cook (1993) found that 7.3% of male members of the American Counseling Association (ACA) acknowledged having sexual contact with a client or trainee during the professional relationship. Another 21% had sexual contact after the professional relationship had ended. In a subsequent study of female members of the ACA, Thoreson, Shaughnessy and Frazier (1995)

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found that just over 5% had sexual contact with a trainer during training. Another 3% admitted to sexual contact with a trainer after the training relationship ended. Importantly, 82% of respondents in this study were master's level professionals who were far less likely to have engaged in sex with trainers as compared to doctoral level professionals. Less than 1% of participants acknowledged having sexual contact with their own trainees during the training relationship. When asked about sex after the termination of the professional relationship, nearly 5% of female respondents admitted to sexual contact with former trainees or clients.

Very few female members (6%) of the Association for Counselor Education and Supervision (ACES) reported sexual contact with trainers (Miller & Larrabee, 1995). For those who said that they had entered the relationship willingly, female respondents were more likely in retrospect to see the experience as having been coercive and harmful to them. In another study, 30% of female members of the ACES reported being subjected to seductive behaviors during their training as compared with 18% of males (Cruikshanks, 2000). Females also were far more likely than males to have been invited out on dates by trainers (13% vs 2% respectively) and far more likely to have had sex with trainers (5.5% vs 0% respectively) (Cruikshanks, 2000). For this study, participants responded to a range of items designed to measure the experience of sexual feelings (see Table 1). Although both male and female trainers acknowledged having some degree of sexual feelings about trainees, male trainers were far more likely to experience erotic feelings about their trainees than were females.

Table 1. Percent of respondents who reported "Rarely," Occasionally," or "Frequently."

Item #	Items Hypothesized to Measure Experience of Sexual Feelings about Counseling Supervisees.	Male	Female	Total
14	I wonder if supervisees' behaviors toward me are flirtatious or seductive sexual invitations.	78	55	67
15	I wonder if counseling supervisees fantasize about me sexually.	47	28	38
16	I am jealous of counseling supervisees' spouses or significant others.	11	6.7	8.9
17	I am tempted to invite counseling supervisees out socially.	27	47	37
18	I wonder how it would be to touch counseling supervisees in a sexual manner.	43	5.6	25
19	I seriously consider sexual involvement with counseling supervisees.	7.9	2.2	5.3
20	I am sexually aroused by discussion of supervisees' clients' sexual issues.	52	27	40
21	During supervision, I find myself privately fantasizing about having sex with supervisees.	26	4.5	16
22	I wonder what it would be like to kiss passionately counseling supervisees.	30	6.7	19
23	I wonder how counseling supervisees look nude.	42	4.5	24

Zakrzewski (2006) found 9.2% of psychology students had experienced sexual advances and/or sexual contact with graduate school educators. Women experienced 89% of the sexual advances and 78% of the sexual contacts. Supervisors accounted for 11% of the sexual advances and contacts in graduate school. A quarter of graduate students acknowledged knowing of sexual advances and/or sexual contact between trainers and trainees (Zakrzewski, 2006).

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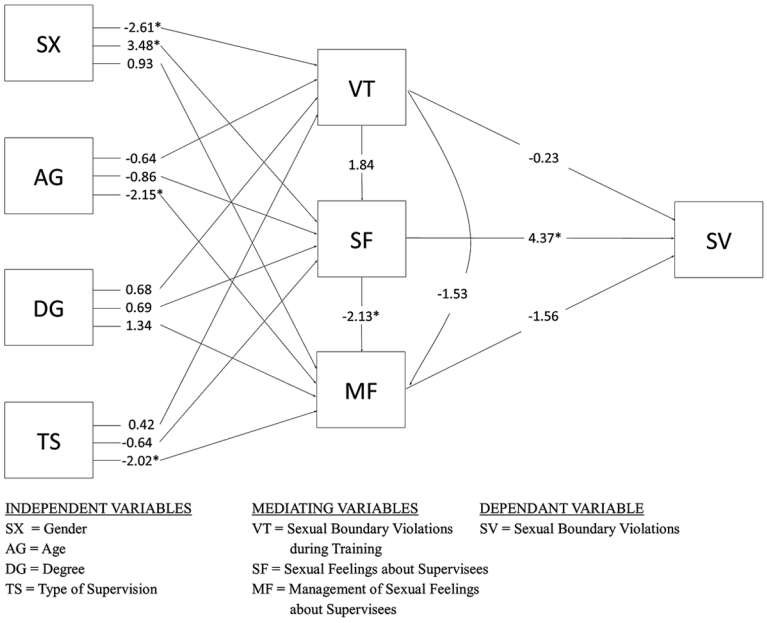
POSSIBLE MEDIATING VARIABLES IN SEXUAL BOUNDARY VIOLATIONS

In an effort to understand the factors that lead to sexual boundary violations in training, Cruikshanks (2000) surveyed members of the ACES about their experiences during their training as well as their current practice and tested a model designed to describe a possible path to sexual boundary violations (see Figure 1). He suggested three possible mediating variables (Experience of Sexual Boundary Violations During Training, Experience of Sexual Feelings, and Management of Sexual Feelings) and tested them relative to four independent variables (Gender, Age, Degree Level, and Type of Supervision). The hypothesized model fit the data well.

