The Psychology and Dynamics Behind Social Media Interactions

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The Psychology and Dynamics Behind Social Media Interactions

Malinda Desjarlais
Mount Royal University, Canada

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Section 1
Social Media and Interpersonal Relationships

Social media is designed to encourage socialization among members. The asynchronicity, audiovisual anonymity, and accessibility afforded by social media can both enhance and hinder interpersonal relationships, including friendships and romantic relationships. Collectively, the chapters in this section present a comprehensive overview of the opportunities and pitfalls associated with social media concerning interpersonal relationships.

Chapter 1

  Malinda Desjarlais, Mount Royal University, Canada

Due to their audiovisual anonymity and asynchronicity, social media have the potential to enhance self-disclosure, and thereby facilitate closeness among existing friends. In this chapter, the author highlights findings relating to the beneficial social connectedness outcomes that can be linked to online self-disclosure, synthesizes relevant literature that addresses who reaps the most benefits from online self-disclosure, and makes suggestions to direct future research in this area. Theoretical perspectives are identified throughout the chapter that are relevant to understanding the benefits of online self-disclosure, the relation between personal characteristics as predictors of online self-disclosure, and moderating factors of the effect of online self-disclosure on social connectedness. Empirical findings support both social compensation and social enhancement perspectives.

Chapter 2

Jessica J. Joseph, Mount Royal University, Canada
Diana Florea, Alberta Health Services, Canada

The overall objective of the proposed chapter is to increase the reader's understanding
of the role that social media plays in self-disclosing information about ourselves
in the development of friendships and identity, as well as explore these themes in
a clinical context. As such, readers will gain knowledge regarding the relations
between self-disclosing on social media sites and the ensuing friendship and
identity development that occurs, the extension of the research findings to clinical
populations, and the questions that still remain unanswered. This information may
be useful for the advancement of research, policy development, mental health
programs, parenting, and education.

Chapter 3

Irem Metin-Orta, Atilim University, Turkey

With the increased popularity of social media, social networking sites (SNSs) have
received the attention of many scholars. In particular, researchers have focused
on the impact of SNSs on interpersonal relationships. Accordingly, this chapter
provides an overview of the extant literature concerning associations between the
use of SNSs and romantic relationships. It provides empirical evidence on how social
networking behaviors are influenced by adult attachment styles, and how social
networking influences relationship constructs such as satisfaction, commitment,
jealousy, and relationship dissolution. Furthermore, it presents previous research that
emphasizes gender as a moderator in these relations. This chapter overall contributes
to researchers and professionals in providing information on online social networking
and emphasizing key romantic relationship constructs related to the use of SNSs. It
also provides suggestions for future research.

Chapter 4

Catherine Ann Cameron, University of British Columbia, Canada
Arantxa Mascarenas, University of British Columbia, Canada

Previous grounded theoretical analyses of rural adolescents' romantic relationship
discussions identified media as critical conditions in negotiating gender expectations
in intimate relations. More recent emergent fit analyses of urban teenagers' discussions
of virtual romantic relationships extended original theories to consider a lack of

confidence in communicating adequately in the context of using digital social media. The current research specifically investigated emergent fit analyses of digital media influences on relationships. Urban participants identified online platforms' playing significant roles in 1) signaling interest, 2) initiating, 3) maintaining exchanges, and 4) dissolving romantic relationships. Participants both complained and commended asynchronous digital media in exacerbating discomfort/comfort in communicating intimately. Participants sought guidance in transforming contextually complex intimate relational communications into a healthy reciprocity.

Chapter 5

Michelle F. Wright, Pennsylvania State University, USA

The purpose of this chapter is to examine cyberbullying through social media among youth. Drawing on research from a variety of disciplines, such as psychology, education, social work, sociology, and computer science, this chapter is organized into seven sections. These sections include 1) background; (2) youths' characteristics and risk factors; (3) negative psychosocial and academic outcomes; (4) theoretical framework; (5) solutions and recommendations; (6) future research directions; and (7) conclusion. The chapter will draw on multidisciplinary qualitative, quantitative, and mixed-design research methodologies from psychology, sociology, social work, and criminology.

Section 2
Social Media and Offline Social Interactions

Communication in a virtual world may have implications for what offline social interactions look like between communication partners. In this section, the authors present findings from their own empirical studies concerning the effect of social media use on interpersonal communication competence, the prevalence of phubbing behaviour, and negative emotions experienced when waiting or making others wait for a reply.

Chapter 6

Erin E. Hollenbaugh, Kent State University at Stark, USA
Amber L. Ferris, The University of Akron, USA
Daniel J. Casey, University of Wisconsin – Stevens Point, USA

The current study examines the role of psycho-social individual characteristics, social media motives, and social media use as predictors of interpersonal communication competence (ICC). Applying the uses and gratifications theoretical framework, this research seeks to explore the potential effects of social media use related to the second

digital generation (2DG), or those born after 1990. A cross-sectional study design, surveying 373 college students ages 18-24 years, found that offline social capital, interpersonal interaction, and social activity were direct, positive predictors of ICC. Social media motives and use contributed a small but significant portion of explained variance in the model, above and beyond effects of psycho-social characteristics. Specifically, members of the 2DG who use social media to compensate for offline loneliness, as well as those who were more dependent on social media to fulfill a variety of needs reported lower ICC. Limitations and directions for future research are also offered.

Chapter 7

Martina Benvenuti, Italian National Research Council (CNR), Italy
Agata Błachnio, The John Paul II Catholic University of Lublin, Poland
Aneta Małgorzata Przepiorka, The John Paul II Catholic University of
*   Lublin, Poland*
Vesela Miroslavova Daskalova, University of Bologna, Italy
Elvis Mazzoni, University of Bologna, Italy

Smartphones are a fundamental part of emerging adults' life. The aim of this chapter is to determine which factors play a role in "phubbing" during emerging adulthood as well as to propose and test a model of this phenomenon. We tested a model of relations between phubbing, self-esteem, self-control, well-being, and internet addiction. The following measures were used: the Rosenberg Self Esteem Scale, the Brief Self-Control Scale (BSCS), the Flourishing Scale, the Internet Addiction Scale, and the Phubbing Scale. The participants in the online study were 640 Italian emerging adults (526 females and 114 males), ranging in age from 18 to 29 (M = 21.7, SD = 2.18). The results showed that the model was well fitted, particularly in postulating that a decrease in the level of self-control is related to an increase in Internet addiction, that an increase in Internet addiction increases the probability of phubbing behavior, and that the level of self-esteem and well-being do not affect Internet addiction. Gender differences, in favor of males, occurred only in self-esteem.

Chapter 8

Shogo Kato, Tokyo Woman's Christian University, Japan
Yuuki Kato, Sagami Women's University, Japan
Kiminori Usuki, Tokyo Metropolitan Mizuho Nogei High School, Japan

This study examined associations between dependency on LINE text messaging and the times at which negative emotions occurred in survey participants in LINE group

chats in two situations—when waiting for a response and when making others wait for a response. The main results of correlation analyses of dependency scores and times are as follows. While effects were not observed for dependency as a whole, strong effects of partial subscales were observed. That is, the higher the score of relationship maintenance, which is a subscale of dependency, the shorter the time it takes for negative emotions to occur. On the other hand, it was partially suggested that the higher the score of excessive use, which is another subscale of dependency, the longer the time for negative emotions to occur. This study proposes that it is necessary to break down each aspect of LINE text-messaging dependency when examining the impact of the dependency on the timing of users generating negative emotions in LINE group chats.

<div align="center">

Section 3
Social Media and Mental Health

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There are many concerns regarding the role of social media for mental health. The literature reviews and empirical studies included within this section discuss the impact (and lack of impact) of social media on mental health related constructs, including sleep, stress, subjective well-being, and self-esteem.

Chapter 9

 Joanna C. Yau, University of California – Irvine, USA
 Branda T. Sun, University of California – Irvine, USA
 Jason D. Moreno, University of California – Irvine, USA

Sleep is essential for physical and mental wellbeing, but many adults and adolescents do not get the recommended amount of sleep. Recently, studies have identified technology use as having negative impacts on sleep. This is concerning given that mobile technologies have permeated the lives of today's young adults and adolescents. First, the effects of social media use, both throughout the day and before bedtime, on sleep quantity and quality are synthesized. Second, the mechanisms through which social media use disrupts sleep, namely that 1) social media use displaces time spent sleeping, 2) that the content on social media is stimulating, and 3) that the blue light emitted by digital devices suppresses the production of melatonin, decreasing sleepiness are discussed. Third, the research designs and methods that were employed are explored. Fourth, future research directions are proposed. Finally, tips to improve sleep in the digital age are provided.

Social media has become a part of people's lives and many psychological processes are suggested to be related with social media use. This chapter examines social media use from a stress and coping perspective. Social media can be a stressor for users with the content of posts they see, with a fear of negative evaluation, as an unhealthy attachment to social media accounts, and as a result of cyberbullying. Social media use can also be a problem-focused coping as a source of information, an emotion-focused coping as a distraction, and a source of social support. Lastly, it can be a predictor or a part of well-being as well as a moderator or mediator between coping and well-being. After elaborating on social media use as a part of the coping process, implications for research and practice are discussed. The key points from a coping viewpoint are specified for users, parents, teachers, and professionals. While problematic use of social media can be part of dysfunctional coping and a worse well-being, healthy use can help individuals deal with stresses and lead to a better well-being.

Facebook use has implications for subjective well-being. Previous research has revealed that passive Facebook use is typically related to deficits in subjective well-being, which is thought to be linked through upward social comparison. In contrast, active Facebook use is typically related to enhancements in subjective well-being. The main objective of the present study was to synthesize findings related to Facebook use and subjective well-being and to expand by proposing and testing whether the benefits associated with active Facebook use compensate for the negative effects associated with passive use. The second objective was to discuss policy and research directions. A total of 310 undergraduate students completed an online survey with questions regarding Facebook use, social comparison, and subjective well-being. Bootstrapping analyses revealed that active Facebook use did not buffer the negative effects for subjective well-being that occur during passive Facebook use. Recommendations for future research and education programs are discussed.

Chapter 12

Malinda Desjarlais, Mount Royal University, Canada

Social networking sites offer opportunities for users to express themselves and receive immediate feedback in the form of virtual likes. Adolescents place a great deal of value on the number of likes, regarding them as indicators of peer acceptance and support. Since peer feedback and social comparison are integral to adolescents' self-evaluations, the aim of the current chapter is to determine whether self-esteem is sensitive to the number of likes associated with their own (peer feedback) and others' posts (social comparison). The synthesis of literature indicates that self-esteem is responsive to indicators of one's value to others as well as the value of others, supporting the sociometer and social comparison theories. Indications of liking online serve to enhance self-esteem, whereas rejection deflates it. In addition, seeing others get many likes negatively impacts viewers' self-esteem. The gaps in the literature are discussed and future research is suggested.

Chapter 13

Stefano Triberti, University of Milan, Italy
Valeria Sebri, University of Milan, Italy
Lucrezia Savioni, University of Milan, Italy
Alessandra Gorini, University of Milan, Italy
Gabriella Pravettoni, University of Milan, Italy

Avatars are an important feature of digital environments. Existing both in social networks and webchats (usually as static images) and in single-player and online video games (as dynamic characters, often humanoid), avatars are meant to represent users' action and communication within digital environments. Research has shown that, when they are customized by users, avatars are not created "randomly," rather they maintain some kind of relationship with users' actual self-representation and identity. However, more recent studies showed that users may have multiple digital representations: the same person could create multiple avatars depending on which facet of the self is primed by an experimental manipulation, or on which aims they have to pursue in the given virtual environments (e.g., to seduce, to play, to work). With this background, this contribution explores the possibility to use customized avatars within psychological assessment, as adjunctive assessment tools useful to get information on patients' self-representation(s) and communicative intentions.

Section 4
Cultural Considerations of Social Media Use

Despite social media being a worldwide phenomenon, some countries are underrepresented within the social media literature. The chapters in this section attempt to fill that gap in the literature by examining social media issues among populations in Russia and Ghana.

Chapter 14

Julia Balakina, National Research University Higher School of Economics, Russia
Natalia Frolova, National Research University Higher School of Economics, Russia

Incorporation of blended learning into educational process is complex and challenging. The chapter aims to elucidate educators' and students' engagement and attitude towards the use of computer-mediated communication and social net sites in general, and for educational purposes in particular, in order to single out the issues that are controversial and slow down the use of ICT in teaching practice. It presents university teachers' and students' opinions collected by observation and interviewing. The results of the study, based on the fourth-generation method of assessment, reveal that both students and educators are active users of SNS and are optimistic about their integration into educational process. However, despite all the advantages of SNS disclosed in the study, still there are some issues to overcome before SNS can become an integral part of educational process. At present, its use should be supported by other means like LMS or MOOCs as well as traditional on-campus activities.

Chapter 15

Lydia Andoh-Quainoo, Pentecost University College, Ghana

Social media usage among young people has grown astronomically, generating interest among a number of interest groups. This chapter fills a gap on social media psychosocial antecedents propelling high-usage behavior and the subsequent psychosocial outcomes showing in attachment to the social media. The chapter explored the emergent psychosocial needs driving young people's level of usage in social media and the consequences, among a population in Ghana. The findings revealed that young consumers' social media behavior could be greatly influenced by their social psychological needs, but individual psychological variables did not significantly predict usage behavior in social media. The findings also suggest

that young people are more emotionally attached to social media, slightly attached cognitively and not attached behaviorally. This implies young people have developed some level of emotional involvement for the use of social media which could affect their well-being positively or negatively.

Preface

Social media includes all forms of electronic communication, such as social networking sites, instant messaging platforms, and microblogs, through which users create virtual communities to share information, ideas, personal messages, and other content (e.g., images, videos, jokes). The number of active social media users worldwide in 2019 has been reported as just under 3.5 billion people, or approximately 45% of the world population; with over three-quarters of the eligible (13yrs +) populations in Northern America, Central America, Southern America, Eastern Asia, South-Eastern Asia, and Northern Europe engaged in social media (Kemp, 2019). The average amount of time per day spent using social media around the world ranges between half hour and four hours, with an overall average of about 2 hours (Kemp, 2019). Given this worldwide phenomenon, increasing attention has been directed to understanding social media use.

Adolescents and young adults are the main users of social media (Smith & Anderson, 2018), which has sparked interest (and concern) among researchers, clinicians, professionals, educators, and parents, regarding the effects of social media for normative development. Teens themselves have mixed views on social media, noting both positive and negative effects on people their own age (Anderson & Jiang, 2018). The current book fills a need for an edited collection by providing readers with both breadth and depth on the impacts of social media for normative development, as well as social media as an amplifier of positive and negative behaviours. Overall, this book summarizes, synthesizes, and critiques current social media research, as well as details novel empirical research, in order to provide insight into the advantages and downfalls of social media through the lens of psychological theories, with a focus on the effects of use for relationships and mental health. As a collective, the chapters included in this book address the worldwide phenomenon of social media.

The primary target audience of this book is composed of instructors, researchers, and professionals. Instructors will be able to use this book as a resource or textbook in the classroom when teaching courses related to the psychology of social media. Researchers may use this book as a guide to further research regarding social media. Moreover, this book will be useful for professionals working in the field of

psychology, social work, counselling, education, and information technology who are interested in understanding what the current research suggests regarding social media use, in order to help others evaluate the role social media plays in their own or their loved one's daily life.

The Psychology and Dynamics Behind Social Media Interactions is organized into four sections that provide comprehensive coverage of key topics. Through literature reviews and empirical research, the first section discusses the positive and negative role of social media use within friendships and romantic relationships. In the second section, three empirical studies highlight potential problems for social interactions, including interpersonal communication competence, phubbing, and negative emotions associated with waiting for replies to group text messages. The third section details the relation between social media use and mental health. The fourth and final section shares empirical research that addresses social media use in under-researched countries, filling a gap in the literature concerning social media use in education in Romania, and motives for social media use in a developing country. Details regarding each chapter are provided below.

SECTION 1: SOCIAL MEDIA AND INTERPERSONAL RELATIONSHIPS

Social media is designed to encourage socialization among members. The asynchronicity, audiovisual anonymity, and accessibility afforded by social media can both enhance and hinder interpersonal relationships. Collectively, the chapters in Section 1 present a comprehensive overview of the opportunities and pitfalls associated with social media for interpersonal relationships, including friendships (Chapters 1 and 2), romantic relationships (Chapters 3 and 4), and cyberbullying (Chapter 5).

In Chapter 1, "Online Self-Disclosure: Opportunities for Enriching Existing Friendships," the author highlights the benefits that self-disclosure in the virtual world can have for friendships. In the review, the author discusses the relation between online self-disclosure and friendship quality, who reaps the most benefits from online self-disclosure, and highlights the risks of disclosing personal information online. Based on empirical evidence, the author makes suggestions for future research in this area, and provides recommendations to facilitate the promotion of healthy social media use.

Chapter 2, "Clinical Topics in Social Media: The Role of Self-disclosing on Social Media for Friendship and Identity in Specialized Populations," extends the discussion in relation to the role social media plays in the development of friendships by synthesizing the literature related to online self-disclosure among clinical

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populations. The author compares findings between normative and clinical populations regarding the effects of online self-disclosure on social and identity development. This chapter is useful for the advancement of research, policy development, mental health programs, parenting, and education.

Chapter 3, "Online Social Networking and Romantic Relationships," provides an overview of the extant literature concerning key associations between social media use and romantic relationships. According to empirical evidence, social networking behaviour is both influenced by and influences relationship constructs (adult attachment styles; relationship satisfaction, commitment, jealousy, and relationship dissolution). This chapter delivers important information for professionals to support the promotion of a positive atmosphere in romantic relationships. Limitations and future directions for research are also provided to guide scholars.

Chapter 4, "Digital Social Media in Adolescents' Negotiating Real Virtual Romantic Relationships," summarizes a qualitative study concerning the influence of digital media on romantic relationships among Canadian urban adolescents. In general, the authors explored how teenage girls and boys negotiated gender expectations regarding their intimate relationships within the context of social media, as well as how social media influences communication in intimate relationships. Adolescents highlighted how online platforms played significant roles in their romantic relationships, both positively and negatively. The content of this chapter can facilitate the development of appropriate tools and resources to help adolescents develop romantic relationships in a meaningful and healthy manner.

Concluding Section 1, which focuses on the role of social media for interpersonal relationships, Chapter 5, "Cyberbullying: Negative Interaction Through Social Media," concentrates on one of the drawbacks of interactions in the virtual world – cyberbullying among youth. This chapter synthesizes extant cyberbullying literature from a variety of disciplines, including psychology, education, social work, sociology, criminology, and computer science. Readers will acquire an understanding of the risk factors, and psychological and behavioral consequences associated with cyberbullying involvement, in addition to the prevalence rates and cross-cultural differences in cyberbullying.

SECTION 2: SOCIAL MEDIA AND OFFLINE SOCIAL INTERACTIONS

Communication in a virtual world may have implications for what offline social interactions look like between communication partners. In Section 2, the authors present findings from their own empirical studies concerning the effect of social

media use on interpersonal communication competence (Chapter 6), the prevalence of phubbing behaviour (Chapter 7), and negative emotions experienced when waiting or making others wait for a reply (Chapter 8).

In Chapter 6, "How Do Social Media Impact Interpersonal Communication Competence? A Uses and Gratifications Approach," the authors apply the uses and gratifications theoretical framework to discover the impact of social media for members of the second digital generation in the United States of America. In their empirical study, they examine the role of psychosocial individual characteristics, social media motives, and social media use as predictors of offline interpersonal communication competence. This study's findings highlight the link between the virtual and real worlds.

Smartphones are an integral part of emerging adults' daily lives, providing access to social media almost anywhere and at any time – even during in person social interactions. As such, in today's society "Phubbing", which captures the act of looking at one's mobile device during conversations with another person in real life, is increasingly becoming a social nuisance. The aim of Chapter 7, "Factors Related to Phone Snubbing Behavior in Emerging Adults: The Phubbing Phenomenon," is to identify the factors that predict phubbing (i.e., self-esteem, self-control, well-being, and Internet addiction) among Italian emerging adults. The current study sheds light on a new social phenomenon and the potential causal factors involved in phubbing, which is valuable for those working with Internet addiction and future research concerning of emerging adults' social media engagement.

A potential consequence of the asynchronicity that text messaging affords users is the waiting period for a response. Chapter 8, "Associations Between Dependency on LINE Text Messaging and Occurrence of Negative Emotions in LINE Group Chats," focuses on the times at which negative emotions occurred in two situations – when waiting for a response and when making others wait for a response in a group chat context – and whether this varies as a function of dependency or group relationship composition. Female university students in the greater Tokyo area were surveyed regarding the chat function in Line mobile app. The chapter identifies who (and when she) may be at most risk for negative emotions, and provides information to consider in order to promote healthy use of text messaging.

SECTION 3: SOCIAL MEDIA AND MENTAL HEALTH

The general public and researchers have expressed concerns regarding the role of social media for mental health. The literature reviews and empirical studies in Section 3 discuss the impact (and lack of impact) of social media on sleep (Chapter 9), stress

(Chapter 10), well-being (Chapter 11), and self-esteem (Chapter 12). Authors also consider the ability to use social media in a clinical setting to improve well-being (Chapter 13).

Technology use can have a negative impact on sleep, which is essential for physical and mental well-being. Chapter 9, "Addicting Content, Blue Light, and Curtailed Sleep: The ABCs of Social Media Use and Sleep," presents a review of the extant literature concerning the effects of social media use on sleep quantity and quality, and discusses the mechanisms through which social media use disrupts sleep. Based their critique of research methodology and the corresponding conclusions, the authors provide suggestions to improve sleep in the digital age.

Chapter 10, "Stress, Coping, and Social Media Use," evaluates social media use as both a source of stress and a coping mechanism. Social media use can cause stress, as well as buffer the negative effects of stress when used as a healthy coping mechanism. Moreover, the author discusses that while problematic use of social media can be part of dysfunctional coping and worsen well-being, healthy use can help individuals cope with stress, enhancing well-being. Implications for research and practice are discussed, and key points from a coping viewpoint are specified for users, parents, teachers, and professionals.

In light of the potential negative effects of social media on well-being, researchers have considered methods to buffer the negative effects. In Chapter 11, "Facebook, Social Comparison, and Subjective Well-Being: An Examination of the Interaction Between Active and Passive Facebook Use on Subjective Well-Being," the author tests whether the benefits associated with active Facebook use compensate for the negative effects associated with passive use among Canadian undergraduate students. Based on the author's findings that upward social comparisons explain the relationship between passive Facebook use and poorer subjective well-being regardless of the level of active use, recommendations for future research and education programs are discussed.

Effects of social media use on well-being are discussed in relation to virtual likes in Chapter 12, "The Effects of Virtual Likes on Self-Esteem: A Discussion of Receiving and Viewing Likes on Social Media." Social networking sites offer opportunities for users to express themselves and receive immediate feedback in the form of virtual likes. Since peer feedback and social comparison are integral to adolescents' self-evaluations, the aim of this literature review is to determine whether self-esteem is sensitive to the number of likes associated with their own (peer feedback) and others' posts (social comparison). Based on the synthesis of extant literature, future research is suggested, and recommendations to promote healthy social media use is directed at educators, parents, professionals, and users themselves.

Chapter 13, "Avatars for Clinical Assessment: Digital Renditions of the Self as Innovative Tools for Assessment in Mental Health Treatment," provides a different perspective on the role of social media on well-being. The authors explore the possibility to use customized avatars within psychological assessment, as adjunctive assessment tools useful to get information on patients' self-representation(s) and communicative intentions.

SECTION 4: CULTURAL CONSIDERATIONS OF SOCIAL MEDIA USE

In Section 4, two chapters extend empirical research concerning social media use to under-researched countries.

Chapter 14, "Education via Social Net Sites: Challenges and Perspectives," examines educators' and students' engagement and attitude towards the use of computer-mediated communication and social networking sites in general and for educational purposes in Russia. Both students and educators are active users of social networking sites and are optimistic about their integration into educational process, while at the same time reveal issues that need to be addressed before social networking sties can be smoothly integrated into post-secondary education.

Finally, Chapter 15, "Examining the Psychosocial Dimensions of Young People's Emergent Social Media Behavior," fills a gap in social media research concerning psychosocial antecedents related to high usage behaviour and the subsequent psychosocial outcomes within the context of a developing country (Ghana).

CONCLUSION

Overall, *The Psychology and Dynamics Behind Social Media Interactions* showcases current knowledge regarding the advantages and pitfalls associated with social media use, from authors around the world. The chapters provide recommendations to direct future research and highlight crucial information users, parents, educators, professionals, clinicians, and policymakers need to consider in order to promote healthy use of social media. Readers will be able to evaluate social media from a variety of perspectives in order to critique its positive and negative impacts on the individual and society.

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Section 1

Social Media and Interpersonal Relationships

Social media is designed to encourage socialization among members. The asynchronicity, audiovisual anonymity, and accessibility afforded by social media can both enhance and hinder interpersonal relationships, including friendships and romantic relationships. Collectively, the chapters in this section present a comprehensive overview of the opportunities and pitfalls associated with social media concerning interpersonal relationships.

Chapter 1
Online Self-Disclosure:
Opportunities for Enriching Existing Friendships

Malinda Desjarlais
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ABSTRACT

Due to their audiovisual anonymity and asynchronicity, social media have the potential to enhance self-disclosure, and thereby facilitate closeness among existing friends. In this chapter, the author highlights findings relating to the beneficial social connectedness outcomes that can be linked to online self-disclosure, synthesizes relevant literature that addresses who reaps the most benefits from online self-disclosure, and makes suggestions to direct future research in this area. Theoretical perspectives are identified throughout the chapter that are relevant to understanding the benefits of online self-disclosure, the relation between personal characteristics as predictors of online self-disclosure, and moderating factors of the effect of online self-disclosure on social connectedness. Empirical findings support both social compensation and social enhancement perspectives.