*Figure 1. The model hypothesized to describe the path to sexual boundary violations in counseling supervision. Path coefficients indicated by * are significant t values, p<.05.*



As expected, females were more likely than males to have experienced sexual boundary violations during their training. Those who experienced sexual boundary violations during their training were no more likely than others to become perpetrators post-graduation. Males were far more likely than females to experience sexual feelings (SF) about their trainees. Older participants (AG) were less effective at managing sexual feelings (MF) than their younger counterparts. There were no differences based on degree type (DG).

Regarding the hypothesized relationship between type of supervision (TS) and managing sexual feelings (MF), those who were primarily counselor educators providing clinical supervision were more likely to have acknowledged sexual boundary violations than those who provided clinical supervision exclusively in the field. This finding suggests that professional boundaries are more easily blurred on campus where trainers are more likely to have dual-role relationships with trainees.

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The most important finding revealed by this analysis was the strong relationship between the experience of sexual feelings (SF) and sexual boundary violations (VB). While males and females scored similarly on the management of sexual feelings scale (MF), males scored much higher on sexual feelings (SF), and scores on (SF) were strongly related to sexual boundary violations (VB). This analysis revealed that the more a trainer thinks about their trainee sexually, the more they have sexualized their relationship and the more likely they are to violate sexual boundaries and engage in sexually inappropriate behavior.

SEXUAL BOUNDARY VIOLATIONS IN TRAINING

Training is fiduciary as the trainee trusts the trainer to provide appropriate legal and ethical guidance and to use their power and control to work in the trainee's best interest and to protect the trainee from harm (Gottlieb et al., 2007). Trainers are moral role models demonstrating to trainees' behaviors that are reasonable, fair, and ethical (Hardy, 2012). Trainers are gatekeepers who control the trainee's entrance into the profession by granting grades, evaluations, and recommendation letters (Gu, Veach, Eubanks, Leroy, & Callanan, 2011). Trainers transition the trainee to a professional role and provide authentic feedback for skill development. When dual-roles are taken with trainees, they can feel exploited and unable to make autonomous decisions. Trainees likely modify their behaviors to increase rewards and avoid punishments (Dziech & Weiner, 1990).

Kitchener (1988) created three guidelines to predict whether dual-role relationships are more or less likely to be harmful: (a) incompatible expectations increases the potential for harm, (b) neglecting role responsibilities increases the potential for harm, and (c) holding professional power and authority increases the potential for harm. Ladany and Lehrman-Waterman (1999) found that the trainer's ethical behavior significantly impacts the supervisory relationship and trainee satisfaction. They found the trainer's adherence to ethical guidelines explained over 47% of the variance in the perceived supervisory working alliance for trainees (Ladany & Lehrman-Waterman, 1999).

Therefore, trainers need to first contemplate how dual-role relationships develop and then how those power differentials will impact the trainer-trainee relationship. Pearson and Piazza (1997) developed five categories to classify dual-role relationships: (a) circumstantial dual-roles that develop by accident, (b) structured professional dual-roles that develop out of the regular requirements of the job, (c) shifts in professional roles due to organizational or developmental career changes, (d) personal and professional roles conflicting, and (e) the predatory professional who abuses those with less power to meet personal needs.

The Approach Inhibition Theory of Power includes 12 propositions outlining how individuals in high power and low power positions generate cognitive, affective and behavioral responses (Keltner, Gruenfeld, & Anderson, 2003). The 12 twelve propositions include: (1) elevated power increases the experience and expression of positive affect; (2) reduced power increases the experience and expression of negative affect; (3) elevated power increases sensitivity to rewards; (4) reduced power increases sensitivity to threat and punishment; (5) elevated power increases the tendency to construe others as a means to one's own end; (6) reduced power increases the tendency to view the self as a means to others' ends; (7) elevated power increases unconscious social thoughts; (8) reduced power increases controlled social thoughts; (9) elevated power increases the likelihood of approach-related behavior; (10) reduced power increases behavioral inhibition; (11) elevated power increases the consistency and coherence of

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social behavior; and (12) elevated power increases the likelihood of socially inappropriate behavior. Ultimately, power can shift focus to reward seeking behavior and unconscious thought processes that can increase the potential for boundary crossings.

ETHICAL AND LEGAL IMPLICATIONS OF SEXUAL BOUNDARY VIOLATIONS IN TRAINING

Malpractice is negligence in the performance of professional obligations for trainers who are licensed, certified, or registered by state statute to perform services (Bednar, Bednar, Lambert, & Waite, 1991). Tannenbaum and Berman (1990) suggest that trainers are liable to clients for damages for every act or omission of the trainee. Further, the counseling training relationship encompasses the four elements required for malpractice claims: (a) a legal duty of care exists to the trainee through professional ethical codes, (b) standards of care exist that should be practiced in training, (c) harm can come to trainees from trainers, and (d) the immediate cause of the trainee's injury can be found in the professional relationship (Bednar et al., 1991). There are three types of harm that can be charged by trainees in malpractice claims against trainers: (a) physical injury or death, (b) consequent injury (the trainer has prompted behavior in the trainee that leads to the trainee's loss of income or licensure), or (c) subjective injury (pain and suffering inflicted on the trainee by the trainer) (Bennett, Bryant, Vanderbos, & Greenwood, 1990).

In addition to ethical and legal obligations, training also occurs in the context of academic settings. Keith-Spiegel, Whitley, Balogh, Perkins, and Wittig (2002) note that trainers have obligations in six major areas: (a) classroom management including the behavior of trainees; (b) classroom learning environment including profanity, criticism of colleagues, and oppression; (c) assessment of trainees including fair grading, letters of recommendation, and academic dishonesty; (d) office hours and direct interactions with trainees; (e) conflicts of interest and interprofessional relationships; and (f) responsibilities including continuing education and upholding confidentially.

The American Association of University Professors' (American Association of University Professors, 2009) policy discourages and warns of abuses of power and the importance of professionalism, but does not forbid sexual relationships with trainees. The AAUP states that the institution of higher learning is accountable for developing, implementing, and enforcing institutional policies including ethical codes of conduct. A majority of universities have clear policies on sexual harassment, but only 57% of higher education institutions have a consensual sexual relationship policy (Sullivan, 2004). Policies concerning consensual sexual relationships between trainers and trainees at higher education institutions have attempted to ensure: (a) that professional conduct standards are upheld to maintain the school's mission of education, (b) the protection of trainees and third parties (impact on other trainees and colleagues), (c) that the appearance and standing of the school are maintained, and (d) the avoidance of legal culpability (Hutchens, 2003). Most universities (82%) have policies stating that consensual sexual relationships are inappropriate when the trainer is in a supervisory capacity with a trainee because the power imbalances can be viewed as a form of sexual harassment (Dziech & Weiner, 1990). Legally, trainees can charge sexual harassment at any time no matter who initiated the sexual relationship, parents can charge the trainer with unprofessional behavior no matter who initiated the sexual relationship, and trainees not directly involved can charge unequal treatment (Little & Thompson, 1989).

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Richards, Crittenden, Garland, and McGuffee (2014) found that all universities had loopholes permitting consensual sexual relationships between trainers and trainees. Even when trainers entered into banned consensual sexual relationships, the policies that were put in place were dismissed to quietly ignore the offense. Most university policies have a reporting requirement, but they fail to provide specific processes to report consensual sexual relationships, which leads to confusion and increased liability. Most university policies reviewed stated that consequences would be enacted for engaging in consensual sexual relationships, but they neither defined specific consequences nor provided a range of options, such as beginning with a written warning and ending with termination (Richards, Crittenden, Garland, & McGuffee, 2014).

REALITIES OF SEXUAL BOUNDARY VIOLATIONS

Bellas and Gossett (2001) offered suggestions as to why sexual boundary violations in training continue to affect the learning environment negatively. First, unlike female trainers, most male trainers view trainees as a potential pool of romantic partners. Second, unlike female trainers, most male trainers feel justified in their ability to remain objective and keep supervising the trainee after beginning a sexual relationship with them. The characteristic counseling trainer who commits sexual boundary violations is a middle aged or older male who is married or recently divorced (Thoreson, Shaughnessy, Hepener, & Cook, 1993). They are more likely to be faculty in counselor training programs than clinical supervisors in the field (Cruikshanks, 2000), and they are more likely to have dual-roles with their trainee (e.g. student, advisee, supervisee, and graduate assistant) where it is more difficult to maintain clear and distinct professional boundaries (Heru, Strong, Price, & Recupero, 2004).

Trainers and trainees in consensual sexual relationships felt that they were intellectually compatible and had a shared lifestyle. For many trainers and trainees in sexual relationships, race/ethnicity, sexuality, and age felt more challenging than their status as trainer and trainee. Negative reactions from others were more pronounced when multiple social boundaries were crossed. Further, they found that trainees deferred to the trainer when it came to hiding the relationship or being open about the relationship (Bellas & Gossett, 2001). Half of undergraduate trainees tried to hide their sexual relationships with trainers, while graduate trainees did not hide their sexual relationships with trainers. Trainers hid relationships with undergraduate and graduate trainees equally. Avoidance of gossip was a motivation for secrecy for both groups while trainers hid relationships for professional reasons and trainees hid relationships for fear of disapproving family members.

Both groups were rarely concerned about the reactions of other trainees. This is surprising since sexual involvement with trainees can adversely impact the trainer's and trainee's relationship with other trainees and trainers. Other trainees may feel the trainee involved with the trainer will receive preferential treatment by the trainer and their colleagues. Colleagues may feel compelled to evaluate favorably or negatively a trainee involved with a trainer. Other trainees and colleagues will wonder if the trainee is privy to confidential information (Fitzgerald, Weitzman, Gold, & Ormerod, 1988).

Bellas and Gossett (2001) found that most trainers and trainees advised others not to pursue romantic relationships as trainees are in a vulnerable position. Trainees who ended sexual relationships with trainers cited power and control issues in the relationship (Bellas & Gossett, 2001). If the sexual relationship ends before the trainee graduates, everyone involved is vulnerable to retribution and may find themselves continuing to be required to interact with the other person.