INTRODUCTION

Learning to maintain close relationships is a central developmental task of adolescence and young adulthood. Intimate friendships have implications for psychosocial adjustment and the quality of adult relationships. A lack of close friends is associated with feelings of loneliness, alienation, depression, and low self-esteem (Baumeister & Leary, 1995; Buhrmester, 1990; Jose, Ryan, & Pryor, 2012; Marion, Laursen, Zettergren, & Bergman, 2013). Among adolescents and young adults, a key component of intimate interpersonal relationships is self-disclosure, or the sharing of personally relevant thoughts, feelings, and experiences (Bauminger, Finzi-Dottan, Chaston, & Har-Even, 2008). It is essential then to explore venues that facilitate self-disclosure among friends.

Adolescents and young adults are increasingly turning to social media to connect with others (Davis, 2012; Reich, Subrahmanyam, & Espinoza, 2012). Social media are online platforms that allow users to create a profile about oneself, as well as connect and exchange information with other members (Boyd & Ellison, 2007; Henderson, Snyder, & Beale, 2013). Social media includes, but is not limited to, social networking sites (e.g., Facebook, Instagram, and SnapChat), instant messaging services (e.g., Facebook Messenger), text messaging, blogging sites (e.g., Twitter, and Tumblr), and multiplayer online games (e.g., Mindcraft, and Fortnite) (Ryan, Allen, Gray, & McInerney, 2017). According to a Pew Research Center survey of Americans in 2018, approximately 88% of 18- to 29-year-olds indicated they use some form of social networking, and a large proportion of these social media users visit the site daily (74% of Facebook users, 82% of Snapchat users, and 81% of Instagram users) (Smith & Anderson, 2018).

Social media has the potential to enhance self-disclosure, and thus facilitate closeness among existing friends and ultimately intimacy development. In an attempt to evaluate the potential of the virtual world for positive psychosocial development, the current chapter: summarizes the findings related to the beneficial social connectedness outcomes that can be linked to social media use in general and specifically to online self-disclosure; synthesizes relevant literature that addresses who reaps the most benefits from online self-disclosure; and provides suggestions to direct future research in this area. Although the focus of the chapter is on the benefits of online self-disclosure, in order to provide an unbiased portrait of online interactions, the author also highlights some of the drawbacks of sharing personal information online in general. Finally, considerations when using social media and posting information online are discussed, which can influence users' behaviours or be included in conversations with youth by parents, educators, and clinicians.

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BACKGROUND

According to the interpersonal process model of intimacy, intimacy is the product of a transactional, interpersonal process in which two fundamental components of intimacy are self-disclosure and partner responsiveness (Laurenceau, Barrett, & Pietromonaco, 1998; Reis & Patrick, 1996; Reis & Shaver, 1988). According to this perspective, intimacy develops on an interaction-by-interaction basis, where an individual discloses personally relevant information, thoughts and feelings to a partner, and receives a response, which is interpreted as the partner's understanding, validating, and caring (Reis & Patrick, 1996). Mutual disclosure leads to greater liking and feelings of closeness and contributes to healthy social development (Chan & Lee, 2014; Sprecher, Treger, Wondra, Hilaire, & Wallpe, 2013). Over time, individuals interpret and assimilate their experiences in these interactions, and form a general perception of the degree to which the friendship is intimate and meaningful (Reis, 1994). Recently, adolescents and young adults have turned to the Internet to help meet their need for self-disclosure.

When considering social media, there are numerous venues for sharing information about oneself with others, including private and public channels. Instant messaging systems provide a more private mode of communication, where messages (pictures, text, web links, and so on) are shared only with the recipient(s). On the other hand, social networking sites are a relatively public channel for which users can share information with their social network, including pictures (which can be tagged with the individual's identity), videos, web links, status updates, and a profile of the user him/herself (which may include user demographics, likes/dislikes, contact information, and educational/work information). Users also can respond to other members' posts through posting comments and/or sending a virtual like, which is shared with the poster's social network. Information such as age, religion, political views, and sexual preference are often viewed as non-private matters among young adolescents and are commonly shared on social network profiles (Livingstone, 2008). Although users have relative control over the information shared with members, with the option of presenting a false or real self, most emerging adults present their real self (Michikyan, Dennis, & Subrahmanyam, 2015).

Although social media may be propitious for friendships, face-to-face interactions seem to be preferred when interacting with existing friends. While self-disclosure is typically greater online than offline among strangers (Antheunis, Valkenburg, & Peter, 2007; Yang, Yang, & Chiou, 2010), adolescents and young adults report greater self-disclosure with friends in person compared to online exchanges (Huang & Yang, 2013; Schiffrin, Eldeman, Falkenstern, & Stewart, 2010; Valkenburg, Sumter,

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& Peter, 2011). Casual exchanges online with friends (e.g., discussing homework, offline plans, jokes, interests, funny videos, and events from the day) are three times more common than intimate disclosures (e.g., personal problems, opinions, and exactly what they are feeling) (Davis, 2012). Although self-disclosure may be less frequent online compared to offline, meaningful conversations between friends do still occur online. Indeed, users turn to social media to discuss sensitive topics or personal issues individuals find hard to discuss face-to-face with friends (Schouten, Valkenburg, & Peter, 2007; Yang et al., 2010). In interviews, adolescents indicated instant messaging their personal problems with their friends (Davis, 2012).

When considering the social consequences of using social media in general, two opposing hypotheses have been formulated: the displacement hypothesis and the stimulation hypothesis (Kraut et al., 1998; Valkenburg & Peter, 2011). The displacement hypothesis states that social media hinders the quality of existing friendships because online interactions, which are considered superficial, displaced time spent with friends and more meaningful interactions (Valkenburg & Peter, 2011). Prior to the turn of the century, much of the research examining outcomes associated with social media use has reported negative consequences, such as elevated levels of loneliness, social isolation, depression, and stress (Kraut et al., 1998; Nie & Erbring, 2000). In contrast, the stimulation hypothesis postulates that social media users primarily spend time online with existing friends, and that these interactions facilitate the maintenance and closeness of these relationships (Valkenburg & Peter, 2011). More recently, social media use predominantly has been associated with positive social consequences. Specifically, greater use is related to enhanced friendship quality (Blais, Craig, Pepler, & Connolly, 2008; Desjarlais & Willoughby, 2010; Subrahmanyam & Šmahel, 2011; Valkenburg & Peter, 2011), social connectedness (Bessiere, Kiesler, Kraut, & Boneva, 2008), social support (Wolak, Mitchell, & Finkelhor, 2003), number of friends (Antheunis et al., 2007), diversity of friends (Koutamanis, Vossen, Peter, & Valkenburg, 2013), and social capital (Antheunis, Schouten, & Krahmer, 2016), in addition to decreased feelings of loneliness (Deters & Mehl, 2013; Pittman & Reich, 2016).

Only a few recent studies reported negative effects of online social interaction. Some researchers suggest that already lonely and depressed individuals are drawn to the Internet rather than engagement in social media causing loneliness and depression (Amichai-Hamburger & Ben-Artzi, 2003; Caplan, 2003; Sun et al., 2005; van den Eijnden, Meerkerk, Vermulst, Spijkerman, & Engels, 2008). In contrast, it has also been argued that the time spent communicating online is related to increased loneliness because online communication is essentially a solitary activity, and although users are in contact with others, they are still physically alone (Stepanikova, Nie, &

He, 2010; Turkle, 2011). And others indicate that the relation between loneliness and social media use may be related to its purpose of use. One study revealed that adolescents who actively used Facebook to compensate for poor social skills showed increases in loneliness, whereas adolescents who used Facebook to supplement offline interactions exhibited reductions in loneliness (Teppers, Luyckx, Klimstra, & Goossens, 2014).

The shift from negative to primarily positive social consequences of social media use over the years of research can be explained by the drastic increase in Internet use for social purposes among adolescents and young adults since the initial studies. Kraut and colleagues (1998) examined social media use among first time Internet users, and thus none of the participants' existing friends were online at the time. As such, time spent chatting online with unacquainted partners detracted quality time from interactions with existing offline friends. More recently, however, much of adolescents' social media friends consist of people who they interact with in the real world (Reich et al., 2012). Adolescents today embrace social media as a tool for socialization, using it predominantly to supplement rather than replace offline interactions with friends (Valkenburg & Peter, 2011). There is consensus among researchers that the positive social outcomes associated with today's social media use is a result of self-disclosure. Therefore, the next section will focus on the benefits associated with personal disclosure via social media and consider who may benefit most from online self-disclosure.

BENEFITS OF ONLINE SELF-DISCLOSURE

Much attention has been devoted to understanding why social media is attractive for disclosing personal information. According to Valkenburg and Peter's (2009b) Internet-enhanced self-disclosure hypothesis, online communication creates a comfortable context that facilitates self-disclosure, which in turn enhances the quality of friendships. Specifically, the anonymity and asynchronization afforded by social media enhance controllability of self-disclosure. When communicating with friends, users are afforded opportunities for audiovisual anonymity, which refers to the lack or reduction of nonverbal (visual or auditory) cues conveyed (Valkenburg & Peter, 2011). Users can choose the richness of the cues they wish to convey when interacting online, including the use of static images, video-conferencing, and voice messaging. In most social platforms, users also can reflect on and revise what they type before they send their message (Walther, 2007). Even with more synchronous conversations, such as instant messaging, users are still able to pause before pressing the send button.

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For the most part, online self-disclosure does enrich friendships. Empirical research shows increased online self-disclosure is related to increases regarding closeness to friends (Desjarlais & Joseph, 2017; Pornsakulvanich, Haridakis, & Rubin, 2008; Valkenburg & Peter, 2009a), perceived support (Iacovelli & Johnson, 2012), social capital (Ellison, Steinfield, & Lampe, 2007), trust, understanding, commitment (Yum & Hara, 2005), and well-being (Joseph, Desjarlais, & Herceg, 2019; Valkenburg & Peter, 2007; Valkenburg et al., 2011). Furthermore, online self-disclosure has been positively related to offline self-disclosure, which in turn was associated with enhanced quality of communication among existing friends (Desjarlais & Joseph, 2017). Although empirical evidence supports the Internet-enhanced self-disclosure hypothesis, Valkenburg and Peter (2009b) suggest that the effects of online self-disclosure may be contingent upon situational and dispositional factors. Therefore, the question arose: who reaps the greatest benefits from online self-disclosure?

Within the literature, there are two main methods to assess factors that may influence online self-disclosure effects, including identifying and testing: (a) antecedents to online self-disclosure, and (b) moderating variables in the relation between online self-disclosure and friendship quality. First, since online self-disclosure is associated with positive outcomes for users, researchers argue that identifying characteristics of individuals who predominantly engage in online self-disclosure sheds light on whose friendships benefit the most from intimate online interactions (Valkenburg & Peter, 2009b). Within the literature, age, gender, and social competence have received much attention as predictors of online self-disclosure. In terms of age and gender, cross-sectional and longitudinal studies support that older adolescents disclose more information online compared to younger adolescents (Bonetti, Campbell & Gilmore, 2010; Bryce & Fraser, 2014), and typically girls disclose more than boys (Peter, Valkenburg, & Schouten, 2005; Punyanunt-Carter, 2006; Schouten et al., 2007; Valkenburg et al., 2011). Although these findings suggest greater benefits for both older and female adolescents, the author suggests that differences in self-disclosure are attributable to developmental differences among adolescents. In offline social situations, older adolescents disclose more personal information to friends than their younger peers (Bauminger et al., 2008; Schouten et al., 2007). In addition, adolescent girls report engaging in discussion and personal disclosure as a means of developing intimacy with their friends, whereas adolescent boys typically develop and sustain friendships through shared activities and interests (Mathur & Berndt, 2006). Since greater offline self-disclosure is associated with heightened online self-disclosure (Chiou & Wan, 2006; Schouten et al., 2007), online interactions may simply mimic offline interactions rather than being especially advantageous for older or female adolescents.

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Next, the audiovisual anonymity and asynchronicity characteristics of social media can be particularly beneficial for adolescents who exhibit shyness and anxiety in offline interactions (Chan, 2011). In accordance, two opposing hypotheses were established based on differences in the relationship between social anxiety and online self-disclosure. The social compensation hypothesis postulates that a fear of evaluation may lead socially anxious individuals to turn to the Internet to communicate with peers to a greater extent than those with lower levels of social anxiety, resulting in greater positive outcomes for friendships among socially anxious users (Amichai-Hamburger, 2007; Kraut et al., 2002; Valkenburg, Peter, & Schouten, 2006). The reduced audiovisual cues associated with social media may alleviate inhibitions and shyness individuals typically experience in face-to-face interactions, and thus adolescents can more easily disclose themselves online, which enriches friendships. Indeed, people with higher levels of social anxiety were more likely to report using Facebook to compensate for personal inadequacies (Bodroža & Jovanović, 2016), perceive online communication as valuable for self-disclosure (Valkenburg & Peter, 2007; Weidman et al., 2012), and exhibit a greater decrease on average in social anxiety in online interactions (Yen et al., 2012) compared to less socially anxious peers. Similarly, introverted adolescents more frequently turned to social media to compensate for lacking social skills than extroverted individuals, and adopting this social compensation motive was associated with increased online self-disclosure (Peter et al., 2005; Schouten et al., 2007). Furthermore, people reporting higher social anxiety (Bonetti et al., 2010; Wang, Jackson, & Zhang, 2011; Weidman et al., 2012) or lower self-esteem (Hollenbaugh & Ferris, 2014) reported greater online self-disclosure.

In contrast, those who already have strong social skills may consider social-based technologies as another venue to interact with friends. The rich-get-richer (aka social enhancement) hypothesis proposes that adolescents who already have strong social skills in real life use online communication platforms as an additional method to interact with others, which provides them with additional opportunities to engage in meaningful interactions with existing friends and thereby greater social benefits than their less socially competent peers (Schouten et al., 2007; Valkenburg et al., 2006). Empirical evidence also supports this perspective. Findings from a cross-sectional survey show that increases in loneliness are related to decreases in online self-disclosure (Leung, 2002). Similarly, extroverted individuals who used social media to make connections disclosed more intimate personal information than others (Hollenbaugh & Ferris, 2014), leading to increases in emotional, social and physical support from close online relationships (Weiqin, Campbell, Kimpton, Wozencroft, & Orel, 2016). Furthermore, longitudinal research supports a reciprocal

relationship between adolescents' ability to initiate offline relationships and online self-disclosure with a close friend (Koutamanis et al., 2013). In other words, those with already strong social skills disclose more online which further strengthens their social skills.

It should be noted that some other studies have provided empirical evidence for both social compensation and enhancement perspectives, or no evidence for either perspective. For example, when considering curvilinear associations, the relationship between extroversion and frequency of leaving comments (a form of online self-disclosure) appeared as a U-shaped curve (Wang, Lv, & Zhang, 2018). This means that both low and high levels of extroversion engaged in heightened levels of self-disclosure, supporting both perspectives. On the other hand, researchers have reported no association between social anxiety and the following: Facebook self-disclosure (Green, Wilhelmsen, Wilmots, Dodd, & Quinn, 2016; Liu, Ang, & Lwin, 2013; McCord, Rodebaugh, & Levinson, 2014; Shaw, Timpano, Tran, & Joormann, 2015), number of status updates (Deters, Mehl, & Eid, 2016; Weidman & Levinson, 2015), and perceptions of Facebook social support (Indian & Grieve, 2014). Potentially, these studies may have missed important relationships by examining only linear relationships. In conclusion, there is empirical support for both the social compensation and rich-get-richer perspectives when considering antecedents for increased online self-disclosure.

Instead of examining antecedents for online self-disclosure, it has been argued that identification of whose friendships benefit most from intimate online interactions requires exploration of moderating variables (Desjarlais & Willoughby, 2010; Valkenburg & Peter, 2009b). In other words, research needs to shed light on the group of individuals for whom the relationship between online self-disclosure and closeness to friends, for example, is strongest. The few researchers who have adopted this perspective in the context of online self-disclosure have focused on people who struggle to make social connections, including social anxiety and self-esteem.

Desjarlais and Willoughby (2010) suggest that support for the social compensation hypothesis and the rich-get-richer hypothesis stems from identifying whether the positive association between social media use and friendship quality is stronger for adolescents with strong social skills (social enhancement) or are socially inept (social compensation). Therefore, they extended the frameworks of the social compensation and rich-get-richer hypotheses. In effect, the social compensation hypothesis postulates that adolescents with high levels of social anxiety who engage in online communication exhibit enriched friendships compared to their highly anxious peers who do not chat with their friends online. Conversely, the rich-get-richer hypothesis assumes that, as a result of strong social skills, less socially anxious adolescents who communicated with friends online exhibit more positive friendships compared to less socially anxious peers who engage less in online communication.

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To directly test the reframed compensation and enhancement perspectives, Desjarlais and Willoughby (2010) examined whether the relation between engaging in online chat and friendship quality was dependent on social anxiety among adolescent girls and boys. Chatting online was associated with enhanced levels of friendship quality for adolescent girls, regardless of their level of social anxiety; which supported both the social compensation and rich-get-richer hypotheses. However, adolescent boys with higher levels of social anxiety reported more positive friendship quality if they engaged in online communication than if they did not, whereas, at low levels of social anxiety, engaging in online communication had no effect on friendship quality; supporting only the social compensation hypothesis (Desjarlais & Willoughby, 2010). The findings suggest that opportunities for self-disclosure benefit adolescent girls, socially anxious or not; whereas socially anxious adolescent boys may find it especially difficult to engage in meaningful discussions with friends and thus benefit most from the comfort of communicating online.

Social media may also be especially beneficial for people with low self-esteem. Individuals with low self-esteem possess a relatively low liking for themselves and are more socially anxious and introverted than those with high self-esteem (Leary & MacDonald, 2003). Although individuals with low self-esteem desire social connection (Anthony, Wood, & Holmes, 2007), they tend to have lower quality relationships and self-disclose less than their peers with higher self-esteem (Gaucher et al., 2012; Wood, Hogle, & McClellan, 2009). Similar to those with high social anxiety, sharing thoughts and feelings online may be more comfortable and less embarrassing for those with low self-esteem.

Forest and Wood (2012) compared the relationship between online self-disclosure and social rewards between young adults with high versus low self-esteem. In one of their experiments, undergraduate Facebook users provided their 10 most recent status updates, which were rated by three external blind coders for positivity and negativity. They also indicated the number of likes and the number of different people who commented on each of the posts (which were combined as an indicator of social reward). The effect of valence of posts on social reward did depend on participants' level of self-esteem. The more positivity participants with low self-esteem expressed in their status updates, the more comments/likes they received from their Facebook friends. In contrast, participants with high self-esteem received more comments/likes from friends for their more negative updates compared to positive posts. According to Forest and Wood (2012), while friends may have been providing encouragement and support when individuals with high self-esteem seemed down, friends of users with low self-esteem may respond more for positive over negative posts in order to encourage this atypical behavior. Since likes and comments from friends and

followers can indicate affirmation and support for another (Metzler & Scheithauer, 2017; Zhang, 2017), social media does have the potential to benefit adolescents with both low and high self-esteem, just in different situational contexts. However, given that negative updates are more common for people with low self-esteem, they may be less likely to reap the benefits social media has to offer in comparison to those with high self-esteem (Forest & Wood, 2012).

Empirical support for the social compensation hypothesis also emerges from research that examines whether social competence characteristics moderate the relationship between social media use in general (rather than self-disclosure specifically) and positive social outcomes. Socially anxious social media users benefit more in terms of connectedness with unfamiliar partners (Lundy & Drouin, 2016) and subjective well-being (Indian & Grieve, 2014) compared to those low in social anxiety. Young adults with lower self-esteem in particular benefit from Facebook use for the formation of casual relationships (Ellison et al., 2007; Steinfield, Ellison, & Lampe, 2008). Similarly, at low levels of social competence, more text messaging on the previous day was associated with less current day stress; whereas, there was no association between text-messaging and stress at high levels of social competence (Ruppel, Burke, Cherney, & Dinsmore, 2017).

Overall, there is mixed support for the social compensation and rich-get-richer perspectives when considering predictors of online self-disclosure. On the other hand, there is substantial support for the social compensation hypothesis when examining social competence characteristics of social media users as moderators for the relationship between online self-disclosure and social consequences. Adolescents and young adults with social anxieties or weak social skills, on average, exhibit more positive friendship quality the more they disclose personal information to friends online or compared to less socially anxious peers. Despite the increasing attention researchers have devoted to understanding the effects of social media use in general, and for online self-disclosure specifically, social media research is still in its infancy. As such, suggestions for future research are provided in the next section.

DIRECTIONS FOR FUTURE RESEARCH

Although knowledge pertaining to the social effects of social media use has rapidly grown, there are areas that still require additional attention. First, research on the social compensation perspective primarily has focused on those who exhibit difficulties in social situations, including social anxiety, low self-esteem, and loneliness. Given the centrality of self-disclosure to friendship quality, it is plausible that the benefits of

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online self-disclosure may extend to anyone who has limited opportunities for intimate discussions offline. In addition to dispositional traits, stress, school commitments, work schedules, and home responsibilities also may limit opportunities young adults have to spend with their friends, and thereby strain existing friendships. Since social media is used to supplement rather than replace offline interactions with friends (Valkenburg & Peter, 2011), online self-disclosure may not only compensate for those who struggle in social situations, but also for those who struggle to find time to arrange in person interactions with friends. Future research is required to assess whether friendships are better maintained in the latter situation if individuals engage more in online self-disclosure.

Second, most support for the social compensation hypothesis has been from cross-sectional studies, and of the few longitudinal studies included most only followed participants for a year (e.g., Valkenburg et al., 2011). There is an obvious call for more longitudinal research to more fully understanding the long-term consequences of social media use for adolescents and young adults. Although empirical evidence supports that social benefits are accrued from online self-disclosure for socially anxious individuals, these benefits appear to be relatively small. For example, engaging in online chat accounted for 3% of the variance in friendship quality whereas social anxiety accounted for 16% of the variance (Desjarlais & Willoughby, 2010). However, there is the potential that benefits may accumulate over time for those with high social anxiety. Continued use of social media may provide those with high social anxiety with opportunities to make meaningful connections with friends and practice social skills they otherwise may have missed out on because of their tendency to shy away from social situations. The added self-disclosure moments may eventually lessen the gap in the quality of friendships between socially anxious and socially competent adolescents over time, through increased meaningful interactions and/or practice of social skills. Overall, online communication does influence offline social competence (Desjarlais & Joseph, 2017; Koutamanis et al., 2013), and this may be especially beneficial for those with low social competence.

On the other hand, there is concern that the control social media provides over self-disclosure could severely impact face-to-face interactions in the long-term (Turkle, 2011). Although in the short-term social media appears beneficial for friendships, heavy social media users may engage in less and less face-to-face interactions over time, which may be particularly damaging for those with already weak friendships or social skills. Using path analysis, Kim, LaRose, and Peng (2009) showed that young adults who were lonely or with deficient social skills adopted a stronger preference for online interaction, which in turn was related to compulsive or problematic Internet use. Also, problematic Internet use resulted in negative life outcomes (e.g., harming

significant interpersonal relationships), which led to more loneliness. If social media use begins during pre-adolescence, then many interactions with friends will occur in a virtual space during a critical period of social development. Opportunities to develop interpersonal competence (e.g., initiating relationships, asserting displeasure with others' actions, self-disclosure of personal information with the presence of audiovisual cues, and managing interpersonal conflict) may be impeded, which could have detrimental effects when adolescents grow up. Currently, adolescents are expressing challenges for carrying on a synchronous conversation (Turkle, 2011). Therefore, longitudinal studies are required to identify the positive and negative effects of adolescents' online self-disclosure for their adult relationships.

DRAWBACKS OF ONLINE SELF-DISCLOSURE

When considering the effects of online self-disclosure between existing friends specifically, research emphasizes opportunities for adolescents and young adults. However, considering that disclosures on social networking sites, such as Facebook or Instagram, reach beyond the user's close social network, the sharing of personal information can be risky. Therefore, the purpose of the current section is to highlight the literature regarding drawbacks to sharing personal information on social networking sites so readers have enough information to make an informed decision (or can provide advice to others) regarding what they post on public channels.

Deciding what to share on social networking sites comes with its challenges. As a consequence of the low source anonymity (i.e., information can be attributed to a specific individual) in a relatively pubic context consisting of multiple audiences (i.e., friends, family members, relatives, colleagues, acquaintances), social network users typically are cautious about how they present themselves (Marder, Joinson, Shankar, & Houghton, 2016). According to the 'chilling effect', because of the high surveillance on social networking sites, users carefully manage their online self to meet perceived expectations of their social network (Marwick & boyd, 2011). This often includes users holding back to avoid an undesirable impression (Marwick & boyd, 2011). Indeed, youths admit to self-censorship of posts (Das & Kramer, 2013; Xie & Kang, 2015), untagging their identify from undesirable photos uploaded and tagged by others (Lang & Barton, 2015), altering posts to impress others (Chua & Chang, 2016), and refrain altogether from certain topics of conversation (Marwick & boyd, 2011). The presence of a diverse Facebook network is related to greater online tension (Binder, Howes, & Sutcliffe, 2009), posting regret (Xie & Kang, 2015), and presenting a desirable rather than completely true portrayal of oneself (Chua & Chang, 2016). This may have negative implications for adolescents' developing self-concept (Reid, 1998).

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In addition, when personal information is accessible by people or groups other than the intended audience, there is the potential and real risk of victimization. Greater disclosure increases chances of identity theft, trafficking, cyber stalking, and privacy invasion (Hasebrink, Livingstone, Haddon, & Olafsson, 2009; Li, Lin, & Wang, 2015). In one study of online bullying, 72% of adolescent respondents experienced at least one incident in the past year (Juvonen & Gross, 2008). Furthermore, one's postings can be incriminating, sometimes resulting in social or psychological risks. Posting stories about engagement in risky behaviors, including underage drinking, drug experiences, and involvement in illegal activities, can result in school suspensions or criminal charges (Peluchette & Karl, 2008). In addition, conflicts with parents (Youn, 2005), declines for job offers from employers (Schultz, Koehler, Philippe, & Coronel, 2015), and feelings of jealousy in response to ambiguous information posted by a romantic partner (Muise, Christofides, & Desmarais, 2009) have occurred from information shared on social media. Finally, users have experienced regret for posting about sensitive topics, lies, and personal secrets on social networking sites (Wang et al., 2011b), and in an attempt to rectify the situation have deleted pictures or comments, or posted fake information (Das & Kramer, 2013). People may not think about the consequences of what they post or how the posts will be perceived by the target audience, are emotional when posting, or consider that posts may be seen by unintended audiences (Wang et al., 2011b). Therefore, while posting personal information may facilitate connections with friends, at the same time the information has the potential to be socially and psychologically damaging if used in unintended ways by unintended recipients.

RECOMMENDATIONS

In order to experience benefits associated with online connections, one must share information with friends. It is important then for users, parents, educators, clinicians, and policymakers, to consider the following to promote healthy use of social media. First, social media provides opportunities for those with low social competence to interact with friends that they may have opted out of otherwise. Youth who struggle in social situations and turn to social media can be encouraged to share information about themselves with friends through private (safer) channels in attempt to enrich social skills and intimacy development. At the same time, however, it is imperative to acknowledge the limitations of the benefits associated with online self-disclosure. The literature suggests small effects for connectedness between friends, even for those who struggle in real life social situations. And although online communication has

the potential to afford users with opportunities to practice social skills (Koutamanis et al., 2013), online interactions tend to be disjointed from real life (Davis, 2012) and there is no evidence for long-term improvements in social competence. Thus, while online disclosure can facilitate social situations it not should replace key real-life socialization. Furthermore, heavy social media use can impede other areas of life that are also essential for psychosocial development, including sleep (Tavernier & Willoughby, 2014), family connection (Padilla-Walker, Coyne, & Fraser, 2012), and academic success (Jacobsen & Forste, 2011). Youths or parents can monitor social media use and set limits on times and contexts appropriate for use.

Second, considerations of the benefits associated with online self-disclosure must be paired with acknowledgement of the potential risks. Encouraging users to consider privacy settings, appropriate channels for sharing personal information (i.e., private over public channels), and thinking about the consequence about what they post prior to sharing may mitigate the risk of online self-disclosure. Adolescents and adults who are knowledgeable of the consequences of disclosing online are less likely to share personal information and more likely to protect their privacy (Christofides, Muise, & Desmarais, 2012).

CONCLUSION

Level of social competence, in itself or that which stems from social anxiety, self-esteem, or loneliness, does predict online self-disclosure as well as changes in the level of benefit experienced by users when disclosing online. People who struggle with offline interactions tend to exhibit the greatest benefits from social media use and online self-disclosure for social connections. Audiovisual anonymity and asynchronous conversation style afforded by social media appear to create a comfortable environment for those experiencing social awkwardness or discomfort. However, it should be noted that although greater benefits are observed for those struggling in social situations, online self-disclosure does not completely dissolve differences observed in ratings of friendship quality between socially competent and socially anxious individuals. Instead, socially anxious individuals exhibit less poor friendships compared to those more socially competent when using social media. In conclusion, social media should not be perceived as the solution for those struggling with face-to-face social interactions, but rather as a potential aid that produces some short-term benefits for interpersonal relationships. This recommendation, however, is cautioned as the opportunities afforded by online disclosure for relationship development are paired with potential and real social and psychological risks when personal information is used in an unintended fashion or seen by unintended audiences.

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KEY TERMS AND DEFINITIONS

Antecedent Variable: An independent variable that precedes other independent variables in time. It comes earlier in an explanation or chain of causal links.

Asynchronicity: The exchanges of messages intermittently rather than in real-time. Delays between receiving and sending messages can occur.

Audiovisual Anonymity: A lack or reduction of nonverbal (visual or auditory) cues conveyed during a conversation with one or more partners.

Moderating Variables: A third variable that affects the strength of the relationship between two or more variables.

Online Communication: The use of social media to send messages to other users.

Online Self-Disclosure: The sharing of intimate information about the self on social media.

Self-Disclosure: The sharing of personally relevant thoughts, feelings, and experiences.

Social Media: Online platforms that permit users to create a profile, as well as connect and exchange information about oneself with other members. Examples include social networking sites, instant messaging services, blogging sites, and multiplayer online games.

Chapter 2
Clinical Topics in Social Media:
The Role of Self-Disclosing on Social Media for Friendship and Identity in Specialized Populations

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ABSTRACT

The overall objective of the proposed chapter is to increase the reader's understanding of the role that social media plays in self-disclosing information about ourselves in the development of friendships and identity, as well as explore these themes in a clinical context. As such, readers will gain knowledge regarding the relations between self-disclosing on social media sites and the ensuing friendship and identity development that occurs, the extension of the research findings to clinical populations, and the questions that still remain unanswered. This information may be useful for the advancement of research, policy development, mental health programs, parenting, and education.

INTRODUCTION

Social media is a rapidly growing enterprise that has become pervasive in society today. In fact, internationally, billions of people log onto social media sites such as Facebook, Instagram, SnapChat, and YouTube every single day (Gramlich, 2018). In order to understand the outcomes associated with this modern, innovative, and evolving form of communicating with friends, researchers have examined the role that social media plays in social development. More specifically, this research has led investigators to suggest that when users log on to social media sites they are effectively using the media site as a vehicle to disclose information about the self (Verdyun et al., 2017), gain information about others (Feinstein et al., 2013; Vogel et al., 2014), and ultimately develop closer friendships (Desjarlais & Joseph, 2017) as a result. In addition, investigators have found that disclosing on social media sites also plays a role in our identity formation (Valkenburg, Schouten, & Peter, 2005). As such, the first purpose of the current chapter is to present and discuss the literature pertaining to self disclosing online and its relationship to friendship and identity development in general. The second objective of the current chapter is to uncover how these processes work in populations where self-disclosing, social engagements, and identity development are hindered as part of a clinical diagnoses such as autism, psychosis, schizophrenia, depression, and anxiety; or due to social marginalization as present in the LGBT+ community.

Therefore, the overall objective of this chapter is to increase understanding of the role that social media plays in self-disclosing information in the development of friendships and identity, as well as explore these themes in a clinical context. This information may be useful for the advancement of research, policy development, mental health programs, parenting, and education.

WHAT IS SOCIAL MEDIA

Social media is a term that can be extended to any form of technology that aids in our communication with others. This includes text messaging, instant (or direct) messaging, online gaming, social networking sites, video sharing sites, and e-mail. All of these have one major theme in common: They are intended to be social environments that allow for quick and easy connections to be made among existing and new friends (Smith & Anderson, 2018). While there are a number of different types of social media, social networking sites, video sharing sites, gaming and direct messaging will be the focus of the current chapter.

Social media has become ubiquitous with daily life. Internationally, billions of people log onto social media sites every single day (Stats, 2018). In fact, the Pew Research Centre estimates that roughly 70% of the American public uses some form of social media, with the majority of logins occurring daily (Factsheet, 2018). According to Smith and Anderson (2018), the most popular social media sites include the video sharing site YouTube (73% of American adults), and social networking sites such as Facebook (68% of American adults), Instagram (35% of American adults), or SnapChat (27% of American Adults). On average, social media users are comprised of young adults between the ages of 18 and 29 years, with female users being slightly more common than male users (Factsheet, 2018; Greenwood et al., 2016). It should also be noted that there is a growing number of adolescent social media users, roughly 85% of American adolescents (Anderson & Jiang, 2018). Adolescents generally follow the same social media use patterns as young adults, where the video sharing site YouTube (85% of American adolescents) was among the most popular, followed by the social networking sites Instagram (72%), SnapChat (69%), and Facebook (51%).

Generally speaking, social media websites are set up so that the user is able to create a personal profile where they are able to share an amalgamation of text, picture, and video content about themselves (Ellison, Steinfield, & Lampe, 2007). This often includes some combination of personal information, photographs, videos, memes, and/or ideas that the user identifies with. In addition, users are typically given the ability to 'follow' or 'friend' other users, becoming, in a sense, enrolled to see the information these users have posted about themselves online (Ellison et al., 2007). These websites then allow for instantaneous connections to be made, and provide a plethora of information about other users--all at the click of a mouse. Users typically turn to social media sites to aid in the maintenance of their relationships (e.g., to post or send messages, stay in touch with friends), to pass time, or for entertainment purposes (e.g., to see other people's pictures and read their profiles; Davis, 2012; Sheldon 2008; Smith, 2011).

The types of social features offered on social media sites are somewhat dependent on the specific site. For instance, the video-sharing site YouTube allows users, both professional and amateur, to create a profile where they can upload and share videos (Xu, Park, Kim, & Park, 2016). This includes either personal videos, videos the profile owner finds entertaining, or some combination thereof. Once a video is shared on YouTube, it is typically broadcasted to a combination of friends and strangers.

Similarly, social networking sites such as Facebook, Instagram, and SnapChat enable users to create personal profiles and broadcast information online. These sites differ from YouTube in the sense that (1) the audience of the information shared on

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social networking sites is typically comprised of friends made previously offline (Ellison, et al., 2007); and (2) social networking sites offer opportunities more geared toward text and photo based interactions. For example, Facebook allows users to create a personal 'timeline' where the user is able to share information about themselves in the form of directly messaging friends, posting status updates, sharing memories, posting on timelines, or reacting to others' posts. Similarly, Instagram is a photo based social networking site, where users share photos of themselves, or things they find cute, attractive, or inspirational (Hu, Manikonda, & Kambhampati, 2014). These photos are often filtered, or manipulated, to present the most attractive version of the users' photos (Hu et al., 2014). SnapChat shares the same features as Instagram, although users are able to directly select the people who view their posts, and the photos that are shared are only temporarily broadcasted (within 10 seconds of being opened by the recipient) before automatically being deleted (Kotfila, 2014). Although these sites may differ among specific features, a common theme among them is being able to instantaneously share, or self-disclose, information about oneself to others.

SELF-DISCLOSURE AND SOCIAL MEDIA

Self-disclosure is defined as the act of purposefully sharing intimate or personal information about oneself to others (Collins & Miller, 1994). Self-disclosure is integral to several aspects of psychosocial development, including building friendships and navigating one's identity. Altman and Taylor (1973) proposed the social penetration theory, which postulates that the development of interpersonal relationships follows a systematic and stable course from shallow and superficial connections to increasingly deeper and more intimate connections. Further, the mechanism by which these relationships evolve from superficial to intimate is through self-disclosure. According to Altman and Taylor (1973), self-disclosure follows a similar trajectory to that of the developing relationship, starting with the sharing of relatively impersonal information, which becomes increasingly intimate as the relationship grows (see also Davis, 2013; Greene, Derlega, & Mathews, 2006).

Considering the types of activities associated with social media use (e.g., sharing photos, videos, memories, personal information), a common theme among them is self-disclosure. Active engagement while on social media has been conceptualized as actively disclosing personal information in the form on photos, videos, status updates, and messages (Verdyun et al., 2017). It is plausible then that social media

platforms provide an additional (and pervasive) venue for individuals to disclose information about themselves, and in turn experience increases in the quality of their friendships (Desjarlais, Gilmour, Sinclair, Howell & West, 2015; Valkenburg & Peter, 2009). Indeed, self disclosing online has resulted in increases in friendship quality (Valkenburg & Peter, 2007), social connectedness (Burke, Kraut, & Marlow, 2011), and social support (Wright et al., 2012). Further, there are instances where disclosing online may be preferred over face-to-face disclosures, such as during sensitive or embarrassing conversations (Yang, Yang, & Chiou, 2010). These findings provide support for the increases in friendship quality that accompany self-disclosure, as well as suggest that the themes observed in the creation of the social penetration theory extend to social media.

Self-disclosure also plays a role in identity development, that is the development of a specific set of goals, values, morals, and personal beliefs that encompass the way an individual views, and acts in, day to day life (Marcia, 1966). One perspective on identity development suggests that social environments are essential for creating, understanding and interpreting an individual's identity (Goffman, 1959). This is potentially because social environments offer individuals the opportunity for self expression, where individuals are able to present themselves, or present who they wish to be, through sharing personal information with those around them (Goffman, 1959; Walther, 2007). Self-disclosure then could be viewed as the mechanism for said self expression. In fact, Mclean (2005) found that sharing personal information that is pertinent to one's identity, such as sharing an experience that represents who one is, helps individuals develop their own personal narratives, which ultimately then shapes identity. It is also believed that sharing information, gaining feedback, and comparing oneself to others is a means by which individuals explore, alter, and develop their identity (Festinger, 1954; Turner, 1975).

While there is evidence to suggest that an individual's identity is impacted by disclosing while face-to-face (e.g., Mclean, 2005), social media sites offer additional social environments for individuals to share personal information that can impact identity (Code, 2013; Katz & Rice, 2002; Valkenburg, Shouten, & Peter, 2005; Zhao, Grasmuck, & Martin, 2008). While on social media, users are able to actively engage in disclosing personal information in the form of photo uploads, video uploads, updating statuses (sharing what is on one's mind), as well as sharing links, memories, or memes that one identifies with (Ellison et al., 2007). Thus, while on social media, the sharing of personal information is typically in the form of showing oneself as opposed to directly telling others about oneself (Zhao, Grasmuck, & Martin, 2008). The content shared on social media is also fully controlled by the user, such

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that the poster has the ability to modify or conceal parts of themselves, as well as chose to only present the most socially attractive and desirable information about themselves (selective self presentation; Walther, 2007). Social media environments then offer a more controlled and safer environment for users to disclose information about themselves, allowing for more control when engaging in identity experiments (McKenna & Bargh, 2000). Valkenburg, Shouten, and Peter (2005) also found that adolescents who use social media report having engaged in identity experiments while online. These adolescents reported that they were motivated to disclose online as a means of self exploration, as well as gaining others' reactions to their identity related posts (Valkenburg, Shouten, & Peter, 2005).

CLINICAL APPLICATIONS

It is long standing wisdom that humans possess a fundamental need for friendship and belonging (Altman & Taylor, 1974). These friendships are imperative for an individual's well-being (Diener et al., 1999). It is also clear that the mechanism by which people build friendships and meaningful relationships is through self-disclosure (Altman & Taylor, 1974). Self-disclosure also plays an important role in identity development, both online and offline (Valkenburg, Shouten, & Peter, 2005). What about the instances however, when developing social relationships, or self disclosing in general, becomes hindered as part of a clinical diagnosis or social marginalization? Could social media offer a venue for more comfortable and safe disclosures for these populations?

According to Valkenburg and Peter's (2009) social compensation hypothesis, the anonymity, reduced audio/visual cues, and expected delayed response time that are associated with social media provide a comfortable environment for shy, and/or socially anxious individuals to take part in meaningful conversations that may have been too difficult when face-to-face (see also Desjarlais & Willoughby, 2010). Thus, social media may provide a safe and comfortable environment for users to share and connect with friends, and perhaps be used as a compensatory resource for individuals whose social skills/comfort are either lacking or underdeveloped.

While there is a growing body of literature that suggests that social media offers a comfortable environment for socially anxious users to disclose and build friendships, the literature focuses on the general population. This typically includes high, or average, functioning young adults with no qualms or issues with developing friendships or identity; or individuals with higher levels of social anxiety relative

to a sample as opposed to meeting clinical criteria. The question that arises then is, could the findings regarding social media being used as a facilitatory resource for comfortable disclosure extend to clinical populations? More specifically, and in line with the social compensation hypothesis, could social media provide a venue for individuals coping with severe social afflictions as part of a clinical diagnosis, such as in autism, depression and anxiety, schizophrenia and psychosis, or due to social marginalization such as in the LGBT+ community to more comfortably self disclose?

The objective of the remainder of the chapter is to synthesize the current literature regarding how disclosing on social media impacts populations of people with the aforementioned social limitations. Each topic will be presented separately and include brief discussions regarding (1) how socialization is hindered for the specific population; and (2) highlight current findings regarding self-disclosure on social media for these populations, and whether social media disclosures impact friendship and/or identity for them.

SOCIAL MEDIA AND AUTISM SPECTRUM DISORDER

Autism spectrum disorder (ASD) is a clinical term that is used in the classification of a neurodevelopmental disorder that includes pervasive developmental delays and significant impairments in interpreting, understanding, and engaging in social situations (American Psychiatric Association, 2013; World Health Organization, 2018). The social challenges that are paramount to ASD typically include difficulty making and understanding eye contact (Senju, & Johnson, 2009), as well as an inability to decode complex social information such as body language or facial cues (Frith, 2003; Sainsbury, 2000). This then results in an inability to initiate and/or engage in social conversations (Bauminger & Shulman, 2003). As such, individuals coping with ASD diagnoses have limited social exchanges with peers and lack the social skills to be able to build closer relationships (Lawson, 2001). It should be noted however, that individuals on the autism spectrum do report feelings of loneliness (Sainsbury, 2000), and a desire to gain friendships (Rowley et al., 2012). Given that social media offers more structure and control, and includes less reliance on interpreting non-verbal information such as body language or changing facial expressions (Burke et al., 2010; Valkenburg & Peter, 2009), social media may provide a more comfortable venue for individuals on the autism spectrum to engage in social exchanges, share and interpret personal information, and ultimately build social relationships.

The current literature on social media and ASD highlights that, in general, individuals on the autism spectrum typically prefer screen time when compared to their average functioning counterparts; this has been observed in both adolescents (eight-18 years; Mazurek, Shattuck, Wagner, & Cooper, 2012; Mazurek & Wenstrup, 2012; van Schalwyk et al., 2017), and adults (Mazurek, 2013). During screen time, these individuals do report using social media (Mazurek, 2013). Their preferences for social engagements while on social media typically reside in online gaming as opposed to social networking sites (Mazurek et al., 2012; Mazurek & Engelhardt, 2013). Individuals with ASD who do choose to engage in social activity while gaming (i.e., online chatting or messaging during gameplay), do exhibit increases in social interactions and social connectedness (Cole & Griffiths, 2007; Sunsberg, 2018), and decreases in loneliness (Sunsberg, 2018).

It should also be noted that although individuals with ASD are not necessarily motivated to use social networking over gaming, their social media consumption does include social networking sites. In fact, one study by Mazurek (2013) indicated that nearly 80% of young adult participants with ASD reported using social networking sites. Further, the most common motivation for using these sites included gaining social connections (Mazurek, 2013). Perhaps most importantly, individuals with ASD who do choose to gain connections via social networking sites report increases in social interactions and thus increases in social connections (Mazurek, 2013), as well as significant decreases in loneliness (Ward, Dill-Shackleford, & Mazurek, 2018).

Taken together, the current literature then suggests that, consistent with the social compensation hypothesis, the features of social media (particularly in gaming and social networking environments) may offer the structure, control, and simplicity necessary for individuals with ASD to be comfortable socializing. Social media then may provide a compensatory resource for these individuals to engage in more social exchanges with peers and ultimately gain friendships that may not have been possible offline.

SOCIAL MEDIA, SOCIAL ANXIETY, AND MAJOR DEPRESSIVE DISORDER

Major depressive disorder and social anxiety are also clinical diagnoses that include a lack of social exchanges, and deficits in developing close friendships. These disorders are also highly prevalent throughout the world. The World Health Organization (2017) estimates that, internationally, over 300 million people suffer

from depression, anxiety, or some combination thereof (aka comorbidity). For the following discussion regarding major depressive disorder, social anxiety, and social media, the two diagnoses will be discussed concurrently for two reasons. First, comorbidity of these diagnoses is exceptionally common, such that the vast majority of people suffering from major depressive disorder (approximately 85%) also suffer from clinical anxiety (Gorman, 1996). The comorbidity of these disorders is also stable across various life stages (Essau et al., 2018). Second, behaviourally, social inhibitions present similarly across both diagnoses in that, in both cases, social withdrawal and isolation tends to be the major contributing factor for lacking social exchanges and deficits in friendships among these populations. For instance, individuals with major depressive disorder tend to exhibit decreased interest in social activities and engaging with others (Saunders & Roy, 1999), often resulting in avoiding social interactions altogether (Coyne et al., 1987). Similarly, individuals with anxiety, especially social anxiety and/or social phobias, also tend to engage in severe social avoidance (Watson & Friend 1969). Individuals with anxiety also present a preoccupation with hiding imperfections and fears of being judged by others or viewed as inadequate (Clarke & Wells, 1995; Hewitt et al., 2003; Watson & Friend, 1969). Given that, in both cases, social avoidance and/or withdrawal is a factor, individuals with either, or a combination, of these diagnoses are at risk for social isolation and loneliness (Weiss, 1973).

Considering the increased control over the personal information shared and the lack of engagement expectations associated with social media platforms, these environments may provide avenues for individuals with depression and/or anxiety to engage in social situations and reduce their risk of loneliness and social isolation. The vast majority of the literature highlighting social media use among depressed and/or anxious populations, however, is speculative. This is because research in this area typically measures relative levels of depressive symptoms (e.g., Tandoc, Ferrucci, & Duffy 2015), or relative social anxiety (e.g., Desjarlais & Willoughby, 2012) while on social media, as opposed to clinical levels.

What can be derived from the studies that have measured relative levels of depression is that (1) the majority of studies, including the studies highlighted in this section, have focused on social networking sites as the social media platform of interest in these samples; and (2) how social networking sites influence depression, anxiety, and social connections depends on how an individual uses the social networking site. If users are passively engaged while on social media, such that they are scrolling through their social media news feeds with no posting or interacting (aka *passive* Facebook use), it is typically associated with increases in depressive

symptoms for young adults (Kraut et al., 1998; Tandoc, Ferrucci, & Duffy, 2015; Verduyn et al., 2015). The underlying mechanisms responsible for these increases in depressive symptoms while browsing social media are negative social comparison and envy (see Joseph, Desjarlais, & Herceg, 2019 for review). In this context, users are effectively comparing themselves to the information their friends post about themselves, and feeling as though their friends are happier and better of than they are (Chou & Edge, 2012). For example, Tandoc, Ferrucci, and Duffy (2015) found that when users passively engage on Facebook, they then negatively compare themselves to the information their friends have posted about themselves, feel envious of the attractiveness, power, and popularity exemplified by their friends' posts, and thus exhibit increases in depressive symptoms. Conversely, when users more actively engage while on social media, such that they are actively sharing personal information via posting photos, status updates, sending messages, or sharing links, memes, or memories they affiliate with (aka *active* Facebook use), they exhibit decreases in depression. Here, social media use is associated with increases in young adults' social connectedness (große Deters & Mehl, 2013) and decreases in depressive symptoms (Grieve, Indian, Witteveen, Tolan, & Marrington, 2013). Furthermore, a longitudinal study by große Deters and Mehl (2013) indicated that higher levels of status updates on social media negatively predicted loneliness one week later, through feelings of social connectedness.

Similarly, research examining social media as a compensatory resource for individuals with social anxiety has also largely been based on relative levels of social anxiety. This research has demonstrated that individuals with relatively high anxiety do exhibit increases in friendship quality from actively sharing and/or chatting online (Kraut et al., 2002; Valkenburg & Peter, 2009). For example, Desjarlais and Willoughby (2010) found that, among adolescent boys with relatively higher levels of social anxiety, those who reported more instances of chatting online reported greater friendship quality than those who chat online less frequently.

While research on social media use among individuals with clinical depression or anxiety is sparse, the studies that have been conducted are consistent with the preceding findings. Studies show that clinically depressed individuals exhibit envy while browsing on social media, even more so than their non-depressed counterparts (Appel, Crusius, & Gerlach, 2015). Additionally, clinically depressed individuals tend to perceive that social media only provides them with social support when they actively share, or post, information about themselves that is positive (Park et al., 2016). This may be of particular interest given that individuals with clinical depression tend to post more negative information than non-depressed people, and thus feel more depressed after posting (Moreno et al., 2012).

Insofar as social media being used as a compensatory resource for individuals with clinical depression and/or social anxiety to gain close friendships, it appears to be a double-edged sword. On one hand, and consistent with the social compensation hypothesis, social media may provide the opportunity for clinically depressed and/or anxious individuals to engage in social situations, and gain closer friendships, provided that they are actively posting, sharing, and chatting while on social media. On the other hand, if clinically depressed or anxious individuals passively browse social media, it could lead to feelings of envy and thus be detrimental to their friendships and their clinical symptoms.

SOCIAL MEDIA, SCHIZOPHRENIA, AND PSYCHOSIS

Schizophrenia Spectrum Disorder is classified as a pervasive psychotic disorder that includes significant social, emotional, and daily life impairments (American Psychiatric Association, 2013). Deficits in social functioning have been paramount in the diagnosis of schizophrenia since the DSM III (American Psychiatric Association, 1987; Bellack, Morrison, Wixted, & Mueser, 1990). The social impairments associated with schizophrenia typically stem from two general origins: (1) negative symptoms such as flat affect and disorganized speaking, thinking, and interpreting (Andreasen, 1982; Bellack et al., 1990); and (2) behavioural symptoms such as deficits in verbal communication (Lavelle, Healey, & McCabe, 2013), and underdeveloped social skills, including difficulties sharing appropriately and understanding social situations in general (Bellack et al., 1990). This is important because the deficits in social functioning that are attributed to schizophrenia often result in diminished social networks (Erickson, Beiser, Iacono, Fleming, & Lin, 1989; Giacco, 2013). This then leaves these individuals at risk for social isolation (Kohn & Clausen, 1955) and loneliness (Neeleman, & Power, 1994).

Given that social media platforms require less decoding of audio and visual cues, less reliance on speaking and speech interpretation, and offer users the ability to take time to formulate appropriate responses, social media may provide an avenue for individuals coping with schizophrenia, or symptoms of psychosis, to increase social connections. Indeed, both adolescents (Mittal, Tessner, & Walker, 2007), and adults (18-65 years; Schrank, Sibitz, Unger, & Amering, 2010) with schizophrenia do report frequently using social networking sites, as well as video sharing sites (Naslund, Grande, Aschbrenner, & Elwyn, 2014). Adolescents with schizophrenia typically report that they are motivated to use social media to maintain the offline friendships that they do have (Mittal et al., 2007), as well as establish and maintain

new friendships (Daley et al., 2005). Further, both adolescents and young adults with schizophrenia who do use social media report feelings of social support, reduced isolation, and the ability to learn from others (Naslund et al., 2014), as well as report closer friendships and the desire to include texting, chatting, and social networking into their treatment plans (Miller et al., 2015).