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HOW SEXUAL BOUNDARY VIOLATIONS BEGIN

Since little exists to guide trainers in establishing appropriate boundaries with trainees both groups struggle to understand appropriate relationship boundaries (Richards et al., 2014). Sexual boundary violations often begin as minor boundary crossings, which are repeated and then evolve. Although not well studied in counselor training, the evolution of sexual boundary violations has been well documented in counselor-client relationships and serves as a cautionary tale for trainers. Errors in technique, judgment, and assessment occurred in minor nonsexual boundary crossings, which later led to sexual contact (Gabbard, 1996). Sexual relationships most often began with nonsexual hugs initiated by the counselor and the client obliged, sensing that the counselor needed support (Gabbard, 1996). Other times the sexual relationship began with an insistence on the mutual use of first names, the counselor sharing personal problems (sexual abuse as a child, issues with the counselor's relationships), and telling clients that the counselor loved them (Gabbard, 1996). Smith and Fitzpatrick (1995) found that counselor self-disclosure that sought to meet the counselor's needs most frequently preceded counselor-client sexual relationships. Once parity had been created in the relationship, clients usually demanded increases in the counselor's self-disclosures, which led to physical touching and later to sex. Gabbard (1996) reported that most counselors who had sex with clients were (a) in love with their clients, (b) surrendering to a client's desires to be loved to wholeness, or (c) needy and vulnerable due to situational stressors such as divorce or grief.

When clients experience sexual boundary violations with counselors (Pope, 1988), they can experience any or all of the following issues: (a) ambivalence, (b) guilt, (c) hollowness and seclusion, (d) confusion, (e) lack of trust, (f) role reversal, (g) emotional instability, (h) repressed rage, (i) suicidal risk, or (j) cognitive impairment. Clients who were sexually abused as children or were raped experience similar symptoms (Pope, 1988). Counselors without a fulfilling personal life and wellness strategies may look for gratification from their professional relationships (Gabbard, 1996). Therefore, unchecked emotional needs impede ethical decision making and lead to boundary crossings and later sexual boundary violations (Falender et al., 2004).

Because trainers were clinicians first, the dynamic from a minor boundary crossing to a sexual relationship can be seen in training settings. Trainers often find it difficult to act empathically without falling into personal relationships with trainees (Bernard & Goodyear, 2004) and dual-roles are often unavoidable during training (Gottlieb et al., 2007). The risk of boundary crossings increases as the number of dual-roles increases (Burian & Slimp, 2000; Gottlieb et al., 2007). As trainees professionally mature, the training relationship can evolve into mentoring, which increases the possibility of boundary crossings (Johnson & Huwe, 2002). In recent years, the advent of social media has created a whole new way for people to connect, which has raised new questions about moving down the path toward sexual boundary violations (Budz, 2014). With Facebook, LinkedIn, and other social media sites, concerns are increasing about whether and when it is acceptable to connect socially with trainees.

Boundary crossings can begin with trainer and trainee private drives (e.g., isolation, need for approval), professional drives (e.g., independent licensure, generativity) (Burian & Slimp, 2000), cultural factors (e.g., collectivistic cultural view), emotional unawareness (Falender et al., 2004), and transference and countertransference. Dziech and Weiner (1990) proposed that trainees with past abuse or trauma issues and trainers with relationship separation or loss are the most likely to be involved in sexual relationships. Trainees sexually involved with their trainer often have difficulties setting appropriate boundaries with clients (Bonosky, 1995). Female counselors who did not have sexual relationships with trainers during graduate school admitted to sexual contact with clients 6% of the time (Fitzgerald et al., 1988). That

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number jumped to 23% for female counselors admitting to sexual relationships with trainers during graduate school (Fitzgerald et al., 1988). Male counselors in the study with and without sexual relationships with trainers reported having sexual contact with clients 23% of the time (Fitzgerald et al., 1988).

The biggest boundary crossing issues are the use of self-disclosure and dual-roles (trainer, researcher, meeting at professional functions, and/or dissertation committee membership at the same time). Examples of trainer self-disclosures include attire, décor, dialect, mannerisms, and statements that unconsciously reveal religious affiliations, political persuasions, and family members (Smith & Fitzpatrick, 1995). Trainer self-disclosure, such as sharing examples from their own experience to illustrate how to address issues in clinical practice, is beneficial when it enhances the trainee's professional development. Trainees reported that socializing with the trainer, trainer self-disclosure, and sharing car rides, were the most helpful boundary crossings (Matazzoni, 2008). Trainees stated there were improvements in the working alliance when the trainer disclosed applicable counseling experiences, but they stated the working alliance was injured by unrelated disclosures (Matazzoni, 2008). Self-disclosures that meet the needs of the trainer for comfort, compassion, or egotistical gratification resulting in the trainee meeting the trainer's needs are inappropriate and unethical (Hardy, 2012). Even after simply sharing a car ride with a trainer, the trainee experienced role confusion in trying to decide if the relationship had shifted from evaluator to friend (Matazzoni, 2008). Using first names, loaning money, borrowing money, accepting gifts (Bowman, Hatley, & Bowman, 1995) and using social media blur professional boundaries. When a trainer has a dual-role relationship with a trainee, they may unintentionally offer preferential treatment to the trainee. This can negatively impact the training process, skew trainee evaluations, and negatively impact peer relationships for the trainee. Therefore, minor boundary violations are multifaceted and can cause negative experiences for the trainee, peers, clients, and colleagues.