These self-report findings are also supported by empirical evidence. Studies show that chatting and direct/text messaging increases socialization among these populations (Alvarez-Jimenez et al., 2014; Alvarez-Jimenez et al., 2018; Granholm, Ben-Zeev, Link, Bradshaw, & Holden, 2011). In an experimental study by Alvarez-Jimenez and colleagues (2018), a social networking site was created by the researchers, and changes in social functioning, life satisfaction, and social support among users with schizophrenia were observed. The results demonstrated that participants exhibited increases in social functioning, social support, and life satisfaction after using the social networking site, both immediately and after a two-month follow-up (Alvarez-Jimenez et al., 2018). It should be noted however, that some of the social challenges that individuals on the schizophrenia spectrum experience offline may also transfer online. For instance, over-sharing or sharing socially inappropriate information is prominent among YouTube users with schizophrenia (Naslund et al., 2014). In addition, social media users with schizophrenia also tend to consistently post more negative information than control users, especially when sharing information about depression and anxiety while online (Hswen, Naslund, Brownstein, & Hawkins, 2018). This is important considering self-indulgent and/or negative posts tend to get fewer acknowledgements from other social media users (Burke & Develin, 2016) and thus may hinder making social connections via social media.

The research highlighted in this section indicates that there may be some benefits for social media users coping with schizophrenia and psychosis, especially surrounding increased socialization and social functioning. Although, more social coaching surrounding what is most appropriate to share online may be needed in tandem with encouraging these users to engage in social networking, chatting, and video sharing to help with social connections.

SOCIAL MEDIA AND SOCIAL MARGINALIZATION

In addition to social connections being hindered as part of clinical diagnoses, there are instances where typically functioning individuals are socially marginalized to the point where both social connections and identity development may be at risk.

These risks are particularly prominent among members of the lesbian, gay, bisexual, and transgender (LGBT+) community. This is because of the stigma attached to the sexual orientation, expression, and identity of these individuals, whose sexual narratives fall outside the expected heterosexual, bi-gender norms that are pervasive in society today (Subhrajit, 2014). As such, members of the LGBT+ community experience significant social marginalization and isolation (Hillier et al., 2010; Hiller, Mitchell, & Ybarra, 2012; Ryan & Rivers, 2003), as well as become victims of bullying and/or physical abuse for their sexual differences (D'Augelli, 2002). The effects of the marginalization, isolation, and victimization then leading to long-term mental health concerns, including depleting social networks, and an increased likelihood of depression (D'Augelli, 2002).

Research examining social media use among members of the LGBT+ community, and how it relates to friendship and identity, have found that adolescent members of this community do report feeling as though social media are safe places to share personal information and receive social support from friends (Hiller, Horsely, & Kurdas, 2004), some reporting that they are a safer place to socialize than traditional face-to-face environments (Hiller & Harrison, 2007). As such, researchers have found that members of this community turn to social media to express their marginalized identities, gain social support and social connections, and promote social understanding and social change (Mehra, Merkel, & Bishop, 2004). This then results in LGBT+ youth gaining support and understanding for their marginalized experiences (Ybarral Mitchell, Palmer, & Reiser, 2015), and creating friendships that may not have been possible otherwise (Pullen & Cooper, 2010). In addition, the anonymity and control offered by social media environments allows LGBT+ users to more safely experiment with, and learn about, their own identities (Pullen & Cooper, 2010). For instance, Fox and Ralston (2016) found that LGBT+ adolescent social media users report turning to social media for resources to learn about their emerging identity, experiment with their identity, and teach others about their identity while online (see also DeHaan et al., 2013).

Taken together, and consistent with social compensation hypothesis, social media environments provide the opportunity for LGBT+ community members to engage in identity experiments, and build friendships and support networks that may not have been possible offline. Where social compensation hypothesis has typically presented social media as a means of socially anxious, or socially inept, individuals to gain connections online, these themes may also transfer to the socially marginalized and isolated members of the LGBT+ community.

RECOMMENDATIONS FOR FUTURE PROGRAM DEVELOPMENT

Moving forward, support networks such as clinicians, educators, and parents should be aware of the potential for social media to be used as a compensatory resource for individuals struggling with severe and/or clinical social deficits—perhaps especially in the development of treatment plans, education, or social remediation programs. When working to develop this type of programming for these populations, there are a few key points to bear in mind. First, there is evidence to suggest that these specialized populations do exhibit benefits in friendship quality and well-being from using social media platforms. These platforms could then, at the very least, be considered as a tool or resource for these individuals to engage in social exchanges that may not have existed otherwise (aka social compensation).

Second, the benefits for friendships and well-being that are associated with social media use among clinical and/or marginalized populations are consistent across a variety of age categories. This suggests that the inclusion of social media platforms in social remediation programming may be beneficial for both adolescents and adults. Further, given that adolescence is a period where social skills, identity, and friendships are rapidly developing (Choudhury, Blakemore, & Charman, 2006), and that social media may be viewed as a compensatory resource for adolescents who are struggling with social development and friendships (in both clinical and general populations), adolescents may benefit the most from social interventions that include a social media component. It may be particularly beneficial to then target adolescents with deficits in social functioning when developing future programming.

Finally, clinical support networks should consider whether using social media benefits everyone, and whether promoting social media use among clinical populations needs to be treated differently from promotion in the general population. It should be noted that although the majority of the research presented in this chapter highlights the potential for social media to be used as a positive resource to engage in personal self-disclosure and gain social connections, social media sites could have negative consequences—perhaps especially for clinical or marginalized populations. In addition to the negative social comparison and increases in clinical symptoms that can accompany passively browsing social media (e.g., Verdyun et al., 2015), there are other factors that can negatively impact social media use that are outside the scope of the present chapter (e.g., cyberbullying, social media addiction). Individuals with clinical or marginalized social disadvantages may particularly be at risk for these negative consequences (e.g., Mazurek & Engelhardt, 2013). As such, future program development may need to consider including a component that helps these individuals not only use social media, but encourage ways for them to effectively, actively, and appropriately engage (van Schalkwyk et al., 2017).

LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

This chapter highlighted the current literature pertaining to the use of social media among clinical and socially marginalized populations, exploring the idea that social media may be used as a compensatory mechanism for the social disadvantages experienced by these populations. For knowledge advancement, future researchers will need to assess the long-term effects and magnitude of the effects, as well as develop ways to test whether the use of social media is beneficial for the specific social disadvantages posed by each of the preceding diagnoses.

The vast majority of research highlighted in the current chapter is cross-sectional and correlational. While this research can reveal the relationship between variables (e.g., social media use is associated with increases in social connectedness and/or social skills), the directionality and causal links among variables are currently speculative. The research suggests that individuals with social disadvantages exhibit benefits from using social media, however, it is equally plausible that individuals who have higher levels of social functioning are the ones turning to social media to utilize and rehearse the social skills that they already possess, and thus gaining additional social benefits. Although there are a few experimental studies that have examined the causality of these effects (e.g., schizophrenia and social media; Alvarez-Jimenez et al., 2018; Granholm, Ben-Zeev, Link, Bradshaw, & Holden, 2011), they are limited and do not exist across all the diagnoses discussed in the present chapter. Future research will need to include experimental manipulations of social media use across ASD, major depressive disorder, social anxiety, schizophrenia, and social marginalization to truly justify whether the use of social media does have a positive social impact for these populations.

Longitudinal studies are also necessary to evaluate the practical significance of the relationship between social media use and friendships among clinical and/or marginalized populations. Although using social networking sites, video gaming, and video sharing platforms are positively correlated with increases in social activity, social skills, and friendship development, how meaningful these increases are over time is largely unexplored. On one hand, it may be that social media use produces additive effects over time, such that the more these individuals use these platforms to gain social skills and social support, the more significant and meaningful the effects are for the users' psychosocial functioning. On the other hand, it may be that the benefits associated with social media use are more immediate, making the individual feel more connected in the moments that they are using the social media sites, but may not facilitate the long-term social skills development needed by these populations. Therefore, longitudinal research would be valuable for understanding any reciprocal relationships between use and psychosocial functioning as well as additive effects.

Lastly, perhaps particularly among clinically depressed or socially anxious individuals, the proposed social benefits for these populations are derived from speculating that the benefits associated from social media use among typical users with relatively higher levels of depression or anxiety symptoms will extend to clinical populations. Further, although there are studies that do consider clinical populations, the scales used to assess the social media benefits are largely those developed for average functioning individuals that are being used in a clinical context. To gain insight as to whether using social media is truly beneficial for specialized populations, future researchers will need to develop measurement strategies that assess the specific social disadvantages characterized by each of the clinical diagnoses discussed in the present chapter, and whether social media may compensate for the specific, respective social impairments therein (e.g., Mazurek et al., 2012; van Schalkwyk, 2017).

CONCLUSION

There are common themes detected among the studies highlighted in this chapter. First, social penetration theory offers an appropriate theoretical framework to describe that individuals gain closer friendships via sharing increasingly more personal and intimate about themselves (Altman & Taylor, 1975). Further, this framework can be extended to social media, such that when social media users engage in active, positive, and personal disclosures while online, they too exhibit increases in the quality of close friendships (Desjarlais et al., 2015). Perhaps most importantly, the benefits for friendships that occur from disclosing on social media may extend to populations of people with significant social disturbances, such as in the diagnosis of autism, anxiety, depression, and schizophrenia, or in cases of social marginalization as found in the LGBT+ community.

In addition, Valkenburg and Peter's (2009) social compensation hypothesis may also extend to clinical and/or marginalized populations. Although the social compensation hypothesis was initially created to suggest that individuals with relatively higher levels of social anxiety, or shyness, may use social media platforms as compensatory resources for their lack of social interactions, the findings highlighted in the current chapter suggest that this theoretical framework may extend farther. More specifically, individuals struggling with severe social impairments such as in autism and schizophrenia spectrum disorders, clinical depression, and/or clinical anxiety may also benefit from social media interactions for increasing social skills

and social connections, and be able to compensate for some of their social difficulties offline. Further, individuals struggling with social marginalization, and the ensuing deficits for friendships and identity development, may also experience compensatory benefits for sharing on social media. Ultimately then, the social compensation hypothesis may be extended to clinical and marginalized populations, suggesting that these individuals could also benefit from the structure and functions of online social environments, and compensate for their offline social struggles. Moving forward, support networks such as clinicians, educators, and parents should be aware of the potential for social media to be used as a compensatory resource for individuals struggling with severe and/or clinical social deficits—perhaps especially in the development of treatment plans, or social remediation programs.

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KEY TERMS AND DEFINITIONS

Anxiety: A clinical term used to define a state of fear, worry, and stress. Anxiety is also a cluster of a variety of fear and stressed based symptoms that often result in social avoidance.

Autism Spectrum Disorder: A clinical term used to classify symptoms of a disorder that includes pervasive developmental delays and severely impaired social functioning.

Depression: Clinically referred to as Major Depressive Disorder, a clinical categorization for a disorder containing extreme sadness, hopelessness, and decreased interest in social engagements.

Friendship: An interpersonal bond between two or more people that includes a level of emotional attachment.

Identity: A specific set of principles, morals, and values by which an individual views, and acts in, the world around them.

Schizophrenia Spectrum Disorder: A clinical term used in the classification of symptoms including psychosis, hallucinations, delusions, disorganization, and marked social impairments.

Social Compensation Hypothesis: A hypothesis that postulates that individuals with social challenges may be able to use social media to compensate for their limited social exchanges.

Social Media: A term that extends to any technological medium that helps facilitate communication and connections.

Social Networking Sites: A specific form of social media that includes creating an online profile to share photos, videos, and text based personal information that is broadcasted to friends on the internet.

Social Penetration Theory: A theory developed to demonstrate the mechanism by which individuals develop close relationships is through increasingly personal self-disclosure.

Video Sharing Sites: A specific form of social media that includes uploading or sharing videos and broadcasting them to some combination of friends and/or strangers.

Chapter 3
Online Social Networking and Romantic Relationships

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ABSTRACT

With the increased popularity of social media, social networking sites (SNSs) have received the attention of many scholars. In particular, researchers have focused on the impact of SNSs on interpersonal relationships. Accordingly, this chapter provides an overview of the extant literature concerning associations between the use of SNSs and romantic relationships. It provides empirical evidence on how social networking behaviors are influenced by adult attachment styles, and how social networking influences relationship constructs such as satisfaction, commitment, jealousy, and relationship dissolution. Furthermore, it presents previous research that emphasizes gender as a moderator in these relations. This chapter overall contributes to researchers and professionals in providing information on online social networking and emphasizing key romantic relationship constructs related to the use of SNSs. It also provides suggestions for future research.

INTRODUCTION

With the advances in wireless communication technologies, social media use has become prevalent among individuals. To illustrate, the number of active users of social media around the world was 2.46 billion in 2017 and this number is expected to reach to 3.02 billion by 2021 (Statista Facts on Social Networks, 2018). Given its prevalence and importance in interpersonal communication, scholars have shown an interest in online social networking and conducted numerous research to understand its influence on interpersonal relationships. In particular, they have focused on Social Network Sites (SNSs) such as Facebook or Twitter, and addressed several characteristics of individuals, such as attachment style (Emery, Muise, Dix, & Le, 2014a; Fox & Warber, 2014) and SNSs-induced jealousy (Muise, Christofides & Desmarais, 2009; 2014; Utz & Beukeboom, 2011) as well as relationship characteristics such as relationship happiness (Mod, 2010; Utz & Beukeboom, 2011), satisfaction (Elphinston & Noller, 2011; Saslow, Muise, Impett, & Dubin, 2013), commitment (Dibble & Drouin, 2014; Drouin, Miller, & Dibble, 2014) and dissolution (Clayton, Nagurney, & Smith, 2013; Clayton, 2014) as outcomes or predictors of SNSs-related behaviors of partners in a romantic relationship.

This chapter aims to provide an overview of the extant literature concerning associations among the use of SNSs and romantic relationship constructs. Given that SNSs enable public communication between partners (Billedo, Kerkhof, & Finkenauer, 2015) and may either damage or benefit an emotional relationship between partners, the investigation of the associations between the use of SNSs and romantic relationship constructs is warranted. Accordingly, this chapter provides information on how the use of SNSs influences and is influenced by individual and relationship characteristics. Furthermore, plausible moderators and mediators in these relations are explained. Thus, this chapter would contribute to researchers and communication professionals in providing information on online social networking and emphasizing key romantic relationship constructs related to the use of SNSs. It also provides suggestions for future research directions.

Several issues are addressed in this chapter. First, online social networking is introduced and the emergent interest in SNSs is discussed. Second, the research addressing online social networking and romantic relationships are reviewed. To do so, EBSCOhost, Psych ARTICLES and Scopus electronic databases were used to search several keywords such as *social media*, *social networking sites, online social networking, intimacy, romantic relationship, jealousy, satisfaction, commitment, etc*. The articles were primarily chosen from those published in the past 10 years. Lastly, the findings of the current literature are summarized, and limitations and suggestions for future research are mentioned.

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BACKGROUND

SNSs are online platforms where individuals can generate profiles, interact with friends, meet with other people based on common interests and trace the networks of connected users (boyd & Ellison, 2007; Kuss & Griffiths, 2011). Under the broader term of 'social media', SNSs are described as web-based services that allow for maintenance of social relationships within one's social network (boyd & Ellison, 2007; Rus & Tiemensma, 2017, p.685). Many people spend a great amount of time in SNSs. According to a survey, 71% of people who use the internet were social network users in 2017, and this rate is expected to grow (Statista Facts on Social Networks, 2018).

Facebook was first launched as an online student community at Harvard University in 2004 and became the most popular social networking site worldwide with 2.2 billion active users in 2018 (Statista Facts on Social Networks, 2018). Accordingly, most research on the use of SNSs has focused on Facebook, followed by Youtube, Whatsapp, Facebook Messenger, WeChat and Instagram. Given the popularity and high rate of prevalence of the use of SNSs, social networking and its possible influence on romantic relationships call for investigation. Thus, the following section of the chapter reviews the empirical research focusing on how the use of SNSs influences romantic relationships and is influenced by individual and relationship characteristics.

In general, people might initiate and maintain romantic relationships through public declaration of love and commitment, and through monitoring partner's status updates, photos, wall postings, and friends on SNSs (Marshall, Bejanyan, Di Castro, & Lee, 2013). In particular, it is proposed that social networking influences romantic relationships through three different ways: 1) Through increasing the information that individuals receive about their partner, 2) through offering an acceptable way of monitoring the partner, and 3) through publicly sharing information related to a romantic relationship (Utz & Beukeboom, 2011, p. 512).

Scholars have also addressed gender differences in investigating the associations among the use of SNSs and romantic relationships. For instance, it has been argued that SNSs serve different social functions for men and women (Rus & Tiemensma, 2017). In particular, the genders differ in their motivations for the use of SNSs due to different gender-role expectations (Muscanell & Guadagno, 2012). That is, men are more likely to use SNSs such as MySpace and Facebook for relationship formation (i.e., to find potential dates) whereas women are more likely to use these sites for relationship maintenance (Muscanell & Guadagno, 2012; Raacke & Bonds-Raacke, 2008).

In the extant literature, considerable research has been conducted on the positive and negative effects of SNSs on romantic relationships (see Rus & Tiemensma, 2017 for a review). While some scholars suggest that social networking may be beneficial in enabling people to keep in touch with others (Joinson, 2008), other scholars propose that excessive use of SNSs may be damaging to romantic relationships (Clayton, 2014; Clayton et al., 2013). Accordingly, in the following section, the relationship between social networking and relationship constructs including attachment style, relationship satisfaction, commitment, jealousy, and dissolution are presented, along with the identification of existing gender differences in the current literature. In specific, it reviews empirical research on how attachment style influences social networking behavior, and how online social networking influences romantic relationship constructs.

MAIN FOCUS OF THE CHAPTER

Social Networking and Attachment Style

Attachment theory (Bartholomew & Horowitz, 1991; Collins & Read, 1990) provides a framework to understand romantic relationships. Hazan and Shaver (1987) conceptualized romantic love as an attachment process, and proposed that adult attachment style is determined by infant's relationship with a primary caregiver. In early stages of life, infants develop internal working models (positive/negative images for the self and the others) based on experiences with parents, and these models later influence relationships in adulthood (Bowlby, 1969). Drawing upon Bowlby's (1969) original formulation, Hazan and Shaver (1987) proposed three attachment styles of adulthood (secure, avoidant, anxious/ambivalent) that corresponds to those in early years. Later, Bartholomew and Horowitz (1991) proposed four attachment styles (secure, preoccupied, dismissing, and fearful) that were derived from a combination of two dimensions.

Securely attached individuals (low anxiety, low avoidance) desire intimacy, preoccupied/anxious individuals (high anxiety, low avoidance) desire closeness but fear rejection, dismissive/avoidant individuals (low anxiety, high avoidance) avoid intimacy due to desire for independence, and fearful individuals (high anxiety, high avoidance) avoid intimacy due to desire for not being hurt (Bartholomew & Horowitz, 1991). Accordingly, research on adult attachment have shown that secure individuals have higher self-confidence, higher level of involvement in romantic relationships,

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and express greater interpersonal warmth (Bartholomew & Horowitz, 1991). Furthermore, they are better able to seek and provide support (Collins & Feeney, 2000) and have more satisfaction with their relationships (Collins & Read, 1990).

Scholars examined adult attachment style as an underlying mechanism predicting SNSs-related behaviors and emotional reactions to SNSs content (Rus & Tiemensma, 2017). A number of studies investigating attachment styles and the use of SNSs show that anxiety and avoidance dimensions predict how people use and react emotionally in SNSs (Emery et al., 2014a; Fleuriet, Cole, & Guerrero, 2014; Fox & Warber, 2014; Marshall et al., 2013). Anxious individuals reported more desire for relationship visibility (i.e., via the display of couple photos and relationship statuses on Facebook) while avoidant individuals reported less desire for visibility especially when they believed that others perceive their relationship as low quality (Emery et al., 2014a). Moreover, when individuals felt more insecure about their partners' feelings, they preferred more visibility. In other terms, they prefer their relationships to appear as an important aspect of their self-images on SNSs.

In another study, Morey, Gentzler, Creasy, Obenhauser, and Westerman (2013) investigated whether the way that social networking relates to intimacy/support depends on one's attachment style. In a sample of undergraduate students who were in a committed romantic relationship, it was revealed that greater use of SNSs is associated with more intimacy/support among individuals with attachment anxiety. It was argued that some aspects of SNSs such as posting relationship status or dyadic photos in the profile may buffer the negative effects of insecure attachment through creating a secure environment and support to the individual (Morey et al., 2013).

Researchers have also examined attachment style in relation to partner surveillance and feelings of relationship uncertainty. For instance, an online survey of university students revealed that due to high levels of relationship anxiety, fearful and preoccupied individuals experience higher levels of relationship uncertainty and show the highest level of partner surveillance (Fox & Warber, 2014). In another study, attachment anxiety was positively while attachment avoidance was negatively associated with jealousy and partner surveillance (Marshall et al., 2013). In addition, lower partner trust and daily jealousy partially mediated the anxiety association. Similarly, attachment anxiety was positively associated with negative emotion in response to an ambiguous message on a partner's wall that might invoke jealousy (Fleuriet et al., 2014). Taken together, the previous research indicate that the emotional bond among partners influences the link between social networking and romantic relationship.

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Social Networking and Relationship Satisfaction

In addition to individual characteristics such as attachment style, online social networking has been studied with respect to several relationship characteristics. Among those characteristics, satisfaction has been extensively investigated by scholars. In specific, relationship satisfaction is defined as the overall evaluation of feelings, thoughts, and behaviors that are associated with a romantic relationship (Hendrick, 1988). A wide array of research focusing on relationship satisfactions often used several terms interchangeably such as marital or relationship satisfaction, relationship adjustment, and happiness (Graham, Diebels, & Barnow, 2011). Relationship satisfaction is widely studied in married couples but is also valid in dating and/or cohabitating couples, and it is an important determinant in predicting the quality and the duration of the relationship.

Recent literature has shown that the use of SNSs and relationship satisfaction are partly associated. Hand, Thomas, Buboltz, Deemer, and Buyanjargal (2013) explored the effect of the time spent on the use of SNSs on both relationship satisfaction and intimacy. The findings based on a sample of undergraduates who identified themselves as exclusively dating, did not report a significant relationship between an individual's use of SNSs and relationship satisfaction. However, it was reported that the relationship between romantic partner's online social network usage and relationship satisfaction was mediated by intimacy. That is, higher intimacy between couples might serve as a protective function and thus, diminish the negative effects of perceived partner usage (Hand et al., 2013).

Likewise, in their Facebook intrusion questionnaire development study, Elphinston and Noller (2011) also investigated the associations among Facebook intrusion (excessive attachment on Facebook that interferes with daily activities), relationship satisfaction, jealousy, and partner surveillance. Data were gathered from Australian partners with a high majority being dating couples. Their findings suggest that time spent on Facebook is not significantly related to relationship satisfaction. However, jealousy and surveillance are found to be mediators among Facebook intrusion and satisfaction, such that the negative effect of excessive use of online network site on relationship satisfaction was indirect through the experience of cognitive jealousy and surveillance behaviors. In other words, Facebook intrusion promotes jealousy-related feelings and monitoring behaviors among partners, which in turn leads to relationship dissatisfaction. These findings point toward a need for further research that explores the relationship between SNS-addictions and romantic relationship constructs (Elphinston & Noller, 2011).

Drawing upon Relationship Maintenance Theory (Canary & Stafford, 1992; Stafford & Canary, 1991), some scholars (i.e., Billedo et al., 2015; Dainton, 2013; Steward, Dainton, & Goodboy, 2014) have focused on relationship maintenance strategies in relation to the use of SNSs. These strategies are routine, unconscious behaviors engaged by a partner to maintain a relationship such as "positivity" ("being cheerful around the partner"), "openness" ("disclosing one's desires from the relationship"), "assurances" ("reassuring the partner about commitment"), "social networks" ("relying on common friends and family") and "sharing tasks" ("performing tasks that help the relationship to function") (Dainton, 2013, p. 114). Among these strategies, positivity, assurances and sharing tasks were found to be strongly related to relationship characteristics such as control mutuality, liking, satisfaction and commitment (Canary & Stafford, 1992; Stafford & Canary, 1991). Using a measure of Relationship Maintenance Strategies (Stafford, Dainton, & Haas, 2000), Dainton (2013) examined whether general maintenance behaviors and Facebook maintenance behaviors were related to relationship satisfaction among college students. The researcher found that Facebook positivity (i.e. sending positive messages to partner) and assurances (i.e. expressing love on partner's wall) were positively correlated with relationship satisfaction. However, only Facebook positivity predicted relationship satisfaction after controlling for general maintenance behaviors (Dainton, 2013).

In another study by Billedo et al. (2015), researchers conducted an online survey to investigate the role of SNSs in the maintenance of a long-distance romantic relationship among young adults who use Facebook. They found that compared to those in geographically close romantic relationships, individuals in long-distance romantic relationships use SNSs more to express strategic and routine relationship maintenance behaviors and to monitor their partner's activities for seeking out information concerning their involvement in the relationship. In addition to *partner surveillance* or *stalking*, the persistent monitoring of one's romantic partner's or ex-partner's online activity (Tokunaga, 2011), these individuals reported experiencing higher levels of SNS- related jealousy as well. These findings point out that among partners who are in long-distance romantic relationships, surveillance and SNSs-induced jealousy may serve maintenance function for the relationship. In particular, researchers argue that partner surveillance signals continued interest and concern for the partner who is far away, and jealousy arouses feelings of protectiveness over the relationship, thus affirming love for the other (Billedo et al., 2015).

On the other hand, a group of scholars have proposed that Facebook maintenance behaviors might be related to relationship uncertainty (Steward et al., 2014). Berger and Calabrese's (1975) original formulation of Uncertainty Reduction Theory (Berger

& Calabrese, 1975) emphasizes the role that communicative behaviors among partners play in reducing the perceptions of ambiguity within the relationship (Fox & Warber, 2014). Accordingly, Steward et al. (2014) examined whether different types of uncertainty are related to relationship maintenance behaviors. Using Knobloch and Solomon's (1999) classification of relational uncertainty, Steward and her colleagues (2014) revealed that perceptions of mutuality uncertainty (concerning similarity and reciprocity of the shared feelings between partners) and definitional uncertainty (concerning explanation of the the status of the relationship to others) in a relationship predicted more monitoring behaviors to maintain the relationship among undergraduates who use Facebook. Furthermore, perceptions of future certainty (concerning relationship outcomes over time) and definitional certainty predicted more relationship maintenance strategies of assurances and openness via Facebook. Finally, relationship satisfaction was not related to partner monitoring; but related to positivity and assurances via Facebook (Steward et al., 2014).

In another study, Papp, Danielewicz, and Cayemberg (2012) investigated the nature of the use of SNSs on relationship satisfaction. Based on the data gathered from dating partners, the findings provide evidence that Facebook has a considerable role in dating partners' intimate relationships. More specifically, it is found that portraying the relationship in Facebook determines relationship functioning. Such that, the display of a partner's status for men and the inclusion of their partner in profile picture for women are found to be associated with greater levels of relationship satisfaction. This finding calls for future research exploring the gender differences to underpin the varying attributions regarding portrayals of relationship and its outcomes (Papp et al., 2012). Accordingly, Saslow et al. (2013) investigated whether relationship satisfaction predicts dyadic profile displays and if so whether gender moderates this relationship in both married and dating couples. In two studies, one, cross-sectional, and the other, longitudinal, higher satisfaction among married couples predicted greater likelihood of posting dyadic profile photos both in cross-sectional and over a one year time periods. No significant gender differences were reported (Saslow et al., 2013).

A very similar pattern is also revealed with dating couples such that the tendency to post relationship-relevant information on Facebook was higher on the days when couples felt more satisfied with their relationship (Saslow et al., 2013). In other words, individuals tended to post images of themselves and their partner on Facebook when they were more satisfied with their relationship. As it is proposed, this may stem from the increased feelings of interconnectedness or self-other overlap among partners (Saslow et al., 2013). Besides, when people find public expressions of

love and commitment on the profile, it increases feelings of relationship happiness (Mod, 2010; Utz & Beukeboom, 2011). Indeed, individuals tend to experience more happiness than jealousy as a result of their partner's online behavior, thus supporting the notion that SNSs play a role in increasing relationship satisfaction (Utz & Beukeboom, 2011).

Similarly, Orosz and his colleagues (Orosz, Szekeres, Kiss, Farkas, & Roland-Levy, 2015) examined the emotional correlates of publicly announcing relationship status in Facebook, a phenomenon namely *becoming Facebook official* or *FBO* among Hungarian adults. They revealed that among individuals who share relationship-related information in their profiles, there is more increased romantic love and jealousy toward partner than those who do not share that information. It was argued that these jealousy feelings may explain an intention to protect the relationship. However, as the authors indicate, the correlational nature of the study does not allow causal inferences about the relations among variables. In other terms, it is unclear whether love and jealousy feelings predict the declaration of the relationship status or vice versa. Nevertheless, authors argue that *FBO* can be considered as an indicator of maturity in a romantic relationship and thus, it can be labeled as a 'digital wedding ring' in an online platform (Orosz et al., 2015).

On the other hand, Emery, Muise, Alpert, and Le (2014b) addressed the question of how sharing relationship-related information influences other people's impressions of the individual and of their relationship quality. They revealed that among undergraduates who use Facebook, sharing dyadic profile pictures and relationship status was positively associated with perceived relationship quality, measured by the level of satisfaction and commitment, and perceived likeability. Besides, sharing intimate information about the relationship was positively associated with perceived relationship quality, but negatively associated with perceived likeability. These findings indicate that making relationship-related information visible (relationship visibility) conveys a positive image while sharing too much private information (relationship disclosure) conveys a negative image about the individual and the relationship (Emery et al., 2014b).

In a recent study, McDaniel, Drouin, and Cravens (2017) investigated the relationship between the use of SNSs and satisfaction among married couples. With this vein, they mainly focused on one specific type of social network behavior- online social media infidelity related behaviors and explored its prevalence. Moreover, they investigated the relationship between engaging in online infidelity-related behaviors, marital satisfaction and relationship ambivalence on married/cohabiting couples. Only a small percentage of married/cohabiting couples engaged in social media

infidelity-related behaviors. Nevertheless, among those, it was reported that the higher the levels of infidelity related behaviors on social media, the lower marital satisfaction (McDaniel et al., 2017). Overall, aforementioned research indicate that even though excessive use of SNSs may be related with relationship dissatisfaction (i.e., Elphinston & Noller, 2011), sharing dyadic profile pictures and relationship status in SNSs may increase relationship satisfaction, and thus, perceived relationship quality.

Social Networking and Relationship Commitment

Another important characteristic of relationship dynamics that has been studied by scholars in relation to social networking is relationship commitment, which is defined as the evaluation of the feelings of psychological attachment to one's partner (Rusbult et al., 1998). The theoretical argumentation regarding the literature between social networking and commitment is built upon the Rusbult's Investment model. According to this model, relationship commitment results from the balance among the perceived costs and benefits of remaining with a partner and perceived quality of alternative partners. In other words, commitment is expected to be greater when the benefits of remaining with a partner outweigh the perceived quality of the alternatives (Rusbult, 1980).

Only a few studies investigated the predictive utility of relationship commitment in explaining SNS behaviors. For instance, Dibble and Drouin (2014) investigated the role of relationship commitment and online communication pattern with alternative potential partners based on data gathered from college students. The authors used the term of 'back burners' in referring to alternative potential partners with whom an individual maintains some degree of communication for keeping the possibility of future romantic and/or sexual involvement (Dibble & Drouin, 2014). Their main goal was to explore whether the individuals involved back burner communication via online channels and whether communicating with back burners through online channels was associated with relationship commitment, investment, and quality of alternatives. The findings revealed that individuals do use computer-based technologies and online channels to communicate with their back burners. Moreover, the use of computer-based technologies ease their task in communicating with alternative partners. Males reported to have more back burners compared to females; however, the number of back burners did not differ between single individuals and the individuals who were currently in relationships. Furthermore, the total number of back burners was not found to be related to relationship commitment or investment

in the current partner whereas the number of back burners was found to be positively related to the perceived quality of alternative partners (Dibble & Drouin, 2014).

In another study, Drouin and his colleagues (2014) examined the role of commitment in predicting Facebook solicitation behaviors (i.e. accepting /sending friend requests with romantic interests) and having romantic interests with the existing lists on Facebook. With their sample of undergraduates, they found that lower relationship commitment is positively related to Facebook solicitation behaviors, meaning that those who had a lower commitment to their partners in their current relationship tended to make and accept friend requests with romantic interests on Facebook. However, for single individuals, this relationship was not supported. Nevertheless, the commitment was not related to the number of romantic desirables on a Facebook friends list (Drouin et al., 2014).

Fox, Warber and Makstaller (2013) investigated the role of SNSs, in particular, Facebook, in escalation stages of the romantic relationships. According to Knapp's (1978) dual staircase model, initiation is the first stage that involves "interaction between couples and impression formation", experimenting is the second stage that involves "gathering in-depth information about the partner", intensifying is the third stage that involves "self-disclosure and more commitment between couples", integrating is the fourth stage that involves "formation of shared, public relational identity that results in '*we*' feeling", and bonding is the last stage that involves "publicly announcing the relationship through marriage or civil union" (Knapp & Vangelisti, 2009; Fox et al., 2013, p. 773). Drawing upon this model, researchers showed that if the target person was listed as "in a relationship", people were less likely to initiate a relationship with that person than if the person was listed as "single" or no relationship status was posted. Furthermore, in the intensifying and integrating phases, people felt the necessity of publicly declaring their relationship through pictures, relationship status or wall posts. Furthermore, stating the status as 'in a relationship with' another person and providing a link to this person in Facebook was considered as an indicator of an exclusive, long-term, and public commitment (Fox et al., 2013).

Accordingly, Fox and Warber (2013) examined whether public proclamation of an individual's relationship status differed across men and women through an online survey among university students who are Facebook users. Researchers revealed that women are more likely to feel that this status conveyed commitment, seriousness and long-term stability in a relationship. However, men are more likely to believe that an individual might still pursue other relationships since men do not view this status so seriously. These findings indicate that placing a label on the relationship

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has different meanings (Fox & Warber, 2013) and importance (Papp et al., 2012) for men and women. Nevertheless, it can be argued that specific SNS-related behaviors such as public proclamation of the relationship status contributes to relationship commitment.

Social Networking and Romantic Jealousy

Addressing the dark side of social networking on relationships, scholars have examined romantic jealousy, anxiety, and relational turbulence in their research (i.e. Fox & Moreland, 2015) and tried to uncover how social networking triggers these negative thoughts, feelings and behaviors. One of the first studies linking social media engagement to relationship problems was conducted by Muise and her colleagues (2009), the results of which show a "jealousy effect". In this study, researchers conducted an online survey among undergraduate students having a romantic relationship and demonstrated that when people spend more time on Facebook and faced with potentially jealousy-provoking information, it increases feelings of jealousy. Muise and her colleagues (2009) also argued that this relationship might be two-directional. That is, spending more time on Facebook increases feelings of jealousy, which in turn may increase monitoring of the partner's profile for more information. The study findings overall indicate the unique contribution of Facebook use on partners' experience of jealousy and suggest a possible feedback loop which increases monitoring partners' profile as a result of heightened jealousy (Muise et al., 2009). Other scholars also confirmed the positive relationship between time spent on Facebook, feelings of jealousy and monitoring of a romantic partner's profile (Muise et al., 2014; Utz & Beukeboom, 2011).

Several scholars investigated the effect of Facebook message content on romantic jealousy. In a series of studies, Hudson and his colleagues (2015) examined how gender and use of emoticons influence Facebook jealousy. Similar to the previous findings (Muise et al., 2009), they showed that females tended to display more Facebook jealousy than males. Interestingly, in open-ended responses, males display more jealousy when there is a message containing a winking emoticon (a sign of flirtation); however, females display more jealousy when there is no emoticon. Similarly, in Fleuriet and his colleagues' (2014) study, as compared to males, females reported more negative emotions following exposure to an ambiguous message with nonverbal cues on their partner's wall. These studies indicate that males and females' responses were differentially affected by specific nonverbal cues that help to clarify the message (i.e. winking emoticon, smiling emoticon). The results also seem to support the evolutionary perspective suggesting that men display more jealousy in response to sexual infidelity whereas women display more jealousy in response to emotional infidelity (Buss, Larsen, Westen & Semmelroth, 1992).

In another experimental study, Muscanell and her colleagues asked undergraduate students who were Facebook users to imagine an ambiguous scenario involving their romantic partners' Facebook page and manipulated user privacy settings and dyadic photos publicly available (Muscanell, Guadagno, Rice & Murphy, 2013). They revealed that when women imagine their partners as posting a photo with another woman, they display more intense feelings of jealousy, anger, and hurt than men. Furthermore, the gender difference in jealousy was higher when the photos were visible to all Facebook friends and users as compared to be visible only to the user. In addition, highest ratings of jealousy were present when there were no dyadic photos of the couple as compared to a few or many photos. As the authors argue, this may indicate that the individual does not acknowledge or wants to hide his/her current relationship. The findings suggest that emotions of women and men are influenced differently from a hypothetical scenario indicating potential infidelity (Muscanell et al., 2013).

In line with previous findings on gender differences in SNSs-induced jealousy (McAndrew & Shah, 2013), Muise et al. (2014) showed that women are more jealous when they view their partner's photo with an attractive member of the opposite sex. Women are also more likely to monitor their partners' activities on Facebook in response to jealousy as compared to men. Interestingly, attachment style influences in the link between Facebook jealousy and partner monitoring. That is, feelings of jealousy are linked to attachment anxiety, and higher levels of attachment anxiety is linked to increased partner monitoring on Facebook among women but not among men. In other terms, preoccupied/anxiously attached women spend more time monitoring their partner's activities on Facebook in response to jealousy. It is also consistent with previous findings (Marshall et al., 2013) showing that attachment anxiety is positively associated with jealousy and partner surveillance. Based on previous work it can be argued that gender plays an important role affecting the way that the use of SNSs influences emotional responses.

According to Halpern, Katz and Carril (2017), social media use leads to selfie-related conflicts, which in turn, reduce perceived relationship quality. These conflicts are created through two processes. The first one is jealousy, stemming from the excessive sharing of photos and comments on these photos. In other words, when an individual shares his/her personal images and receives comments on these photos, this increases a partner's feelings of jealousy. The second one is the creation of an online idealized persona in the picture-takers mind, stemming from one's sharing of flattering images. Drawing upon self-affirmation theory (Steele, 1988), one can argue that individuals need to present themselves in a positive and desirable way in SNSs. Accordingly, the ideal persona constructed online via selfies may cause a

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conflict between how a picture-taker views himself/herself and how partner views the picture-taker. Supporting these arguments, researchers revealed in their longitudinal study conducted among Chilean adults that the negative effect of selfie-taking on relationship quality was mediated through jealousy conflicts and the creation of an online idealized persona (Halpern et al., 2017).

In another study conducted among Dutch undergraduate students involved in a romantic relationship, Utz and Beukeboom (2011) examined the moderating effects of self-esteem and need for popularity in predicting emotional consequences of the use of SNSs for romantic relationships. They found that individuals with low self-esteem experienced more jealousy in reaction to the partner's activities on SNSs than those with high self-esteem, and individuals with a high need for popularity experienced more SNSs-induced jealousy than those with low need for popularity. Furthermore, self-esteem moderated the impact of the use of SNSs and need for popularity on jealousy. The results showed that the need for popularity has stronger effect on SNSs-induced jealousy among individuals with low self-esteem. However, the use of SNSs for maintaining social contact ('grooming') have stronger effect on jealousy among individuals with high self-esteem (Utz & Beukeboom, 2011). Taken together, the results of the aforementioned research indicate that the use of SNSs increases jealousy within romantic relationships.

Social Networking and Relationship Dissolution

A few studies have addressed the relationship between the use of SNSs and its potential consequences on romantic relationship dissolution. Clayton and his colleagues studied Facebook users and investigated whether a conflict over partner's excessive Facebook use acted as a mediator in the relationship between Facebook use and adverse relationship outcomes including infidelity (emotional cheating and physical cheating), breakup and divorce among partners in a newer relationship for three years or less (Clayton, Nagurney & Smith, 2013). It was argued that high levels of Facebook use might be a threat to short-term relationships either through indirectly neglecting the partner, or through adding an ex-partner or -spouse to the friend list and communicating with this person, which in turn produces Facebook-related jealousy and conflict among partners. Similar results were also found for Twitter, a different platform. The results of an online survey conducted among Twitter users revealed that Twitter-related conflict mediated the relationship between active Twitter use and negative relationship outcomes including infidelity, breakup and divorce (Clayton, 2014). However, the length of the romantic relationship did not

moderate the indirect effect of Twitter use on negative relationship outcomes through Twitter-related conflict. This finding suggests that this mediational relationship does not change for those who are in shorter (18 months or less) or longer duration relationship. Overall, the findings of these studies point out that conflicts arising from the use of SNSs might trigger problems in the relationship.

LeFebvre and his colleagues examined the effects of social networking on relationship dissolution adjustment (LeFebvre, Blackburn & Brody, 2014). In their study, university students who had a breakup within the past two years completed an online survey that assessed Facebook activities they engaged *during* and *after* the romantic relationship breakup. The most frequently engaged activities *during* relationship dissolution were relational cleansing such as hiding or removing the relationship status (22.7%) and minimal or no Facebook activities (22.6%), followed by partner surveillance (10.2%), self-regulation from partner (9.3%), normative Facebook activities (7.5%) and self-regulation from Facebook (5.3%). Similarly, the most frequently engaged activities *after* relationship dissolution were relational cleansing (20.4%) and minimal or no Facebook activities (19.9%), followed by partner surveillance (10.2%), withdrawing access (9.3%), self-regulation from partner (7.5%), and impression management (7.1%). Interestingly, the results showed that people who did not engage in Facebook activities reported to have better post-breakup adjustment than those who engaged in Facebook activities during and after the breakup (LeFebvre et al., 2014).

Researchers have also examined how SNSs facilitate connections with ex-partner in the relationship dissolution phase. Fox and Tokunaga (2015) investigated the relational and psychological factors that are related to online surveillance. The results showed that higher levels of commitment led to increased emotional distress after the breakup, which in turn led to more online surveillance. In particular, individuals who were more negatively affected by the breakup tended to monitor their ex-partners online activity (Fox & Tokunaga, 2015). In a related vein, Marshall (2012) conducted an online survey among undergraduates to examine how ex-partner surveillance influenced postbreakup adjustment and growth. It was revealed that monitoring of the ex-partner's profile is associated with more distress over the breakup, more negative feelings, more sexual desire for the ex-partner and lower personal growth. Facebook surveillance of an ex-partner may inhibit emotional recovery and growth following a breakup. However, remaining Facebook friends with an ex-partner may not damage the breakup recovery process (Marshall, 2012). As there are limited studies of the link between the use of SNSs and relationship dissolution, scholars should conduct further studies to better understand these relations.

Limitations and Avenues for Future Research

This chapter reviews the extant literature concerning associations between the use of SNSs and romantic relationship constructs. Thereby, it serves as a guide for synthesizing the current state of knowledge. However, it is worth to mention several limitations of the previous research. First, this chapter presents findings of research, the majority of which was conducted among university students who were in a romantic relationship. These individuals, however, are younger, emerging adults whose romantic relationships are of short duration, less established and more prone to feelings of jealousy (Arnett, 2000; Rus & Tiemensma, 2017). Hence, the homogeneity of the sample would limit the generalizability of the findings across broader populations. Therefore, in future studies, scholars will want to examine these relations among older adults who are outside of the university context and who have a romantic relationship for at least 10 years.

Second, the research was mostly conducted on Facebook; however, each platform has a different pattern of use, user characteristics and social functions (Wilson, Gosling, & Graham, 2012). Accordingly, there may be specific SNSs-related behaviors associated with a romantic relationship (Rus & Tiemensma, 2017). For instance, there are differences in individuals' motivation to use Snapchat and Facebook (Utz, Muscanell, & Khalid, 2015). That is, people are more likely to use Snapchat for flirting and finding new partners while they are more likely to use Facebook for interacting with friends. Furthermore, there are differences in visibility and persistence of information between two platforms such that Snapchat offers a higher level of privacy for users as the messages that have been sent in this platform are erased after a few seconds. In line with this, Snapchat and Facebook induce different psychological effects especially in the domain of romantic jealousy with Snapchat evoking higher levels of jealousy in response to partner behaviors (Utz et al., 2015). Therefore, in future research, scholars may focus on other SNSs to examine the generalizability of the previous findings.

Third, the vast majority of previous studies are cross-sectional in nature, thus restricting causal inferences. However, longitudinal studies are needed to identify whether SNSs-related behaviors influence or are influenced by a particular romantic relationship. For instance, in a longitudinal study Saslow et al. (2013) showed that higher satisfaction among married couples predicted greater likelihood of posting dyadic profile photos over a one year time period, indicating the causal inferences among variables.

Fourth, there are limited studies (i.e., Utz & Beukeboom, 2011) investigating mediators and moderators that play role in associations among social networking and characteristics of romantic relationships. Future research might explore personality

traits, level of intimacy or SNSs-addictions. Besides, more research need to be done to understand how social networking influences geographically long-distance romantic relationships as well as to identify the factors that play an important role (i.e. relationship quality) in terms of reducing the relationship problems arising from the use of SNSs.

Lastly, as previous research has primarily been conducted in North American or European cultural contexts, they may be biased in terms of explaining relationships and communication behaviours in other cultural contexts (Zhang & Leung, 2014). Therefore, further studies might be conducted to uncover the role cultural factors play in these relations. For instance, scholars might examine the use of SNSs and its outcomes on romantic relationship in the Asian culture which particularly emphasizes long-term relationships, loyalty, and harmony (Zhang & Leung, 2014).

CONCLUSION

This chapter reviews the recent literature with respect to the relationship between online social networking and romantic relationship constructs. In particular, it discusses how social networking behavior is influenced by individual characteristics such as anxious and avoidant attachment styles, and how online social networking influences romantic relationship with respect to relationship satisfaction, commitment, romantic jealousy, infidelity, break up and divorce. Overall, there are mixed findings regarding the beneficial and damaging effects of online social networking on romantic relationships in the current literature. Considerable research have pointed out the positive consequences of social networking on the romantic relationship such as promoting happiness (Utz & Beukeboom, 2011), romantic love (Orosz et al., 2015), and satisfaction (Papp et al., 2012). That is, the public display of affection on partner's profile increases relationship happiness (Utz & Beukeboom, 2011) and the display of a partner's status or inclusion of their partner in profile picture increases reports of feelings of romantic love (Orosz et al., 2015) and relationship satisfaction (Papp et al., 2012). Research has also demonstrated how attachment styles (Emery et al., 2014a; Fleuriet et al., 2014; Fox & Warber, 2014; Marshall et al., 2013), relationship satisfaction (Saslow et al., 2013), and commitment (Droun et al., 2014) influence social networking behaviour. Further, scholars have examined the effects of gender (Muscanell et al., 2013) and other moderators such as self-esteem or need for popularity (Utz & Beukeboom, 2011) in associations among the use of SNSs and romantic relationships.

On the other hand, several studies have revealed the negative consequences of the use of SNSs for romantic relationships such as increasing jealousy and conflict among couples (Fox & Moreland, 2015; Marshall et al., 2013; Muise et al., 2009). For instance, when people spend more time on SNSs, they may be faced with potentially jealousy-provoking information, experience more jealousy and monitor their partner's profile for more information (Muise et al., 2009). The jealousy effect as a result of social networking was also confirmed by other scholars (Elphinson & Noller, 2011; Hudson et al., 2015; Muise et al., 2014; Utz & Beukeboom, 2011). A few scholars have demonstrated the effect of SNS-related conflict in the relationship between the use of SNSs and romantic relationship termination (Clayton et al., 2013; Clayton, 2014). Furthermore, previous research revealed the emotional and behavioral consequences of breakup in relation to the use of SNSs (Fox & Tokunaga, 2015; LeFebvre et al., 2014; Marshall, 2012).

The findings of the aforementioned research may provide important information for professionals to support the promotion of a positive atmosphere in romantic relationships. As social networking may have a negative impact on a relationship either through creating conflict or jealousy feelings, online activities that promote positive feelings among partners such as public declaration of relationship status or sharing dyadic photos in the profile may be emphasized in promoting better relationships for some.

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KEY TERMS AND DEFINITIONS

Attachment: Emotional bond between the infant and the primary caregiver.

Facebook: An online platform used to keep in touch with others and monitor others' activities.

Partner Surveillance: Monitoring of the partner's profile such as viewing photos, wall posts, comments and status.

Relationship Commitment: An individual's feelings of psychological attachment experienced in a relationship.

Relationship Maintenance Strategies: Routine behaviors engaged in by partners' to maintain the relationship.

Relationship Satisfaction: An individual's evaluation about his/her romantic relationship.

Romantic Jealousy: Negative thoughts, feelings, and behaviors as a response to a perceived threat to a romantic relationship.

Social Networking Site: An online platform which allows users to build social networks.

Chapter 4
Digital Social Media in Adolescents' Negotiating Real Virtual Romantic Relationships

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ABSTRACT

Previous grounded theoretical analyses of rural adolescents' romantic relationship discussions identified media as critical conditions in negotiating gender expectations in intimate relations. More recent emergent fit analyses of urban teenagers' discussions of virtual romantic relationships extended original theories to consider a lack of confidence in communicating adequately in the context of using digital social media. The current research specifically investigated emergent fit analyses of digital media influences on relationships. Urban participants identified online platforms' playing significant roles in 1) signaling interest, 2) initiating, 3) maintaining exchanges, and 4) dissolving romantic relationships. Participants both complained and commended asynchronous digital media in exacerbating discomfort/comfort in communicating intimately. Participants sought guidance in transforming contextually complex intimate relational communications into a healthy reciprocity.

INTRODUCTION

Motivation for the Study

The theoretical and methodological motivation for the present study is to extend an originally developed grounded theory of intimate adolescent heterosexual relationships based on focused discussions of Canadian teenagers in rural and urban communities (Dmytro, Luft, Hoard, Jenkins & Cameron, 2013; Luft, Jenkins & Cameron, 2012). The primary organizing category for negotiating dating relationships was previously found to be '*wrestling with gender expectations*'. These expectations for teens to conform to gendered, stereotypical roles and behaviours constrained what the youth thought should be natural exchanges in initiating communications and 'doing the emotional work' in a relationship. Notably, for the present study, '*media*' were identified as a significant contextual condition of negotiating romantic relationships (Dmytro, et al., 2013; Luft et al., 2012).

A more recent study (Cameron, Luft, Dmytro, Kubiliene & Chou, 2017), using the 'emergent fit' analysis recommended by Wuest (2000) revealed that in '*communicating*', the contextual conditions of relational negotiations were subject not only to media in general, but even more strongly to '*digital and social media*'. The focus of the present investigation of *real virtual relationships* then, is on those relationship negotiations identified under the most salient subcategory *communications* that were largely comported via *digital and social media*.

THEORETICAL BACKGROUND PERSPECTIVES

Romantic relationships create significant potentials for psychosocial development during adolescence, and potentially a 'training ground', according to the core research of Connolly and McIsaac (2009), for subsequent intimate relationships. Our focus on romantic relationships includes those in which partners have intimate feelings for one another that are closer and more passionate than simple friendships (Sternberg, 2013). The forms and functions of such relationships are evolving and transforming at the present time, particularly in the context of new virtual social media platforms. Today, adolescents initiate communication of romantic interest via outlets such as Facebook, Instagram, Snapchat, and Text Messaging. This digital, asynchronous, world can take precedence over synchronous face-to-face interactions with many young romantic couples, whilst opening the door to an array of other forms of communication.