As such, all boundary crossings must be contemplated because they are subtle first steps towards boundary violations (Gutheil & Gabbard, 1998). Considerations in boundary crossings include professional ideologies, trainer-trainee rapport, cultural considerations, and the trainee's experiences of trainer behaviors (Gutheil & Gabbard, 1998). Trainees may interpret the same faculty behavior (pat on back, hug, or taking a small gift) from the level of a minor boundary crossing (Knapp & VandeCreek, 2006) all the way up to a major boundary violation (Barnett, 2007). Trainees injured by boundary crossings mistrust and avoid the trainer, resulting in lost educational opportunities (Burian & Slimp, 2000; Heru et al., 2004). In the face of boundary violations, trainees may avoid the trainer, become unmotivated, have difficulty developing a strong working alliance, and model the questionable behavior of their trainer when they become trainers themselves (Heru et al., 2004).

SOLUTIONS AND RECOMMENDATIONS

Maintaining appropriate ethical boundaries is the trainer's responsibility no matter the actions or requests made by trainees (Gutheil & Gabbard, 1998). Because they favor building relationships with peers more so than their trainers, boundary setting should not be difficult (Anderson & Carta-Falsa, 2002). Trainees deal with boundary crossings in several different ways: compartmentalize (establish boundaries about each role: trainer as professor, trainer as clinical supervisor), discuss the issue (process the boundary crossing itself, the impact the boundary crossing has on the relationship, and resolutions), comply (say nothing out of fear of repercussions), consult with third party (talk with chair about issues), restrict

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self-disclosure (keep things from the trainer), and avoidance of the trainer (Gu et al., 2011). There are several solutions and recommendations for dealing with sexual boundary violations in counselor training and supervision. These can include self-reflection, discussions with trainees, contracts, policies, and decision making models.

First, trainers need to self-reflect in a number of different ways to raise awareness of power differentials that could lead to exploitation or harm and the trainer's own unconscious motivations (Glass, 2003). One area of self-reflection needs to focus on the stigma of human sexuality. Sexual boundary violations are often attributed to the trainer's or trainee's defects (childhood sexual abuse, trauma, psychopathology, or counter-transference) (Hoppe, 2013). The Human Sexuality Model (Koenig & Spano, 2003) encourages normalizing sexual feelings that occur in training relationships to increase awareness of sexual attraction. Dailey (1981) categorized sexuality into five interrelated components: sensuality (including physiological responses, need for skin stimulation, orgasm, and fantasy), intimacy (including candidness, familiarity, and affiliation), identity (including biological sex, gender identity, gender role identity, sexual orientation), reproduction (including genital physiology, contraception, sexually transmitted diseases, childbirth, and abortion) and sexualization (including using sensuality to manipulate others). By not viewing sexual feelings in training relationships as predatory behaviors, trainers and trainees can focus on suitably managing sexual feelings to mitigate harm. The model assumes that (1) because it is a human relationship, training will encompass sexual motivations, (2) openly discussing sexuality in training normalizes sexual dynamics, (3) working with sexuality in training allows trainees to improve their work with clients, and (4) broaching sexuality in training is focused on cultivating the trainee's clinical skills. Three guidelines are offered for broaching sexuality in training: (1) trainers must be competent in knowledge, attitudes, and values about sexuality, (2) counseling skills are the foundation for incorporating sexuality into clinical practice (e.g., confrontation, self-reflection, empathy, exploration of taboo subjects, and normalizing behavior), and (3) the trainer is accountable for starting sexuality dialogues and focusing those dialogues on professional counseling relationships. This model presumes that the trainer is looking to protect trainees and avoid sexual boundary violations. A word of caution is advised in the intent of the disclosure. If a trainer is disclosing an attraction to a trainee stating that the conversation is a "teachable moment" when in reality the trainer is either grooming the trainee or determining the trainees' openness to a sexual relationship, then the trainer is a predator seeking a sexual boundary violation with the trainee.

Another area for trainer self-reflection is the Ethical Acculturation Model (EAM), which integrates personal ethical standards and values with professional ethical standards and values. The first level (maintenance) acknowledges that individuals keep the ethics and values of their culture of origin when evaluating professional behavior. Therefore, family values, ethnicity, nationality, religious beliefs, and role models influence professional behavior. The second level (contact and participation) focuses on how the individual embraces the ethics, norms, and values of their profession (Handelsman, Gottlieb, & Knapp, 2005). Based on an individual's high or low level of maintenance and high or low level of contact and participation, the individual is placed into one of four categories of ethical acculturation. An individual high on both maintenance and contact and participation is considered to be using an integration strategy. This ideal resolution blends the full union of personal and professional identities so the individual adopts the ethical values of the profession while maintaining many of their personal values. These individuals see codes of ethics, state laws, and other professional boundaries as a natural augmentation to their personal values (Handelsman et al., 2005).

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An individual high on maintenance and low on contact and participation is considered to be using a separation strategy. Individuals operating from this model use personal values to make professional values, but are not invested in the values of the profession. These individuals likely are misinformed about and/or resent the ethical/legal constraints placed upon them by the profession. An individual low on maintenance and high on contact and participation is considered to be using an assimilation strategy. Individuals operating from this model are completely enmeshed with professional standards and have lost their personal values. This results in simple obedience without a moral basis that can lead to naive utilizations of the profession's ethical principles (Handelsman et al., 2005). An individual low on maintenance and low on contact and participation is considered to be using a marginalization strategy. These individuals do not connect to personal or professional values and ethics. Operating from this model can lead to being careless about legal and ethical obligations and downplaying the significance of legal and ethical obligations. Trainers will need to self-reflect on their level of ethical acculturation and how that impacts their decision making processes about boundary crossings to best avoid boundary violations.