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A Pew Research Center investigation reported in 2015 that American adolescents were increasingly communicating via digital forums instead of engaging in face-to-face interactions: "92% of teens in the United States report going online daily – including 24% who say they go online 'almost constantly'" (Lenhart, 2015, p. 1). Even more recent data from the Pew Center found that teenagers had conflicting thoughts about the use of social media in terms of how it helps them connect with others (Anderson & Jiang, 2018): 31% of teens claimed that social media had a positive effect and 40% of these teens agreed that it aids with connecting with friends and family. On the other hand, Anderson and Jiang reported that an alarming 24% of teens saw social media having negative effects on their lives. In fact, 27% identified negative effects due to bullying and rumour-spreading and 17% of teens stated social media harmed relationships and intensified a lack of personal contact. According to Anderson and Jiang, with 95% of teens now having access to a smartphone, it is imperative that teens be offered with efficacious tools to handle the negative effects of social media. Even though these data were gathered in the USA, they can be indicators relevant to Canada where the present study was conducted, because teen trends in Canada tend to replicate those in the US, with only a slight delay, due to geographical proximity and common technological media access and exposure.

The 2018 Pew report, then, recommended that the rapidly growing appeal amongst adolescents of using these technologies should be analyzed, and their social implications evaluated, especially given the current evidence that 45% of teens state that they are online *"almost constantly",* a significantly rapid escalation from the 2014-2015 evidence that 24% of teens stated they were online *"almost constantly"*. It is obvious that the use of social media is on the rise, and that there is a lack of clarity as to the effects on personal relations of online communications that provide a portal for quick, dynamic, but potentially superficial communications.

Daft and Lengel (1986) sometime ago evaluated the communicative validity of human interactions by articulating a continuum of richness into which communication via media can fall. They rated the richness of communicative interaction with respect to four dimensions: The first being the possibility of receiving prompt feedback during a conversation; the second, the use of a variety of cues to interpret the meaning and intention of an exchange; third, the colloquial or natural language used to convey a point; and lastly, the personal theme of the conversation. "Richness concerns a medium's capacity to convey various types of information cues (visual and audio) in a manner that approximates face-to-face (FTF) communication," according to Sheer (2011, p. 98). This becomes pertinent when evaluating the relative importance

of face-to-face (FTF) to other forms of communications. Sheer stated that the richest form of communication would be FTF since it "has the greatest potential for conveying personal information needed to facilitate friendship building" (p. 83).

Davis (2013) more recently focused on understanding the "effects of interpersonal relationships and digital-media use on adolescents' sense of identity" (p. 2281); the underlying issue being that adolescents are growing and entering a critical stage in which they find themselves seeking coherence and consistency in their sense of identity and increased clarity in their self-concepts. Various contextual factors, including social situations, parents, peers and friends influence self-identity concepts, and recently, digital-media technologies pervade these notions as well. In fact, Davis asserted that social media sites "have created a new social context and in some cases alter existing ones" (p. 2281), which can leave adolescents in perplexing situations when they are faced with constructing identities on both virtual and face-to-face personal relationships. Given that parents and peers are integral to the formation of a sense of identity during adolescence, and that youths internalize the values and models provided by their parents (Grusec & Davidov, 2010; Grusec, Goodnow & Kuczynski, 2000), it comes as no surprise that their personalities can be quite readily influenced by their surroundings. As youth mature, peers assume a stronger role than parents in influencing adolescent identities, as they spend increasingly more time together. Adolescents learn from their friends and establish their sense of self through these close, and in the case of this study, virtual relationships. Ultimately, however, having strong positive relationships with both parents and peers increases healthy self-identity (Marcia, 2002).

While parents and peers play crucial roles in teenage identity formation, digital media technologies present a new context in which adolescents identify themselves. Social digital communication forms provide novel ways for adolescents "to express and explore their identities, from social network sites, cell phones, and instant messaging platforms, to blogs and vlogs, virtual worlds and video-sharing sites" (Davis, 2013, p. 2283). Researchers can evaluate the impact that these media outlets might have on the formation of adolescent identities. Sheer (2011) also noted "the limitations of new media, IM [instant messaging] included, stem from the media's less-than-optimal capacity to transmit rich, natural information. Even with loaded features, new media is limited to conveying the same amounts and types of information as does face-to-face" (p. 84). Davis further asserted, "By teasing apart the characteristics of technologies from the technologies themselves, research conducted on today's technologies will still hold relevance when tomorrow's technologies arrive" (p. 2283). Davis explored contrastive empirical evidence regarding the relationship between

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digital media and the sense of self in which two constructs emerged: *Online Peer Communication* and *Online Identity Expression/Exploration; [these]* "are exogenous constructs representing different forms of digital media use", which directly and indirectly affect self-identity, claiming that, "friendship quality fully mediated the positive relationship between online peer communication and self-concept clarity" (p. 2287). Interestingly, she found that on average, adolescents who were encouraged to go online "to communicate and maintain their relationship with existing friends tended to experience higher self-concept clarity" (p. 2287). By contrast, adolescents "who were motivated to go online to express and explore different aspects of their identities tended to experience lower self-concept clarity" (p. 2287). The difference lay in the motivation to use these digital technologies. If they are encouraged to communicate and stay in touch with their friends, adolescents have a clearer sense of self, whereas, if the underlying motivation is to discover who they are in these virtual worlds, adolescents experience more difficulty understanding themselves.

Valkenburg and Peter (2011, p. 122) outlined three features that they considered important to online communication since it can influence the perception of control regarding self-presentation and self-disclosure. These are significant factors for teens when communicating with peers since it gives them the opportunity to control a situation and a potential to regulate reactions, which might be less available in face-to-face interactions. Valkenburg and Peter identified *anonymity* as the first feature that enhances a perception of control in self-presentation. It specifically refers to "the situation wherein online communication […] cannot be attributed to a specific individual". Since a given adolescent can "hide behind a screen" and in some cases withhold their identity, this can afford a feeling of liberation from 'real world' restrictions. This provides an opportunity to display emotions and reactions without an interlocutors' directly perceiving the discomfort or delight in a message or reply. In some cases, however, this might lead to a miscommunication between the parties involved, since the true emotion might never be explicitly shared.

Secondly, Valkenburg and Peter (2011, p. 123) discussed *asynchronicity,* which "allows adolescents to reflect on and change what they write before they send their messages". Being able to consult friends and ponder a specific reply are common features of youths' replying to text messages. Given that there is an opportunity to edit as well as adjust a message, this can lead to rehearsed, almost inauthentic messages, however. In face-to-face communication there is no opportunity to control such reactions, which might seem beneficial to those that are not confrontational and self-conscious. The underlying benefit of asynchronicity is for adolescents to "optimize their self-presentation and self-disclosure". Arguably it also allows for

a misrepresentation of the individual and false advertisement. The third feature of online communication is *accessibility,* which encompasses adolescents' "hav[ing] abundant opportunities to find, create, and distribute identity-, intimacy-, and sex-related information". The enormity of the Internet and the digital world also provides teenagers with opportunities to spread and access information faster and from a wider variety of sources than previously.

Accordingly, it becomes evident that there are underlying benefits to online communication. As Valkenburg and Peter (2011) reported, it can increase self-esteem and encourage the formation of friendships as well as maintain already existing ones. Valkenburg and Peter also shed some light on the fact that teens' identities and their relationships are shaped by these online communications. As teens enter new digital worlds they are enabled to explore who they are in diverse settings. Turkle (2015), an early proponent of information technology, however, has recently recommended caution in the embrace of digital social media. In reflecting on information technology and its relationship to self-reflection, family, friendship, and romance as well as education, work, and the public sphere, Turkle has argued, lead to diminished oral listening and expressive skills and even a reduction in the capacity for empathy in youth. She has called for "reclaiming conversation" as a critical source for the development of rich, complex FTF relationships (p. 362).

With alterations in networking avenues, new relationship-formation dimensions arise. These novel forms of communication can bring with them changes in the comportment of adolescent romantic relationships, in conjunction with the *pressures of gendered expectations* that accompany their other social challenges (Cameron et al., 2017). In a previous study by the Dmytro et al. (2013), boys expressed a lack of confidence in approaching potential partners and sustaining communications with them. By contrast, girls expressed some confidence in their communication capacities but indicated that this was partly due to the fact that they did not feel they were expected to initiate or manage intimate exchanges (Luft et al., 2012). Cameron et al. reported in 2017 that both genders expressed concerns about wrestling with gender expectations even, or perhaps especially, in the face of the fact that teen intimate relationships are often dynamic and relatively short lived.

THE QUESTIONS OF THE CURRENT STUDY

In the current study, we examine details of a new set of urban teenagers' discussions of their *virtual romantic relationships* and analyze the contextual condition of *communications* with *digital social media* that arose from our emergent theories

of these virtual intimate adolescent relationships. First, we asked: How do teenage girls and boys *negotiate gender expectations* placed on intimate relationships in the context of *communicating with digital social media*? And then: How do urban Canadian adolescent boys and girls view the place of *communications* in intimate relationships? Considering, communications, we asked: How do *digital social media* intersect with these views of *communication*? And finally: What is a usual *trajectory of intimate relationships* and how do *digital social media* play a role in those social pathways?

METHODS

Participants

To follow up on our previously published studies, we recruited a new sample of 49 adolescents (23 males, 26 females) in three urban public high schools in a west coast, multicultural Canadian urban center to participate in the new study. Participants were enrolled in classes in Grades 9 (four students), Grade 10 (23 teenagers), Grade 11 (16 teens) and Grade 12 (six adolescents). 72% self-identified as having an Asian ethnic background, with a minority having a uni-cultural Canadian home background. All but two boys indicated a heterosexual orientation and all but three girls self-reported similarly (with one identifying as gay/lesbian, one, bisexual and one, questioning). Regarding dating histories, while 42% of the girls and 30% of the boys had had at least one steady dating relationship, and all the girls had had at least one romantic date; 48% of the boys had never been on a romantic date.

University ethical approval and local school district permissions were granted to recruit students to participate in focused discussions of dating relationships during school class time or after school. Parental permission and student consent were obtained before participation commenced. One male and one female college student research assistant co-facilitated all of the 12 group sessions that included three to five students and lasted approximately one hour. A brief, confidential demographic questionnaire was filled in before commencing the discussions. Facilitators were trained to use open-ended questioning and set the stage for respectful discussion of the topics raised, such as:

"What sorts of issues are common for teens you know in dating relationships?"

Additionally, prompts similar to the below were designed to stimulate participants' perspectives on intimate relationships.

"How do you think most teens *would* handle X?"

The objective of these questions was to further determine what they deemed typical responses in certain situations, designed to probe gender differences in relational coping.

"How do you think guys/girls handle X compared to how girls/boys handle X?"

Procedures

The sessions were audio-recorded and transcribed for analysis. Each transcript was reviewed for all mentions of *communications* and *digital and social media* for the present study. These transcriptions were examined in the context of the full discussions, and the boys' and girls' statements were analyzed simultaneously to determine gendered commonalities and differences. Discussions were audiotaped and transcribed verbatim by research team members independently and checked for consensus on transcription accuracy with a team member who had been present during the focus discussions. Names of participants mentioned during the discussions were not recorded in the transcripts to protect anonymity.

Data Analyses

Data were analysed concurrently, as transcripts were produced, using the constant comparative procedure utilized when developing a grounded theory (Corbin & Strauss, 2014; Glaser, 1978). Congruent with the emergent fit methodology, relevant scholarly literature was accessed to compare for emerging fit with the developing theory (cf. Charmaz, 2008; Wuest, 2000). This systematic transcript review resulted in code and category development. The codes and categories were compared to those from the previous studies with rural teenagers from a more ethno-culturally homogeneous sample. We were primarily guided by the methods of Charmaz (2008) and Wuest (2000) in accommodating the new data to ensure that we were not enforcing a pre-existing theory on the data — instead, we ensured that the emerging theory was grounded in the current data as well as reflective of the strongest current literature, cf., Connolly & McIsaac, 2009). If categories of the previous theory (Cameron et al., 2017; Dmytro et al., 2013; Luft et al., 2012) did not fit conceptually with the emergent categories observed here, they were not included. Further, we expanded on some of the previous theory's categories based on our new information.

The nature of the roles played by digital social media in communications within virtual intimate relationships was explored in detail in these most recent gender-segregated urban adolescent focused discussions. Representative statements are

quoted to illustrate the emergent themes. The emergent analyses and discussion of intimate relationships are prefaced by the primary finding that *gender expectations* remain the common unifying condition; further, both the girls and boys identified *communications via digital social media* as another critical condition in negotiating intimate relationships.

RESULTS

Wrestling With Gender Expectations

As previously reported, both girls and boys struggle with gender expectations. Furthermore, it can also be observed that they use media to navigate through to their burgeoning self-identities:

Boy: *Um like I'm sure girls are attracted to confidence. So guys try to show confidence.*

Unfortunately, confidence is not a commodity in rich abundance during adolescence. Communications are not easy when boys have a special burden in displaying gender-typed agency, initiative and self-regard. It makes it no easier that girls have demanding gendered expectations. While sympathetic, girls do not back away from their gendered expectations, as one girl shared:

Girl: *I feel like girls nowadays want more.*

Many males perceived the injustice of an expectation that they should initiate, direct intimate relationships and pay for dates and the like, all, nevertheless admitted to having to manage their experiences with gendered expectations just as did the girls. For example, a boy mentioned that girls are expecting more emotionality from the males they date. In the context of gendered expectations, building trust by conveying intimate feelings in subtle communications that implicate self-presentations, as described by Valkenburg and Peter (2011) were confirmed by participants as core to adolescent romantic communications. The teens reported being boxed in by inappropriate expectations with which they nevertheless find themselves ultimately conforming.

Communications

Both boys and girls indicated the critical importance of communication in romantic relationships. The relative novelty of conveying intimate feelings across gender lines added a new challenge for both genders:

Boy: *It's …like they both need to communicate with each other what they want….*
Girl: *I find it's hard for a lot of us to communicate our feelings with each other.*

Additionally, the consequences of poor communications are serious sources of issues of trust for many adolescents. Participants universally designated trust as a foundation to intimacy in maintaining a relationship. During one discussion, a girl mentioned how the lack of communication lead to lack of trust in a relationship and as a consequence the relationship deteriorated. Furthermore, in this digital age, more subtle, nuanced, communications are more difficult to exchange via text messaging without the benefit of facial displays, physical gestures, and indications of insinuation.

Boy: *Well I mean if you're trying to get something across that's a little…a little awkward for both people…Like if you're texting someone you don't have like the inflection or your facial expression than if you're like going to face-to-face. So yea, I think definitely that hinting has become harder.*

Boys were also forthright in reporting that projecting an appropriate degree of confidence is an important and challenging issue for them regarding relationships. Calibrating a suitable level of self-assurance created pressure on them. For instance, a boy stated that girls are more likely to be attracted to someone who is clearly confident, so many try to exert an aura of such confidence. Many felt they could readily fall short of a required standard in this respect.

Digital Social Media

When asked about texting as a vehicle for teenagers' exchanges in high school relationships, one participant said:

Girl: *I think just social media in general, 'cause a lot of relationships use social media to contact each other instead of seeing, both of them face to face … and they're using like, I don't know, Facebook, chat, or like texting.*

A female added a proviso of caution that if social media were the only vehicle for maintaining the relationship, then one might not get a wholesome, clear, interpretation of the person that they are dating. Additionally, many of the males agreed with this statement and shared that digital social media does not tell a full story:

Boy: *Ah well I think judging a book by its cover is becoming a little bit of a problem 'cause you can just look at someone's Facebook profile and think you know stuff about that person, right? You can look through what their interests are, their photos on Instagram you can see what they do. Um I think that can get a little bit of background info but you shouldn't really base someone's social media profile on what they really are like.*

The strengths of ubiquitous digital social media accompany their weaknesses by providing information easily about a partner but sometimes it can be distorted, potentially superficial, and often artificial. Regardless, boys and girls emphasized that they are still challenged when talking face-to-face. For instance, it was shared that being able to detach from media technologies gave them time to decide to reply or not – an option not available with direct communication. Which made both genders value the various forms of digital media as asynchronous mechanisms for those too shy or uncomfortable with engaging in direct, more personal interactions in face–to-face communications.

Boy: *We're all shy you know, so especially you know like this generation; they're… some are shy, um, so they express themselves over Facebook or they meet new people by texting because me personally, I can, I can express myself better through writing or typing some words out, rather than speaking.*

Boy: *That idea that someone who you might idolize or you might be interested in is going to shut you down and it's easier to just message someone and have them not message you back. Maybe they're not online; and there's different scenarios.*

Direct interactions, including those on the telephone do not afford the space for editing oral words nor the time to reflect on a response, which is possible when communicating asynchronously via social media. But the valuation was not unmixed. Participants complained that digital media at times also increased some discomfort when it came to approaching other youths they might be interested in, as texting was seen as a blunt instrument in delicate situations of initiating and maintaining communications. This was due to losing that personal connection that one gains

when interacting with people directly. Additionally, the adolescents shared that text messages are harder to interpret since tones and facial expressions are not part of instant messages. The brief duration of intimate teen associations was thought to be due in part to the lack of proficiency in face-to-face interactions of relatively inexperienced adolescent couples, when the underlying motivation for messages, as identified by Davis (2013) is potentially being obscured.

Digital Social Media Moderate Intimate Relationships

Texting, Facebooking, Snapchatting and other social-digital media outlets were identified by the urban teens as playing significant roles in:

Signalling interest in a potential partner, since they:

Boy: *Try to find ways to be around the person more. Or like try to talk to them either on social media.., either through like online messaging or like talking… a lot of people hide behind the keyboard and say things they don't normally feel comfortable saying in person.*

The daunting task of initial interactional engagement is eased for teens by text messaging.

Boy: *…you'll just maybe say 'Hi" to her on Facebook. And I think that way is less awkward than you just go out and talk to her.*

Interacting with a person of interest virtually can alleviate personal embarrassment and reduce the discomfort that comes from rejection. With the purpose of avoiding such negative feelings, youth generate other reasons to talk to their peers online in order to avoid possible rejection:

Girl: *We will still message on social media, but it's like about something, like homework, to not make it obvious that we actually like them.*

Initiating exchanges:

Boy: *Texting is a really good way to know each other. We're in a texting culture where we're constantly texting in class, breaks or whatever so like it's kinda like you want to like constantly be in touch with that person regardless of where you might be. Like if you're in a situation where you can't talk on the phone.*

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The initial tasks of self-portrayal are eased by the asynchrony of commonplace online text exchanges. These virtual interactions can be quick, accessible, and low stress.

Maintaining communications:

Once commenced, social media become the default setting in communications now-a-days since common interactions such as direct conversations create challenges for those inexperienced or socially unsophisticated individuals.

Girl: *People are starting to really use it (technology) I think because… um because it's such a big part of our lives that people kind of lost … the ability to talk to one another face-to-face. And either they're too shy or like don't really know how to say it in person or something, so they just say it over text.*

But there are risks as well. Virtual romantic relationships can encounter trouble if communications without nuanced expressions can result in miscommunications and even relational trouble from misrepresentations.

Girl: *And it's different cause you're not like with them, you are not seeing their like reactions..., and emotions. You are reading it and you're interpreting it your own way, so it might not be their way.*

And, perhaps more significantly, the dissolution of a virtual romantic relationship can result in the greatest of challenges:

Dissolving romantic relationships:

Many of the adolescents acknowledged that ending a romantic relationship via text message or any form of social media was inappropriate, and it came with social repercussions. Some even stated that terminating a relationship using social media would be "inhuman". However, a dichotomy emerges because on the one hand breaking up with someone via technology is extremely frowned upon but behaviours such as 'ghosting' have become relevant in modern relationships. In fact, one of our participants drew our attention to a digital media project he had conducted during his advanced psychology high-school course. He discussed with us how 'ghosting' the former partner, that is, simply behaving as that person no longer exists, "really hurts, I know, because it's happened to me and nobody should do that."

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DISCUSSION

Grappling With Gendered Expectations

Grappling with gendered expectations is the superordinate theme of our participants' gaining experience in the processes of romance development for both boys and girls, replicating and validating previous findings. It is nevertheless important to address how they diverge as well as recognize the common persisting challenges that they face as they mature. Youth depend on each other for support, assistance and guidance as they function in social interactions, but their peers are often also struggling with similar issues of social aspects of identity, as we learn from both these findings and associated research.

Communication, another important contextual condition that teenagers identified, is an important element for the formation of romantic relationships. The issue arises because even though communication is an important factor, teens are unsure how to approach this. Many researchers have found that communicating via these online platforms such as Facebook can lead to attachment anxiety (Flynn et al., 2018). This is relevant since many adolescents may struggle with enhanced levels of attachment insecurity. Additionally, the tendency to have higher attachment anxiety is linked to experiencing lower levels of self-esteem. Therefore, using platforms such as Facebook might alleviate this necessity to find someone to talk to but might also entrain negative effects such as attachment anxiety that could lead to unhealthy romantic relationships.

Youth-friendly adults and parents can support teens by modelling respectful communication styles in relationships, both face-to-face and those digitally mediated. This can be done by modelling and encouraging healthy communication practices perhaps by equipping young adults "with rich features and a high degree of user control [because they] can facilitate self-presentation and possible future relationship development particularly in the early stage of an interpersonal relationship" (Sheer, 2011, p. 86). Trusted adults could also approach adolescents non-judgmentally and support the inspection of their own and the teens' interactional styles. Additionally, they can support skill development of *real synchronous romantic relationships* alongside *real virtual romantic relationships*. As suggested by Marcia (2003) and Grusec and Davidov (2010) familial support in emerging young adulthood remains important to teens, as do the relationships with peers in advancing the personal articulation of identities. Dinner-table conversations, casual exchanges not directed at behavioural change, but rather at mutuality can open doors for open discussions of relational challenges between youth and their empathetic mentors.

Communications

Our research has demonstrated that these adolescents view communication as a foundational factor in negotiating romantic relationships, again replicating and confirming previous findings and providing evidence for the trustworthiness of the current analyses. Specifically, the urban boys addressed the issue of communications with some trepidation, as communication in any medium is deeply connected to the potential for exuding confidence and this arose as an issue of some personal anxiety for many boys. The girls were also concerned about communications and the gender expectations that these exchanges carry for them. Girls perceived they were expected to put minimal pressure on boys to initiate exchanges, and, like boys, felt the challenge of maintaining positive communicative interactions, while not being too 'pushy' or 'demanding'. They also stated the pressure to foment trust when using these outlets to communicate since they considered it a vital part of maintaining a healthy relationship. Lack of trust may arise from the lack of direct interaction and an inability to decipher the true intentions of a partner. In fact, Henderson and Gliding (2004) found that "pre-commitment facilitated hyper personal communication and online trust [lead to] changed context of their own actions through self-disclosure, promoting reciprocity" (p. 505). The sense of identity engendered within virtual peer communication is a relatively new phenomenon, not previously extensively explored. New media can implicate new strategies for self- presentation and new occasions for variations on self-reflection. The vast majority of these new forms of communication lack media richness (ability to access information effectively, as well as to comprehend such communications accurately), and many adolescents shared the concern of not being able to use the "multiple cues, such as physical presence, vocal inflection, body gestures" (Sheer 2011, p. 83) that are part of the full communication continuum of richness. The students reflected on the fact that textual limitations accompany benefits, which, for youth anxious about their public image the limitations can overwhelm benefits, but they, in turn, can also be met as intractable, given the ubiquity of digital social media. The challenges, as is usual for youth, can yield serendipitous risks and rewards in their negotiations of gender expectations with respect to identity formation.

Digital Social Media

Overwhelmingly, participants confirmed that real intimate teen relationships are comported most largely via digital social media today. This does not make these relationships unreal, but it does place a good deal of weight on successful

navigation of intimate interactions in virtual spaces and "in general based on the concept of media richness, new media, compared to Face-to-Face, still seems limited in its social information-carrying capacity" (Sheer 2011, p. 84). The teens also confirmed that the media platforms are a mixed blessing. On the one hand, they can alleviate the anxiety of confronting the embarrassment of synchronous exchanges. Opportunities, or indeed necessities for virtual exchanges might aid adolescents who are introverted by giving them a less stressful pathway for their interactions. Plus, "reduce[ing] anxiety could translate into more effective interpersonal interactions". When adolescents communicate via digital media they are often in control of the conversation and the exchange. For example, "if one is unpleasant, a user can move on and try other individuals without having to be embarrassed or apologize for ending the communication". Perhaps this sense of power and control can lead to a better understanding of the self since it gives adolescents the possibility to communicate only when they feel comfortable. Unlike when they are faced with a synchronous encounter in which it might be uncomfortable to end the communication. However, allowing rehearsal or revision before launching or responding to a communication inhibits many adolescents from engaging in and practicing having nuanced spontaneous interactions.

Valkenburg and Peter (2011) addressed this matter when outlining the *displacement* and *stimulation hypotheses*. *Displacement* suggests that online interactions diminish friendships, in that those who spend more time 'behind a screen' can miss opportunities to engaging in more enriching face-to-face communications. The *stimulation* hypothesis argues that online communication enhances friendships because partners maintain contact even when not physically together. Early evidence to date supports the *stimulation* hypothesis (Davis, 2012; Dolev-Cohen & Bark, 2013). In extending this analysis, Sheer (2011) specifically discussed the impact of Instant Messaging (IM) communication. She pointed out that this form of communication gives participants the ability to control the times of interaction and the length of the conversation. Further "an IM that offers a high level of communication control should facilitate self-presentation and friendship development". The ideal point of intersection between communication and digital social media is one in which teens are encouraged to explore these online platforms in order to reinforce their existing relationships in the "real" world. Digital media and communication are a powerful combination because they can help teens bridge the synchronous face-to-face interactions in their environments with the asynchronous interactions in their virtual space.