Barnett, Lazarus, Vasquez, Moorehead-Slaughter, and Johnson (2007) suggested six questions that trainers should answer when considering boundary crossings. These can serve as a third means of self-reflection for trainers: (a) Does the trainer's behavior serve the trainee's best interest? (b) Is the behavior acceptable to the trainee's history, culture, and values? (c) Is the trainer openly willing to discuss their behavior with any colleague? (d) Is the behavior exploitative? (e) Does the behavior serve the trainer's needs more than the trainee's needs? and (f) Is the behavior consistent with the intent of the profession's code of ethics?

Trainers should periodically and openly discuss boundary issues with trainees to encourage the exploration of dual-role relationships and to assess the trainee's reactions (Gottlieb et al., 2007). One way of doing this is to use contracts in training settings. Contracts can reduce liability and litigation by listing responsibilities, outlining rights, revealing the process of trainee evaluation, noting trainer expectations, charting the trainee complaint process, setting mutually agreed upon goals, and stating the times and locations of training (McCarthy Veach & LeRoy, 2009). Further, trainees will struggle with even the smallest of boundary crossings (e.g. trainer self-disclosure, sharing car rides, and eating together) so trainers need to discuss boundary crossings with trainees (Kozlowski et al., 2014). Open discussions about boundary crossings demonstrate to the trainee that boundary crossings are suitable topics for discussion, their views on boundary crossings matter, and that healthy boundaries are maintained (Kozlowski et al., 2014). If a boundary crossing is harmless, there is no danger in engaging in a discussion. If the trainer is hesitant to discuss a boundary crossing, consultation with another trainer may be warranted (Kozlowski et al., 2014).

In addition to the trainer having their own guidelines, departments and universities also need to lend direction to policies on boundary crossings and boundary violations. Counselor training programs should provide a clear policy statement in their student handbooks that addresses sexual relationships between trainers and both their current and former trainees (Fogg & Walsh, 2002). This would allow for both trainers and trainees to establish clearly defined boundaries based on the departmental policy. Bellas & Gosset (2001) further suggest that each university have a consensual sexual relationships policy that clearly (a) states those governed by the policy, (b) behaviors required by trainers, and (c) the specific consequences for trainers who don't maintain prescribed behaviors. The University of Iowa was lauded as having the best consensual sexual relationships policy, which included: (a) explanations of individuals categorized as trainers and trainees, (b) prohibited relationships, (c) examples of prohibited relationships, (d) processes for disclosing and filing complaints, and (e) a confidentiality statement (Bellas &

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Gossett, 2001). Once consensual sexual relationships policies are created, trainers and trainees need training on how to implement the policies (Bellas & Gossett, 2001). Further, the policies must be easily accessible by both trainers and trainees. Lastly, the department needs an administrator with whom they can confidentially consult during the disclosing and complaint filing process (Bellas & Gossett, 2001).

Beyond department and university policies, codes of ethics often make explicit directives regarding training boundaries, but they are not always a definitive guide (McWilliams, 2004). Non-essential dual-roles can be avoided until training ends (Younggren & Gottlieb, 2004) by using decision-making models and consulting respected colleagues (Hardy, 2012). Gottlieb (1993) proposed a decision-making model for dual-role relationship problems. First, the trainer is instructed to evaluate the potential for power issues by considering (a) the current role, (b) the contemplated role, and (c) how power issues could make current and contemplated roles incompatible. Next, the duration of the relationship is considered along with the ability to clearly and specifically end the relationship. However, Gottlieb's model ignores the impact of dual-role relationships on other people.

The Social Dual-Role Relationship Decision-Making Model takes a conservative stand and suggests ending or postponing dual-role relationships that have more than a minimal risk of harm to maximize the benefits of social interactions and minimize the potential for harm for trainees (Burian & Slimp, 2000). First, a decision tree (Figure 2) asks the trainer to scrutinize three main issues: relationship motives, power differentials, and types of social activities. The trainer is first encouraged to examine motivations for a dual-role relationship. The motivations are ranked to reflect (a) the highest priority; professional needs of trainees and trainers. For example, if a trainer and trainee conduct research together, some of their meetings might occur over lunch or after normal business hours. These meetings might also happen in non-professional settings and include some socializing. However, potential harm is reduced if all activities remain focused on the mutual professional benefit of conducting the research study.

The lesser priority is (b) the personal needs of the trainee, which pose greater potential harm. For example, a trainer has a class at a satellite campus. A trainee who usually takes classes at the main campus asks the trainer for a ride each week from main campus to the satellite campus to attend the trainer's class. The trainer may have a primary motivation to reduce air pollution and not see this request as a potential for a dual-role relationship. However, the trainer should consider all possible consequences of the arrangement and use the decision tree to assist them in determining how the power differences, location, and timing of the decision could affect the trainee, trainer, colleagues, and other trainees. Lastly, (c) the personal needs of the trainer should not be taken into consideration until the trainee has graduated.

Dual-role relationships should not be kept secret from colleagues and other trainees. Further, trainers on their own may have difficulty examining their own behavior (Koocher & Keith-Speigel, 1998). Trainers are encouraged to discuss their motivations for dual-role relationships with unbiased colleagues. Thus, it is important to clarify the primary reasons for entering into any dual-role relationship with a trainee. Trainers should fully inform directors and chairs of their decision to engage in dual-role relationships with trainees. After identifying motivations, the trainer next considers power differentials with the trainee. If the trainer could directly or indirectly impact the trainee's completion of a class or program of study or could write letters of reference, a dual-role relationship is best postponed until power differentials are more equal.