Perhaps somewhat troubling, however, is the fact that the prevalence of mediated asynchronous communications may have reduced for many the confidence in their skills in synchronous exchanges. Given the increased need for face-to-face social

functioning as youth mature, it is possible that help in developing skills in both direct and digital communications could be welcomed by teenagers who are avidly interested in intimate relationships and are convinced of their role in relational success. Turkle (2015) claimed that in the digital age the capacity for empathy, the capacity to listen, and the capacity for self-reflection are at risk without conversations, and that the "deep psychology of complex relationships [is] artless, risky, and face-to-face" (p. 362). She reported on evaluated community engagements and school programs that enhance youth communications.

As argued by Davis (2013), Lenhart (2015) and Anderson and Jiang (2018), these new digital-media platforms are increasingly becoming the context for adolescents' identity formation. When youth begin to interact and communicate on a more intimate level with peers it is important to evaluate how these changes will impact their sense of self. For instance, Davis found that those adolescents who were encouraged to keep these friendships and use social media to do so had more self-concept clarity. Moreover, Valkenburg and Peter (2011) extensively focused on how digital social media affects personal identity and how it influences self-esteem and self-concept clarity. Even though there was not enough evidence to state that the Internet affects self-concept clarity, the perception of loneliness ("the lacking opportunity to learn about one's self in an offline social context" [p. 123]) does have an impact on self-concept. Communicating in digital settings on many occasions does "enhance self-esteem, increase opportunities for formation of friendships, enhance quality of existing friendships, and enhance opportunities for sexual self-exploration" (p. 121). When it comes to interpersonal relationships "the disclosure of the sensitive self and other personal information, rather than non-sensitive topics is often said to increase intimacy and facilitate relationship development" (Sheer, 2011, p. 88). Being able to share personal information openly without worrying about the reaction or expression of the other could have positive effects on self-concept clarity. Many adolescents are worried about how they are perceived by others and fear of being judged, so providing this outlet for sharing could become beneficial (p. 89).

Communicating through digital social media has both positive and negative consequences. It is imperative to find ways to link communicating online and offline in order to give adolescents the appropriate tools to manage the vast terrain of their intimate relationships with confidence. This places adolescents in a unique position where they might hide specific aspects of themselves but also view their partner's social information and regularly monitor their behavior. Reed, Tolman, Ward & Safyer (2016) examined how attachment insecurity (relationship anxiety and avoidance) and electronic intrusion (EI) affect high school students' dating relationships. Electronic intrusion refers to using social media to invade the privacy

of the partner, monitor the whereabouts and activities and pressure a partner for constant contact. It was found that the boys and girls who had greater attachment insecurity were more likely to commit EI. Therefore, social media enables anxiety in the formation of these already scary relationships but also provides unhealthy tools to "keep tabs on" their partners and as a consequence decrease trust in these young relationships.

The teens informed us that at every point of engaging in a romantic relationship digital and social media were implicated. The data gathered here document the expected course of current teen virtual romantic relationship development from signalling interest to dissolving a relationship is unique to this study and calls for further investigation. For instance, when considering the use of Facebook to signal interest or displaying affection when reporting being 'in a relationship' it is important for all involved to understand both the challenges as well as the benefits of having their private relations enacted in public. For example, making the relationship status public, or posting positive or negative comments on their "walls". These actions have become important ways in which adolescents demonstrate their affection as well as the seriousness of the relationship. In some cases, "revealing too much unintended personal information … may hinder a user from projecting the best self-image online, arouse social anxiety, and hurt self-presentation" (Sheer, 2011, p.85). That is why informing teens about the positive and negative ramifications that these actions can have is important when discussing their virtual relationships. Further, the paradox of finding oneself in constant textual communication with a partner with whom sharing is scaffolded by the security of the opportunity to edit and control the pacing of each exchange needs to be pitted against the potential lack of spontaneity and loss of depth of expression. By contrast, college students reported digital communications enhanced overall quality of intimate communications by adding breadth of self-disclosure and increased connectivity in dating relationships (Boyle & O'Sullivan, 2017). An interesting dilemma also arises when teen couples are faced with a break up, since it seems to involve the perplexing code that negatively sanctions leaving a relationship via a text message. The expectation of teens, including those who find it challenging to speak to their intimates face-to-face should have to break up with their partner in person seems to has lead to phenomena such as 'ghosting', or simply suddenly avoiding any exchange entirely. This is somewhat understandable but especially painful for the partner left behind. Gaining guided social experience in skill development by parents and other trusted, youth friendly adults as well as more mature peers, in order to assist less mature adolescents to navigate such difficult waters could be beneficial to them.

Our participants were not invited to specify what kind of interventions might be most helpful to them in increasing their confidence in communications in romantic relationships, although they openly expressed interest in receiving relief, support and guidance in conducting both virtual and face-to-face affairs. Previous research, however, indicates that skill development in this area would be seen as most constructive if teen-friendly, community-facilitated initiatives, first, in same-gender and then mixed gender groups with teens themselves guiding the agendas (Cameron, 2004; 2014; 2017; Turkle, 2015).

Cultural and Contextual Conditions

An important topic to address is how cultural/contextual background may play a role in ways in which teens interact with social media. These findings are based on the experiences of both rural and urban Canadian teens. The rural students live in a small farming/lumbering village and the urban students reside in a western, multicultural city. Given such diverse backgrounds, the way in which each cultural background values and views technology, more specifically, could influence social media engagement, although our analyses confirmed more consonance than dissonance. Gilbert (2010) certainly found that gender influences social media usage depending on cultural background.

Moreover, upon viewing how geographical location may influence social media usage in urban and rural areas some differences were indeed found. Rural communities are set further apart than most urban cities which means that in rural communities' members might keep their networks closer by. In a rural community with less population, there is greater opportunity to possess deep knowledge about one another and this might influence social media as a place to communicate with people they already have a bond with. (Gilbert et al. 2010). By comparison, urban participants might interact on social media platforms to meet new people (Gilbert et al. 2010) or comment or "like" to people they don't actually consider having a strong tie with.

At all levels, rural social networks do not reach as far as urban social levels (Gilbert et al. 2010) so observing in more detail the impact that cultural background as well as geographical location may have, are important factors to consider in terms of how relationships are formed via social media platforms. It is enduringly important to mention that as technology expands and reaches even more remote locations, this will likely change the formation of relationships and culture of both rural communities and urban cities. These factors call for further research.

Limitations of the Present Study

This research specifically invited high school students to identify their sexual orientation (among other information like ethnicity) in the brief confidential demographic questionnaire administered at the commencement of the focussed discussions and explicitly instructed students to feel free to mention if a relationship they were discussing were a same-gender one. While five participants identified their orientations as other than heterosexual, none volunteered to mention if a relationship they were discussing was other than heterosexual. We presume that this omission was due, at least in part, to the fact that the discussions were held in school time and in school classrooms and that this might not be perceived as a safe place for such revelations, and thus the findings appear hetero-normative. Given that we gathered no information explicitly regarding LGBTQ2S+ relational issues, it could be that to pursue such matters, similar studies should be conducted in explicitly safe spaces, like youth centers catering to these populations to extend our theories of intimate relationships among such youth. This is the next item on our research agenda.

Future Directions

Negotiating romantic relationships is a source of both great interest and considerable concern to adolescents. The findings assure the reliability of previous findings as well as offer leads for future study. Given that technology is a very prominent aspect of everyone's lives, especially those of young adults, studying the effects that social media has on the growth and formation of relationships becomes an important topic for researchers. Teenagers and adolescents are especially impressionable to new fads and forms of communication, so it becomes paramount that they be offered appropriate tools and resources to develop these relationships in a meaningful and healthy manner. Bridging the gap between the ever-changing technology world and the formation of real, profound, and enriching relationships is an important area to study that will be of great benefit to struggling adolescents. Further study should also explore topics such as sexting and the role this phenomenon might have in identity formation as well as our subordinate theme of gender expectations.

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KEY TERMS AND DEFINITIONS

Adolescents: For the purpose of this study we held discussions with high school students in grades nine to twelve inclusive. Therefore, adolescents here are teenagers from ages 15 to 19.

Communication: Human interactions are foundational to healthy relationships. In the case for this research, communication was investigated within the contexts of both online media and in-person conversations.

Digital Social Media: Communications using digital social media include exchanges that involve synchronous and asynchronous interactions over the Internet, including, but not restricted to Facebook, Snapchat, Instagram and texting, etc.

Emergent Fit Grounded Theory: We extended and adapted our grounded theoretical investigations of romantic relationships to analyze teenagers' communicative exchanges in the context of our already developed theories of negotiating intimate relationships.

Gender Roles: Teenage participants view gender-role expectations as determinant of the manner in which they are expected to behave vis-à-vis an intimate partner, whether or not they ascribe to such socially determined gendered stereotypes themselves.

Romantic Relationships: Romantic relationships are defined as those involving an intimacy beyond friendship, and that include emotional and sexual attraction.

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Chapter 5
Cyberbullying:
Negative Interaction Through Social Media

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ABSTRACT

The purpose of this chapter is to examine cyberbullying through social media among youth. Drawing on research from a variety of disciplines, such as psychology, education, social work, sociology, and computer science, this chapter is organized into seven sections. These sections include 1) background; (2) youths' characteristics and risk factors; (3) negative psychosocial and academic outcomes; (4) theoretical framework; (5) solutions and recommendations; (6) future research directions; and (7) conclusion. The chapter will draw on multidisciplinary qualitative, quantitative, and mixed-design research methodologies from psychology, sociology, social work, and criminology.

INTRODUCTION

Millions of youths use electronic technologies, such as social media, mobile phones, and the Internet, daily (Lenhart, 2015). These technologies allow youths many opportunities, such as the ability to communicate with just about anyone, quick access to information for leisure and homework purposes, and entertainment (e.g., watching videos). Despite the positives associated with electronic technology use, many youths are at risk for exposure to problematic online situations. Such situations might involve viewing unwanted electronic content through videos, images, and text, which contains gory or sexually graphic content. Problematic online situations also include experiencing identity theft and being targeted by sexual predators. Cyberbullying is another risk associated with youths' electronic technology use, and is the focus of this chapter.

Defined as an extension of traditional bullying, cyberbullying involves being targeted by negative and unwanted behaviors via electronic technologies, including email, instant messaging, social networking websites, and text messages via mobile phones (Bauman, Underwood, & Card, 2013; Grigg, 2012). The anonymity of the cyber context allows cyberbullies greater flexibility to harm their victims without having to witness the reactions of the victims and/or experience any negative consequences as a result of their actions (Wright, 2014b). Cyberbullies' ability to remain anonymous is made possible by the ability to mask or hide their identity in cyberspace. Because youths can remain anonymous online, anonymity can trigger the online disinhibition effect. The online disinhibition effect is when youths do or say something to others that they typically would never do or say in the offline world (Suler, 2004; Wright, 2014). Another component of electronic technologies is the rapid transmission of communication. Because electronic technologies have such features, many cyberbullies can target their victims more quickly. For example, a rumor in the offline world might take several hours to spread around school, while in the online world, this rumor could take a matter of minutes to spread to various classmates. Bullies can often target victims as often as they want as it is difficult to escape bullying in the online world as the behaviors can follow the person almost anywhere there is electronic technology access. Although it is possible to have many bystanders for traditional school bullying, cyberbullying has the potential to reach an audience of millions. These individuals can then perpetuate the cycle of cyberbullying by further sharing cyberbullying content (e.g., videos, pictures) with others.

The aim of this chapter is to review the topic of cyberbullying among youths, who might include children and adolescents from elementary school to high school. The literature reviewed includes studies from various disciplines, such as psychology, education, media studies, communication, social work, sociology, computer science, information technology, and gender studies. These studies also include cross-sectional, longitudinal, qualitative, quantitative, and mixed-methods research designs. The chapter also draws on various studies across the world to conceptualize cyberbullying as a global health concern. The chapter includes seven sections, including:

1. Background – contains the definition of cyberbullying, the various characteristic behaviors, the various electronic technologies, the prevalence rates of cyberbullying, and the role of anonymity in perpetrating cyberbullying.
2. Youths' characteristics and risk factors – reviews the factors associated with youths' involvement in cyberbullying as perpetrators and/or victims.
3. Negative psychosocial and academic outcomes – explains research findings regarding the psychological, social, behavioral, and academic consequences associated with youths' cyberbullying involvement.
4. Theoretical framework – provides an overview of the social cognitive theory and the online disinhibition effect, and their application to cyberbullying.
5. Solutions and recommendations – this section describes suggestions for prevention and intervention programs aimed at reducing cyberbullying involvement among youths, and public policy recommendations.
6. Future research directions - explains various recommendations for future research aimed at understanding youths' involvement in cyberbullying.
7. Conclusion – highlights closing remarks regarding the current nature of the literature on cyberbullying.

BACKGROUND

Smith and colleagues (2013) defined cyberbullying as youths' use of electronic technologies to harass, embarrass, and intimidate others with hostile intent. The "hostile intent" portion of the definition is a requirement for a particular behavior or behaviors to qualify as cyberbullying. Cyberbullying can also include repetition and an imbalance of power between the perpetrator and the victim, similar to the traditional face-to-face bullying definition. In cyberbullying, the bully might target the victim multiple times by sharing a humiliating and embarrassing video or text

message to one person or multiple people (Bauman et al., 2013). Another opportunity for repetitiveness might be sending a video or a text message to one person and then that particular person shares the content again with another person or multiple people, who then again share the content with someone else. Repetitiveness of cyberbullying captures the potentially cyclic nature of this form of bullying.

The electronic technology component of the cyberbullying definition separates this form of bullying from traditional face-to-face bullying (Curelaru, Iacob, & Abalasi, 2009). Examples of cyberbullying include sending unkind, mean, and/or nasty text messages, chat program messages, and emails, theft of identity information, pretending to be someone else, making anonymous phone calls, sharing secrets about the victim by posting or sending the secret to someone else, tricking someone to share a secret and then spreading the secret around, spreading nasty and/or untrue rumors using social networking websites, threatening to harm someone in the offline world, or uploading an embarrassing picture or video of a video who does not want the image shared (Bauman et al., 2013). Many cyberbullying behaviors are similar to those perpetrated or experienced in the offline world, such as experiencing/perpetrating harassment, insults, verbal attacks, teasing, physical threats, social exclusion, gossip, and humiliation.

Cyberbullying behaviors can occur through a variety of technologies, such as social networking websites, text messages via mobile phones, chat programs, online gaming, creation of a defamatory website against someone, and making fake social networking profiles using someone else's identity (Rideout et al., 2005). Another type of cyberbullying includes happy slapping, which involves a group of people who insult another person at random while filming the incident via a mobile phone and then posting the images or videos online for others to watch. Flaming is another type of cyberbullying behavior, and it involves posting a provocative or offensive message in a public forum with the desire of provoking a hostile response or triggering an argument with other members of the forum. The most frequently utilized technologies to harm others include gaming consoles, instant messaging tools, and social networking websites (Ybarra et al., 2007).

The prevalence rates of cyberbullying among youths has been frequently examined. In one study, 3,767 middle school students (aged 11-14) were surveyed to examine their involvement in cyberbullying (Kowalski & Limber, 2007). Of this sample, 11% reported that they were cyberbullied at least once, 4% had bullied other youths, and 7% were involved as both perpetrator and victim. Higher prevalence rates were found by Patchin and Hinduja (2006). They found that 29% of the youths in their sample reported having experienced cyber victimization and 47% indicated that they were

cyberbystanders. With an older sample of youths, grades 9th through 12th, Goebert and colleagues (2011) found that 56.1% of youths in their sample from the state of Hawaii reported that they were victims of cyberbullying. Taking into account the potential of cyberbullying experiences to extend from middle school to high school, Hinduja and Patchin (2012) surveyed youths in grades 6th through 12th. They found that 4.9% of their sample perpetrated cyberbullying in the past 30 days. Although differences in prevalence rates are the result of variations in sampling techniques and measurement techniques, it is important to understand these rates as they suggest that cyberbullying is a growing concern among children and adolescents. Cyberbullying is not just a problem localized to youths in the United States. Instead, it is a global problem with increasing evidence that cyberbullying occurs in Canada, Europe, Australia, Africa, Asia, and South America.

Cyberbullying in Canada

In comparison to cyberbullying prevalence rates in the United States, rates of youths' involvement in these behaviors is lower in Canada. In particular, Cappadocia and colleagues (2013) found that 2.1% of youths in their sample of 10th graders reported that they were perpetrators of cyberbullying, 1.9% reported being cybervictims, and 0.6% explained that they were both cyberbullies and cybervictims. Slightly higher rates were found in another sample of Canadian adolescents in the 8th through 10th grades (Bonnanno & Hymel, 2013). Bonnanno and Hymel found that 6% of their sample reported that they were cyberbullies, 5.8% reported that they were cybervictims only, and 5% indicated that they were both cyberbullies and cybervictims.

Cyberbullying in Europe

Using a sample of 22,544 Swedish youths, between the ages of 15 and 18, Laftman and colleagues (2013) found that 5% of their sample were cybervictims, 4% were cyberbullies, and 2% were both cybervicitms and cyberbullies. In a slightly younger sample of Swedish adolescents, 7th through 9th graders, Beckman and colleagues (2012) found that 1.9% of their sample were cybervictims, 2.9% were classified as cyberbullies, and 0.6% were cyberbullies and cybervictims. Cyberbullying has also been documented in Ireland in a sample of 876 12 through 17 year olds (Corcoran, Connolly, & O'Moore, 2012). Rates were 6% for cyber victimization among this group of Irish youths. Italian youths typically report higher levels of cyberbullying involvement when compared to youths in Northern and Western Europe. In one

study, Brighi et al. (2012) found that 12.5% of the Italian youths in their sample of 2,326, with an average age of 13.9 years, were classified as cybervictims. Similar rates have been found among German youths. In this research, Festl and colleagues (2013) found that 13% of their sample of 276 13 through 19 year olds were classified as cyberbullies and 11% were classified as cybervictims. Olenik-Shemesh et al. (2010) found that 16.5% of their participants ($N = 242$; 13-16 year olds) were cybervictims. The rate of Israeli adolescents identified as cybervictims or witnesses of cyberbullying was 32.4% of the sample ($N = 355$; 13 to 17 year olds; Lazuras et al., 2013).

Research has also been conducted with Turkish youths. In this research, Yimaz (2011) found that 18% of the 756 7th graders in the study reported that they were victimized by cyberbullying and 6% reported that they were perpetrators of cyberbullying. Rates were much higher in Erdur-Baker's (2010) study. She found that 32% of the 276 youths, ages 14 to 18 years, in her study reported that they were cybervictims. Ayas and Horzum (2012) found that 19% of youths in the sample of 12 to 14 year olds had perpetrated cyberbullying. Slightly higher rates of cyberbullying perpetration were reported among Aricak et al.'s (2008) sample of 269 Turkish secondary school students. Of these students, 36% admitted that they had cyberbullied someone at least once.

Cyberbullying in Asia

Research on cyberbullying among Asian countries has been slower to develop than research in the United States, Canada, and Europe. In this research, Huang and Chou (2010) found that 63.4% of the 545 Taiwanese youths in their sample had witnessed cyberbullying, 34.9% were classified as cybervictims, and 20.4% were classified as cyberbullies. Jang and colleagues (2014) surveyed 3,238 Korean adolescents, with findings revealing that 43% were classified as being involved in cyberbullying. Similar rates have been found among adolescents in China, with 34.8% in one sample ($N = 1,438$) reporting that they were cyberbullies and 56.9% as cybervictims (Zhou et al., 2013). Focusing exclusively on Facebook cyberbullying, Kwan and Skoric (2013) reported that 59.4% of Singaporean adolescents in their study experienced cyber victimization through this social media website, while 56.9% perpetrated cyberbullying. In addition, Wong and colleagues (2014) found that 12.2% of adolescents in their sample ($N = 1,912$) were cybervictims and 13.1% were classified as cyberbullying perpetrators.

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Cross-Cultural Differences in Cyberbullying Involvement

Research on the cross-cultural differences in cyberbullying typically classified countries according to an independent self-construal or an interdependent self-construal. To have an independent self-construal view, the self is viewed as separate from the social context. On the other hand, someone with an interdependent self-construal views themselves within the context of their society. Typically people from Western countries, like the United States, Canada, and the United Kingdom, reinforce and prime people to behave in ways aligned with an independent self-construal, while people from Eastern countries, like China, South Korea, and Japan, are reinforced and primed for behavior consistently in regards to an independent self-construal. Differences in these self-construals affect people's social behaviors, particularly bullying and cyberbullying. Therefore, independent and interdependent self-construals have been used to explain these behaviors. In this research, youths from the United States typically reported higher rates of cyberbullying involvement, either as perpetrators or victims, when compared to Japanese youths (Barlett et al., 2013). Similar patterns have also been found among Austrian and Japanese youths (Strohmeier, Aoyama, Gradinger, & Toda, 2013). In other research, Chinese youths reported less cyberbullying perpetration when compared to Canadian youths (Li, 2008) but more cyberbullying victimization than Canadian youths (Li, 2006). In other research comparing East Asian youths from Canada with Canadian youths, Shapka and Law (2013) found that East Asian youths engaged in cyberbullying more for proactive reasons (i.e., to obtain a goal), while Canadian youths reported cyberbullying perpetration for reactive reasons (i.e., response to provocation). Wright and colleagues (2015) found that Indian youths reported higher levels of cyberbullying involvement than youths from China and Japan, with Indian boys reporting the highest rates of cyberbullying involvement. Conducted in European countries, Genta and colleagues (2012) compared rates of cyberbullying perpetration among youths in Italy, Spain, and England. The findings revealed that Italian boys perpetrated more cyberbullying than boys from Spain and England.

YOUTHS' CHARACTERISTICS AND RISK FACTORS FOR CYBERBULLYING

Despite differences in the estimates of cyberbullying rates, these studies provided evidence that cyberbullying is an experience that is reported among youths. With the recognition that cyberbullying is something to be concerned about among youths, researchers began to direct their attention to the characteristics and risk factors related to youths' involvement in cyberbullying.

Age was one of the first risk factors to receive attention. Findings from this research indicated that cyberbullying victimization peaked in early adolescence and that high school adolescents were more likely to perpetrate cyberbullying (Williams & Guerra, 2007). In addition, physical forms of cyberbullying, such as hacking, also peaked in middle school but generally declined in high school. On the other hand, Wade and Beran (2011) concluded that cyberbullying involvement was highest among 9th graders in their study when compared to middle school students.

Other research has focused on gender as a predictor of youths' cyberbullying involvement. Findings from this research indicated that boys were more often the perpetrators of cyberbullying when compared to girls (Boulton et al., 2012; Li, 2007; Ybarra et al., 2007). In contrast, other research (e.g., Dehue, Bolman, & Vollink, 2008; Pornari & Wood, 2010) has revealed that girls were more often cyberbullies than boys. In some studies, girls reported that they were more often victimized by cyberbullying in comparison to boys (Hinduja & Patchin, 2007; Kowalski & Limber, 2007). Contrary to these findings, some research (e.g., Huang & Chou, 2010; Sjurso, Fandrem, & Roland, 2016) has found that boys were more often cybervictims when compared to girls. Other studies (e.g., Stoll & Block, 2015; Wright & Li, 2013b) have revealed no gender differences in youths' involvement in cyberbullying.

Researchers have also directed their attention to considering youths' offline experience of perpetrators and victims of traditional school bullying as risk factors for youths' involvement in cyberbullying. These studies have considered the role of victim and perpetrator in both the face-to-face and cyber contexts. In these studies, positive associations are found between cyberbullying perpetration and traditional face-to-face bullying perpetration, cyber victimization and traditional face-to-face victimization, and cyberbullying perpetration and traditional face-to-face victimization (Barlett& Gentile, 2012; Mitchell et al., 2007; Wright & Li, 2013a; Wright & Li, 2013b).

Another risk factor associated with youths' cyberbullying involvement is their use of electronic technology. The underlying conclusion in this research is that any exposure to electronic technology can increase youths' risk of cyberbullying. Higher use of the internet is associated positively with both the perpetration and victimization by cyberbullying (Ang, 2016; Aricak et al., 2008). Compared with nonvictims, cybervictims spend more time using instant messaging tools, email, blogging sites, and online gaming (Smith et al., 2008). A possible explanation for the connection between electronic technology use and cyberbullying involvement is the likelihood that these youths disclose more personal information online, including geographical location (Ybarra et al., 2007). Disclosing this information puts them at risk for cyber victimization.

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Internalizing problems, like depression and loneliness, as well as externalizing problems, like alcohol use, are also associated with youths' involvement in cyberbullying. To explain such relationships, researchers propose that victims' coping abilities are diminished or ineffective, which makes them vulnerable to cyberbullying (Cappadocia et al., 2013; Mitchell et al., 2007). Furthermore, Cappadocia and colleagues (2013) and Wright (in press) found that alcohol and drug use were each related positively to cyberbullying perpetration.

Researchers have also identified other variables that are linked to youths' cyberbullying involvement. Normative beliefs are the beliefs that a specific set of behavior, in this case cyberbullying, is an acceptable form of behavior. In this research, youths with higher normative beliefs concerning face-to-face bullying and cyberbullying were related positively to cyberbullying perpetration (e.g., Burton, Florell, &Wygant, 2013; Wright, 2014b). Therefore, cyberbullies believe that cyberbullying is an acceptable form of behavior to engage in. Provictim attitudes, defined as the belief that bullying is unacceptable and that defending victims is valuable, is another factor related to cyberbullying. Holding lower levels of provictim attitudes is associated positively with cyberbullying perpetration (Sevcikova, Machackova, Wright, Dedkova, & Cerna, 2015). In addition, youths with lower levels of peer attachment, less self-control, and empathy, and greater moral disengagement were each related positively to cyberbullying perpetration (e.g., Wright, Kamble, Lei, Li, Aoyama, & Shruti, 2015).