The last consideration is the location and timing of the dual-role relationship. Social relationships occurring at training sites are the least problematic. For example, meeting for lunch in the department break room is less risky than meeting at a local bar in the evening. Meeting at work appears less secretive and conflicting and allows colleagues to also appropriately socialize with the trainee. It also allows more

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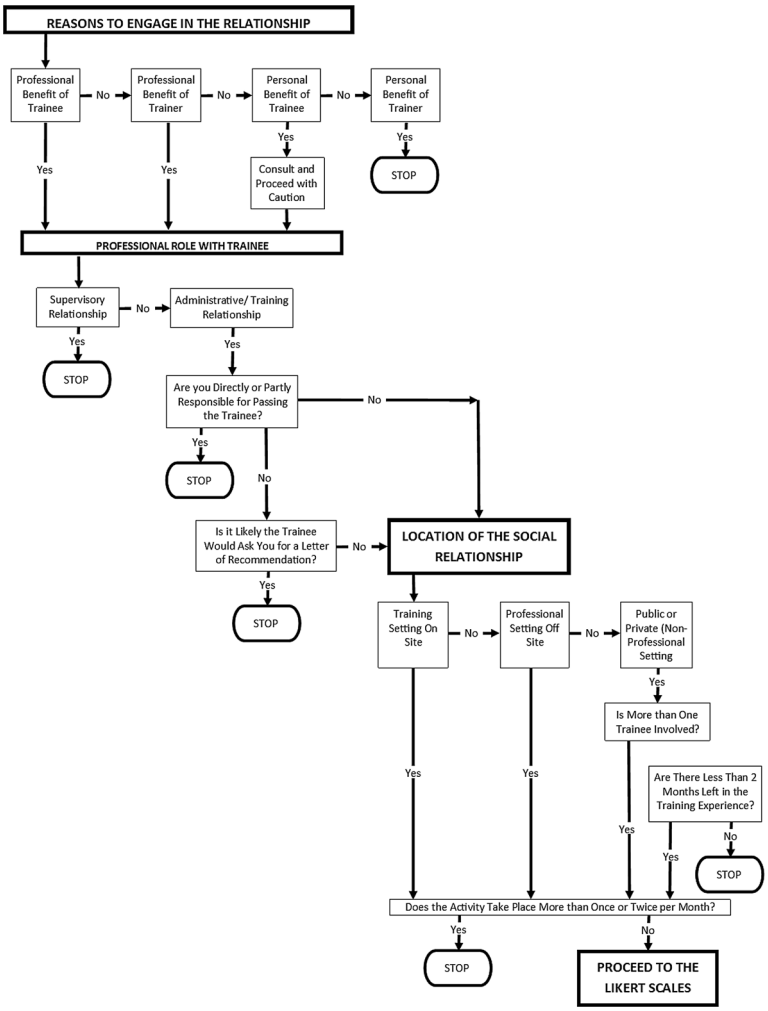
Figure 2. Social dual-role relationships during training: Decision tree



trainees the opportunity to join in the socializing and reduces favoritism. Additionally, trainers think about the frequency of socialization and consider that contact once or twice per month is less potentially harmful than three or more contacts a month.

The trainer must evaluate the proposed dual-role relationship in the context of the decision tree and then discuss the decision making process openly with a colleague.

If at the end of those two processes the trainer has not come to a "Stop" in the decision tree, they are directed to evaluate the dual-role relationship through three concerns. These are rated on a Likert scale where (1) is the least potential for harm and (5) is the most potential for harm (Figure 3). The trainer's evaluations of the three concerns are processed with at least one colleague. The first concern examines the "Trainee's ability to leave the social relationship/activity without repercussions." If the trainee could experience some repercussions for leaving the social relationship/activity, it is best to refrain from the dual-role relationship or wait until after graduation. The second concern examines the "Probable impact on uninvolved trainees." If other trainees could experience some discomfort from the dual-role relationship/

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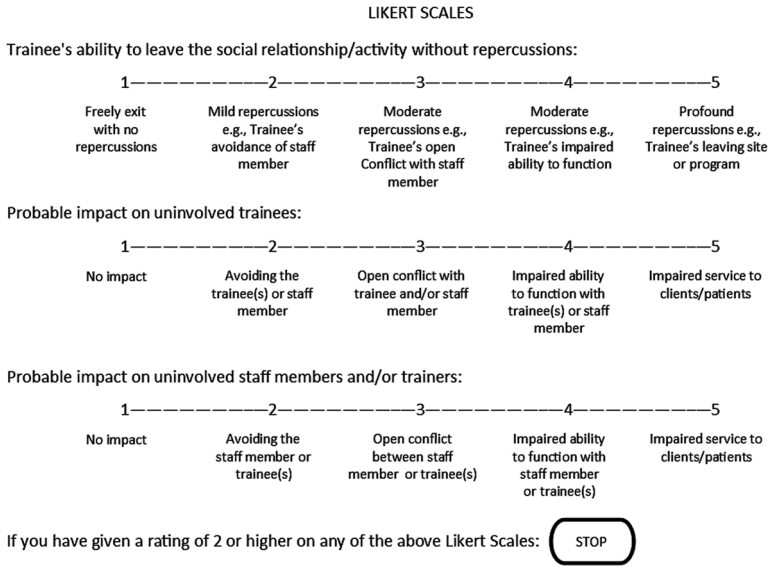
activity (creating conflict or competition with peers), it is best to refrain from the dual-role relationship or wait until after graduation. The third concern examines the "Probable impact on uninvolved staff members." If other colleagues could experience some discomfort from the dual-role relationship/activity (conflict or avoidance among colleagues; will the trainer be viewed as objective and credible), it is best to refrain from the dual-role relationship or wait until after graduation. Self-reflection, discussions with trainees, contracts, policies, and decision making models offer several ways to deal with sexual boundary crossings and violations in counselor training and supervision.

Figure 3. Social dual-role relationships during training: Likert Scales



FUTURE RESEARCH DIRECTIONS

Considering that counseling trainers are supposed to be experts in mental wellness and caring for others and that sexual boundary violations are unethical, the rate of sexual boundary violations with trainees is unacceptable. Male trainers are more likely to violate sexual boundaries then female trainers and there is some evidence suggesting that males tend to sexualize professional relationships in ways that females are less likely to do. These differences need to be understood better so that training can more reliably reduce the rates of sexual boundary violations.

As recently as 2005, online social media would not have been a concern in the helping professions, but this has changed dramatically opening a whole new area of potential concern. What is the impact of social media on training boundaries? Should trainers connect with trainees on social media? In her preliminary research, Budz (2015) suggested the possibility that when trainers and trainees connect on social media, there is a greater risk for sexual boundary violations. She identified the need to investigate this further and to develop guidelines for trainers and trainees.

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Evidence suggests that ethics training can help reduce the likelihood of sexual boundary violations, but simply pointing to the ethical codes that prohibit such behavior is not sufficient in preparing trainers and trainees to deal more effectively with sexual boundary violations. Prior to the 1980s, many counselor training programs did not include an ethics course in their curriculum. Some evidence has suggested that even with ethics training in the curriculum, it often fails to address concerns about sexual boundary violations in professional relationships. What is the best way to train counseling professionals to deal with sexual ethical dilemmas? Are there specific ethical interventions that would be more effective in developing professional competence in dealing with sexual ethical dilemmas? In this chapter, we offered Burian and Slimp's (2000) model designed to assist trainers in negotiating decisions about behaviors in their training relationships. We believe that this is an excellent tool for trainers, but more research needs to be done to test this and other ethical interventions to determine how effective they are.

Lastly, more research is needed to understand the barriers to effective training in sexual boundary violations during counselor training. Are trainers simply uncomfortable talking about sex and sexual attraction in educational and clinical supervision settings or, are they simply unaware of the importance of this problem and, thus, not even aware of the need to address this area? Given the preponderance of evidence of the ongoing problem of sexual boundary violations in training for over forty years, the challenge for researchers now is to focus more on evidence based practices that will reliably reduce, if not eliminate, the problem. In so doing, we hope see an improvement in the wellbeing of our future counselors, their clients, and their own trainees.

CONCLUSION

In counselor training, trainers may have the role of professor, mentor, graduate research supervisor, dissertation chair, advisor, and/or clinical supervisor. Similarly, trainees may have the roles of student, mentee, graduate or research assistant, and/or supervised clinician. Ultimately, entering into a sexual relationship with a trainee is the decision of the trainer. Given that trainers are always in a position of power over trainees, there is never a time when the trainee is in a position to fully consent to such relationships. Even in cases when the trainee believes that they are initiating the relationship, the trainer bears the burden of responsibility for the well-being of the trainee. Effective ethics training should include sexual boundary violations. In addition, trainers in educational and clinical settings need to provide training in boundary crossings and boundary violations to trainees. These frank discussions about sexual boundaries, the consequences of sexual boundary violations, and decision making models for managing boundary crossings may reduce the likelihood of sexual boundary violations to ensure the safety and well-being both of trainees and their clients.

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KEY TERMS AND DEFINITIONS

Dual-Role Relationships: Occurs when a trainer has more than one role in the training of the trainee at the same time (e.g. professor and clinical supervisor).

Boundary Crossings: Occur when the trainer departs from the strictest definition of their professional role, but is not acting unethically. Boundary crossings can be helpful and/or hurtful to a trainee.

Boundary Violations: Are inappropriate professional behaviors that challenge professional ethics, are not in the trainee's best interest, and/or will likely result in harm.

Power: Trainers have power over trainees because trainers (a) have something of value; (b) can inflict consequences; (c) hold a title or credential; (d) are held in high regard; and (e) are experts.

Professional Boundaries: Distinguish between professional and personal relationships. Boundaries are used to acknowledge power differentials in order to determine appropriate behaviors given the context to ensure the safety and optimal development of the trainee.

Sexual Boundary Violations: Are inappropriate professional behaviors that challenge professional ethics, are not in the trainee's best interest, and/or will likely result in harm. They can range from mild sexual behaviors that may make the recipient uncomfortable to sexual harassment and ultimately to consensual and nonconsensual sexual contact with a trainer.

Trainee: A counseling student or supervisee.

Trainer: An educator or supervisor of counselors.

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