Many of the studies on the characteristics and risk factors associated with cyberbullying involvement utilize cross-sectional research designs. Consequently, it is difficult to understand the long-term associations of these characteristics and risk factors associated with cyberbullying involvement. Fanti and colleagues (2012) conducted a longitudinal study investigating youths' exposure to violent media and their callous and unemotional traits in relation to cyberbullying involvement one year later. Findings revealed that media violence exposure related to greater cyber victimization. Perceived levels of stress from parents, peers, and academics also have a role in adolescents' perpetration of cyberbullying one year later (Wright, 2014a).

In sum, there are a variety of characteristics and risk factors that make youths vulnerable to cyberbullying. Moving away from individual-related characteristics and risk factors, other researchers have examined the role of parents, schools, and teachers in youths' cyberbullying involvement.

Parents as Risk Factors

Parenting styles are linked to youths' involvement in cyberbullying. In particular, youths who are bully-victims often have parents who utilize indifferent-uninvolved parenting styles and inconsistent monitoring of their activities increases youths' involvement in cyberbullying (Totura et al., 2009). Neglectful parenting, or sometimes referred to as indifferent-uninvolved parenting, increased youths' involvement in cyberbullying in comparison to uninvolved youths (Dehue, Bolman, Vollink, & Pouwelse, 2012). Indifferent-uninvolved parents are often emotionally distant from their children, engage in little or no supervision, show little warmth and affection toward their children, place fewer demands on their children's behaviors, and intentionally avoid their children. Cyber victimization was also increased among children who reported that their parents engaged in authoritarian parenting styles. Authoritarian parenting style is defined as parents who have high levels of demands and low levels of responsiveness. These parents have very high expectation but they display very low levels of warmth or nurturance.

Another aspect of parenting is the use of parental monitoring. The cyber context provides another opportunity for parents to monitor their children's online activity. In this research, Mason (2008) found that 50% of the children in his study reported that their parents monitored their online activities. One study explored the differences between what parents report in terms of how often they monitor their children's online activities and how often their children reported being monitored (McQuade, Colt, & Meyer, 2009). McQuade et al. found that 93% of parents in their study reported that they set limits on their children's online activities. However, only 37% of their children reported that their parents had given them rules regarding their online activities. These findings might indicate that parents overestimate the amount of monitoring they engage in or that the strategies they do implement are ineffective. Just like in the offline world, parents have an important role in protecting their children against online risks. Additional attention should be given to how parents navigate conversations with their children about online risks and opportunities.

Other research has focused on the role of parental monitoring and parental mediation in relation to reducing youths' risk of cyberbullying involvement. Wright (2015) found that when youths reported more technology mediation by their parents they reported lower levels of cyber victimization and the associated negative adjustment difficulties. To explain these connections, Wright explains that parents who monitor their children's electronic technology use might have more opportunities to engage in discussions on the risks associated with cyberbullying

involvement. Parents might also convey, during these discussions, that cyberbullying is unacceptable. Such a proposal is supported by the literature as Hinduja and Patchin (2013) and Wright (2013a) found that youths who were concerned with being punished for negative online behaviors were much less likely to perpetrate cyberbullying. One study found little support that parental monitoring was helpful for preventing cyberbullying involvement. In this study, Aoyama and colleagues (2011) did not find that parental mediation and monitoring of their children's online activities were related to their children's cyberbullying perpetration and victimization. Aoyama et al. explained that many parents lack the technological skills to effectively monitor their children's online activities, which makes it difficult for them to know when and how to intervene in these activities. Another potential explanation might be that parents implement rules for electronic technology use that they do not follow-up on. Not following through with these rules can give the impression that parents are unconcerned with appropriate online behaviors, increasing the risk of engaging in cyberbullying. Failing to enforce rules might also indicate that parents do not often update strategies as their children become more independent electronic technology users. Research findings support this proposal as many parents report that they are not sure as to what type of online activities to discuss with their children (Rosen, 2007). When parents are not sure how to talk to their children about online activities, then it might lead many parents to not discuss appropriate online behaviors with their children.

There is also some research which investigates other family characteristics in relation to youths' cyberbullying involvement. Family income, parental education, and marital status of caregivers were unrelated to youths' involvement in cyberbullying (Ybarra & Mitchell, 2004). Other research indicates that parental unemployment increased youths' risk of cyberbullying perpetration and victimization (Arslan, Savaser, Hallett, & Balci, 2012).

Schools as Risk Factors

The schools' role in monitoring and punishing youths' involvement in cyberbullying is a topic of great debate among school districts, parents, authorities, and researchers. This is because many of the cases involving cyberbullying are carried out off school groups, making it difficult for schools to be aware of such cases (deLara, 2012; Mason, 2008). However, many incidences of cyberbullying involve youths who attend the same school, making the school's role in handling such incidences complex. Because cyberbullies and cybervictims might attend the same school, it is possible that knowledge of a cyberbullying incidence could spread throughout the school, leading to negative interactions between youths while on school grounds. These negative interactions could disrupt the learning process.

Regardless of the extent to which cyberbullying incidents can "spill over" onto school grounds, many administrators, teachers, and school districts have very different perceptions and awareness of cyberbullying. Some of these individuals might not even perceive cyberbullying as a significant event, warranting attention (Kochenderfer-Ladd & Pelletier, 2008). It is problematic when administrators and teachers do not perceive cyberbullying as problematic because electronic technology and digital communication are embedded in the lives of the youths they teach. Furthermore, these administrators and teachers are often not likely to perceive any form of covert bullying behavior as serious and harmful as physical bullying (Sahin, 2010). They are often not likely to understand the consequences associated with relational bullying and cyberbullying. This could lead to the decision not to help youths who experience these behaviors or dealing with the situation by minimizing it. Teacher training might not properly inform teachers on how to deal with and recognize cyberbullying, making teachers' ability to intervene difficult. Cassidy et al. (2012a) found that many Canadian teachers were unfamiliar with newer technologies. Being unfamiliar with newer technologies made it difficult for these teachers to deal with cyberbullying as they were often unsure of how to respond to the incidence or of how to implement strategies to address the incident. Even when teachers were concerned with cyberbullying, their school district did not have policies and programs in place to deal with these behaviors (Cassidy, Brown, & Jackson, 2012b). This made it difficult for teachers to implement solutions and strategies.

Other research has revealed that teachers were often willing to participate in prevention programs aimed at reducing traditional face-to-face bullying but not cyberbullying prevention programs (Tangen & Campbell, 2010). This could be a product of few empirically and theoretical driven cyberbullying prevention programs or that administrators and teachers do not consider cyberbullying an important enough issue to warrant attention. Recognizing the importance of implementing policies and training programs on cyberbullying is important because youths' involvement in these behaviors has the potential to impact the learning environment (Shariff & Hoff, 2007).

Educators require training to increase their awareness of cyberbullying, with the hope of developing policies at the school level to reduce these behaviors. When teachers are more confident about their abilities and have a stronger commitment to their school, they are more likely to learn about cyberbullying, and have a greater awareness of these behaviors and knowledge to deal effectively with it (Eden et al., 2013). Such awareness and knowledge prevent children's and adolescents' cyberbullying perpetration and victimization. Furthermore, when teachers feel more

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confident, they intervene in cyberbullying incidences more often, which protects adolescents from experiencing these behaviors (Elledge et al., 2013). Unfortunately, teachers' motivation for learning about cyberbullying decreases from elementary school to middle school, which is problematic as cyberbullying involvement usually increases in these years (Ybarra et al., 2007). Therefore, there is a need for educator training programs aimed at raising awareness of cyberbullying, particularly in the middle school years.

Youths' involvement in cyberbullying are less likely to perceive their school and teachers positively when compared to uninvolved youths (Bayar & Ucanok, 2012). Some youths might experience cyberbullying and fear that their classmates could be responsible. This decreases these youths' concentration on learning, thereby reducing their academic attainment and performance (Eden, Heiman, & Olenik-Shemesh, 2013). Lower school commitment and perceptions of a negative school climate increase children's and adolescents' engagement in cyberbullying as they feel less connected to their school (Williams & Guerra, 2007). Youths' involvement in cyberbullying is linked to poor academic functioning (Wright, in press).

Peer interactions are present in both the offline and online world. Through these interactions, youths learn about the social norms dictating acceptable and unacceptable behaviors within the peer group, and consequently they engage in more of the acceptable behaviors, even if these behaviors are negative. In this line of research, cyberbullying involvement is highest among classrooms in which these behaviors are elevated (Festl et al., 2013). Something about the classroom climate might be driving the levels of cyberbullying behaviors within a particular classroom. Furthermore, believing that one's friends engaged in cyberbullying also increases youths' risk of perpetrating cyberbullying (Hinduja & Patchin, 2013). Peer contagion might potentially explain these relationships. What this means is that one's friends "spread" negative online behaviors to others within their social network (Sijtsema, Ashwin, Simona, & Gina, 2014).

Another peer-related variable associated with cyberbullying involvement is peer attachment. Peer attachment is defined as the closeness that youths feel with their same or similarly aged peers. Lower levels of peer attachment were associated positively with cyberbullying perpetration and victimization (Burton et al., 2013). When youths have poor peer attachment, they are likely to believe that their peers will not be there for them when they need it. This belief promotes negative interactions with peers. Cyberbullying involvement is higher when youths' experience peer rejection, whether it is perceived rejection or peer-reported rejection (Sevcikova et al., 2015; Wright & Li, 2013b). Wright and Li (2012) argue that peer rejection triggers negative emotional responses that leads to cyberbullying perpetration and victimization.

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Cyberbullying perpetration might also be used to maintain and boost youths' social standing among their peer group, both online and offline. Wright (2014c) found that higher levels of perceived popularity, a reputational type of popularity in the peer group, was associated positively with cyberbullying perpetration six months later. With the prominent role of electronic technologies in youths' lives, Wright proposes that they might utilize these technologies as a tool for the promotion and maintenance of their social standing. The literature in this section suggests that it is important to consider the role of schools and peers in youths' cyberbullying involvement.

NEGATIVE PSYCHOSOCIAL AND ACADEMIC OUTCOMES ASSOCIATED WITH YOUTHS' INVOLVEMENT IN CYBERBULLYING

Concerns with cyberbullying involvement among youths were triggered by the associated negative psychosocial and academic outcomes. A potential research for these linkages is that cyberbullying disrupts youths' emotional experiences, making them more vulnerable to negative outcomes, due to ineffective coping strategies. Cybervictims are more likely than nonvictims to report lower levels of global happiness, general school happiness, school satisfaction, family satisfaction, and self-satisfaction (Toledano, Werch, & Wiens, 2015). In addition, cybervictims report more feelings of anger, sadness, and fear in comparison to noninvolved children and adolescents (Dehue et al., 2008; Machackova, Dedkova, Sevcikova, & Cerna, 2013; Patchin & Hinduja, 2006).

Cyberbullying involvement also impacts youths' academic performance. In this literature, both cybervictims and cyberbullies are at an increased risk for difficulties at school, including academic problems, less motivation for school, poor academic performance, lower academic attainment, and more school absences (Belae & Hall, 2007; Yousef & Bellamy, 2015). Lower school functioning also relates to cyberbullying perpetration and cyber victimization (Wright, in press). Cyberbullies and cybervictims experience lower levels of school functioning when compared to cyberbullies, cybervictims, and uninvolved youths.

Internalizing and externalizing problems are both associated with youths' cyberbullying involvement (e.g., Mitchell, Ybarra, & Finkelhor, 2007; Patchin & Hinduja, 2006; Wright, 2014b; Ybarra, Diener-West, & Leaf, 2007). Cyberbullies and cybervictims both experience suicidal thoughts and attempt suicide more often

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than uninvolved youths (Bauman, Toomey, & Walker 2013). Similar results were found by Beckman and colleagues (2012). Beckman and colleagues also found that cyberbullying involvement increased youths' risk for experiencing mental health problems. Other research suggests that these youths are also at risk for psychiatric and psychosomatic problems (Sourander et al., 2010).

A limitation associated with the research on the psychosocial and behavioral consequences related to youths' cyberbullying involvement is that researchers do not account for youths' involvement in traditional face-to-face bullying. It is important to account for youths' involvement in traditional face-to-face bullying because this experience is associated with similar consequences as cyberbullying and due to the high correlation between the two (Williams & Guerra, 2007; Wright & Li, 2013b). One study accounted for traditional face-to-face bullying involvement and the findings suggested that cyberbullying perpetration and victimization might have worse psychological consequences when compared to the face-to-face bullying perpetration and victimization, after controlling for face-to-face bullying and victimization (Bonanno et al., 2013).

Given the high correlation between cyberbullying and traditional face-to-face bullying involvement, some researchers have focused on the combined effects of these experiences on youths' psychosocial and behavioral outcomes. In this research, victims of both traditional face-to-face bullying and cyberbullying reported higher levels of internalizing symptoms when compared to youths who experienced only one type of victimization (Gradinger et al., 2009; Perren et al., 2012).

The research reviewed in this section suggests that a combination of various bullying experiences, whether online or offline, exacerbates youths' experience of depression, anxiety, and loneliness. These findings indicate the importance of considering youths' involvement in various bullying behaviors to better understand the best ways to intervene.

THEORETICAL FRAMEWORKS

In this section, two theories that have been extensively applied to youths' involvement in aggressive behaviors will be presented, along with their application to cyberbullying involvement among youths. These theories include the social cognitive theory and the online disinhibition effect.

According to the social cognitive theory, parents and/or friends serve as important models of behaviors that are observed and replicated by youths (Hinduja & Patchin, 2008; Mouttapa, Valente, Gallaher, Rohrbach, & Unger, 2004). This theory has

been extensively applied to youths' involvement in aggressive behaviors, including cyberbullying (Barlett & Gentile, 2012). According to Olweus (1993), children's aggressive behaviors are learned or modeled by someone who is stronger than the observer. The effects of the model on the observer depended on the observer's positive evaluation of the model. These perceptions have the potential to increase the likelihood of reducing children's inhibition for aggressive behaviors and increase aggressive acts, particularly when the model is rewarded for acting aggressively. In regard to cyberbullying, youths observe various incidences of successful cyberbullying acts (Barlett & Gentile, 2012). The more often they are exposed to these acts the greater the likelihood that they believe cyberbullying is acceptable, normative, and tolerable. The anonymity offered by the cyber context increases the chance that little or no immediate consequences occur after cyberbullying perpetration. When youths are positively reinforced for cyberbullying behaviors, adolescents held greater positive attitudes toward these behaviors (Barlett & Gentile, 2012). These attitudes relate to future perpetration of cyberbullying behaviors (Wright & Li, 2013a; Wright & Li, 2013b).

The online disinhibition effect theory refers to the likelihood that the characteristics of the cyber context will increase the likelihood that youths engage in different ways online than they would offline (Suler, 2004). The cyber context allows people to loosen, reduce, or dismiss the typical social restrictions and inhibitions present in normal face-to-face interactions (Mason, 2008). The literature supports the premise that people behave differently in cyberspace than in the offline world. Research indicates that people are likely to be blunter when communicating with others via electronic technologies (McKenna & Bargh, 2000). In online communication, there are more misunderstandings, heightened hostility, and an increase in aggressive behaviors via electronic technologies when compared to face-to-face communication. Not being able to see someone's emotional reactions in cyberspace prevents people from modulating their own behaviors because they are not able to witness the consequences of their actions, like they could in the offline world (Kowalski & Limber, 2007). Cyberbullying often occurs because cyberbullies cannot witness the cybervictims' reactions nor are there many opportunities to experience social disapproval, punishment, or other consequences. Many cyberbullies recognize the ease of engaging in aggressive behaviors through electronic technologies, which could potentially lead their behaviors to become more disinhibited over time, especially when they receive positive reinforcement for their behavior and are not able to recognize the consequences of their behaviors (Hinduja & Patchin, 2010; Wright, 2014a). Deindividuation, the process of not being accountable for one's

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actions, also occurs as a result of the online disinhibition effect (Joinson, 1998). Being able to remain anonymous through electronic technologies reduces youths' accountability for their online interactions. Coupling the reduction of accountability with the anonymity of the cyber context, might make it easier for youths to disengage from others, leading to increases in harmful online behaviors (Wright, 2014a).

SOLUTIONS AND RECOMMENDATIONS

Cyberbullying is a public health concern, warranting attention by all members of our communities, including educators, researchers, parents, and youths themselves. It is also important for education curriculum to include digital literacy skills training and citizenship in both the online and offline worlds (Cassidy et al., 2012b). Such curriculum should also focus on the positive uses of electronic technology, building empathy for negative online interactions, self-esteem, and social skills. To also improve school climate, administrators and teachers should learn students' names, praise good behavior, and stay technologically informed and up-to-date (Hinduja & Patchin, 2012).

Schools and parents should partner to help address cyberbullying. Parents should also increase their awareness and knowledge of electronic technologies (Cassidy et al., 2012a; Diamanduros & Downs, 2011). Increasing one's knowledge of electronic technologies can help parents understand the importance of technology in their children's lives and to recognize the risk and opportunities of their children's electronic technology use. Parents can also implement more effective monitoring strategies when they are more knowledge about electronic technologies and cyberbullying. Parents are encouraged to engage in open dialogue with children about appropriate electronic technology use.

FUTURE RESEARCH DIRECTIONS

There are some noticeable future directions for research on youths' involvement in cyberbullying. Anonymity is associated with youths' perpetration of cyberbullying involvement, but little attention has been given to this topic. Future research should focus on youths' perceptions of anonymous acts online and which factors might motivate them to engage in anonymous forms of cyberbullying. This research should also examine anonymous forms of cyberbullying versus non-anonymous forms

of cyberbullying to better understand the motivators underlying these behaviors. This research should also investigate whether coping strategies and psychosocial adjustment difficulties vary as a function of whether cyberbullying was anonymous or non-anonymous. Additional investigations should be undertaken to understand the long-term impact of cyberbullying involvement among youths. Intervention and prevention programs could be developed which specific consideration to the specific age group identified as at the most risk for cyberbullying involvement.

CONCLUSION

The literature in this chapter provides a firm foundation for understanding youths' involvement in cyberbullying and the next directions for intervention, prevention, public policy, and research. The review suggests that much of the earlier research on cyberbullying focused on the prevalence rates of these behaviors. Current shifts in this research has changed the focus to understanding the causes and consequences of youths' involvement in cyberbullying. Although this research is still in its early stages in comparison to the literature on traditional face-to-face bullying, many of the published studies on cyberbullying focus on individual predictors of youths' involvement in these behaviors. More consideration is needed to understand the role of parents, schools, peers, and communities in youths' cyberbullying perpetration and victimization. Follow-up research on cyberbullying is important as this negative behavior impacts many aspects of our society, potentially undermining ethical and moral values. Consequently, it is imperative that we unite and do our part to reduce children's and adolescents' involvement in cyberbullying together.

SUMMARY

The purpose of this literature review was to summarize research on cyberbullying involvement among youths by providing a description and definition, information about the characteristics and risk factors, the negative adjustment outcomes associated with the involvement in these behaviors, and theoretical frameworks. The studies reviewed in this chapter utilize cross-sectional, longitudinal, qualitative, quantitative, and mixed-methods research designs. Studies with various youths from across the world were also reviewed to shed more light on the cross-cultural research on youths' cyberbullying involvement. This cross-cultural research also provides support about youths' cyberbullying involvement being a global phenomenon.

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KEY TERMS AND DEFINITIONS

Anonymity: The quality of being unknown or unacknowledged.

Anxiety: A mental health disorder which includes symptoms of worry, anxiety, and/or fear that are intense enough to disrupt one's daily activities.

Collectivism: A cultural value that stressed the importance of the group over individual goals and cohesion within social groups.

Cyberbullying: Children's and adolescents' usage of electronic technologies to hostilely and intentionally harass, embarrass, and intimidate others.

Empathy: The ability to understand or feel what another person is experiencing or feeling.

Externalizing Difficulties: Includes children's and adolescents' failure to control their behaviors.

Individualism: The belief that each person is more important than the needs of the whole group or society.

Loneliness: An unpleasant emotional response to isolation or lack of companionship.

Normative Belief: Beliefs about the acceptability and tolerability of a behavior.

Parental Mediation and Monitoring: The strategies that parents use to manage the relationship between their children and media.

Parenting Style: The standard strategies that parents use in their child rearing.

Peer Attachment: The internalization of the knowledge that peers will be available and responsive.

Peer Contagion: The transmission or transfer of deviant behavior from one adolescent to another.

Provictim Attitudes: The belief that bullying is unacceptable and that defending victims is valuable.

Social Exclusion: The process involving individuals or groups of people block or deny someone from the group.

Traditional Face-to-Face Bullying: The use of strength or influence to intimidate or physically harm someone.

Section 2

Social Media and Offline Social Interactions

Communication in a virtual world may have implications for what offline social interactions look like between communication partners. In this section, the authors present findings from their own empirical studies concerning the effect of social media use on interpersonal communication competence, the prevalence of phubbing behaviour, and negative emotions experienced when waiting or making others wait for a reply.

Chapter 6
How Do Social Media Impact Interpersonal Communication Competence?
A Uses and Gratifications Approach

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ABSTRACT

The current study examines the role of psycho-social individual characteristics, social media motives, and social media use as predictors of interpersonal communication competence (ICC). Applying the uses and gratifications theoretical framework, this research seeks to explore the potential effects of social media use related to the second digital generation (2DG), or those born after 1990. A cross-sectional study design, surveying 373 college students ages 18-24 years, found that offline social capital, interpersonal interaction, and social activity were direct, positive predictors of ICC. Social media motives and use contributed a small but significant portion of explained variance in the model, above and beyond effects of psycho-social characteristics. Specifically, members of the 2DG who use social media to compensate for offline loneliness, as well as those who were more dependent on social media to fulfill a variety of needs reported lower ICC. Limitations and directions for future research are also offered.

INTRODUCTION

According to the Pew Research Center, approximately 88% of 18- to 29-year-olds use some form of social media (Smith & Anderson, 2018). Considered members of the second digital generation (2DG), millennials born after 1990 differ from other generations in that they have grown up immersed in the social media environment (Taipale, 2016; Williams, Crittenden, Keo, & McCarty, 2012). These young adults, who had access to touch screens and smart devices from infancy, can navigate through platforms and different technologies with ease. Members of the 2DG prefer to stay connected to others via social media, tending to be drawn more to the functions of social media that relate more closely to face-to-face (FtF) communication (Taipale, 2016; Williams et al., 2012).

Given these preferences, it is important to examine the potential impact social media use has for offline interpersonal communication competence (ICC). ICC refers to an individual's perceived "ability to manage interpersonal relationships in communication settings" (R. B. Rubin & Martin, 1984, p. 33). Competent communicators are able to engage in effective self-presentation, articulate ideas clearly during conversations, and demonstrate appropriate perspective-taking skills (R. B. Rubin & Martin, 1984). Interaction on social media can present opportunities to learn about and test these skills; however, it is unclear how the use of this technology might enhance (or detract) from offline ICC.

One theoretical perspective that can be helpful in beginning to explore how social media affects ICC is the uses and gratifications theory (U&G). U&G is a functional perspective that focuses on how individuals actively choose media to fulfill their needs, which can lead to various effects (A. M. Rubin, 2009). U&G theory has often been applied to contexts where interpersonal and mediated communication intersect (A. M. Rubin & Rubin, 2001). Although ICC has not yet been studied as an outcome to social media use, other studies have explored how U&G can explain interpersonal constructs such as self-disclosure (e.g., Hollenbaugh & Ferris, 2014, 2015), communication apprehension (e.g., Punyanunt-Carter, De La Cruz, & Wrench, 2017), and social capital (e.g., Phua, Jin, & Kim, 2017).

Therefore, the purpose of this study is to apply U&G theory to discover the impact of social media on ICC for members of the 2DG. The following sections will outline relevant research regarding U&G theory and the main predictors examined in this study, the methodology applied, the presentation of the findings, and a discussion of the implications of this research.

USES AND GRATIFICATIONS THEORY

Emerging from a collection of media studies in the mid-twentieth century, U&G is a functional perspective of media use that centers on the individual. Originally proposed by Katz, Blumler, and Gurevitch (1973), the U&G process examines the relationship between the individual and media effects, whereby:

(1) the social and psychological origins of (2) needs, which generate (3) expectations of (4) the mass media or other sources, which lead to (5) differential patterns of media exposure (or engagement in other activities), resulting in (6) need gratifications and (7) other consequences, perhaps mostly unintended ones. (p. 20)

In sum, the theory proposes that individuals are actively motivated to seek out media that best fulfills their needs based on who they are (i.e., demographics, personality traits, and social circumstances). The effects of media use are then dependent on these individual factors as well as motives for use (see Figure 1). According to Ruggiero (2000), U&G is very useful in explaining how and why people use new technologies. By discovering the individual factors that lead to various motive structures, the theory can build a foundation from which media effects can be explored.

Social media present unique directions for U&G research, given their mediated and interpersonal functionality. For example, Facebook, the most used social media platform across all age groups (Smith & Anderson, 2018), provides opportunities to play games, meet new people, and keep up with existing relationships. Users can be entertained by memes and be informed about what is going on in the world in one space. Ultimately, traditional needs met by media such as to relieve boredom or to be entertained can be combined within a space where social and relational needs can be met. Given the intersection of mediated and interpersonal functions, it is important to examine the potential outcomes for audiences who engage in this environment.

Individual Factors

With respect to individuals' social and psychological factors, many studies have examined personality traits as they relate to motivations to use social media (Hollenbaugh & Ferris, 2014; Ross et al., 2009; Ryan & Xenos, 2011). However, less is known about individuals' social make-up in relation to use. Therefore, the authors seek to expand knowledge in this area by assessing the influence of two social structures: offline social capital and contextual age.

In this study, social capital is defined as the utilization of interpersonal networks for beneficial outcomes. Much like financial capital, the use of social networks available to users provides personal and relational rewards (Williams, 2006). These rewards fall into at least two categories: bonding and bridging social capital (Putnam, 2000). Communities with a high level of bonding social capital are characterized by strong relational ties between members. Individuals in these communities often rely heavily on one another and rarely seek help or collaboration from outside social networks (Putnam, 2009). Conversely, diverse weak ties often yield bridging social capital, wherein any one individual has access to extended social networks. Recently, research has linked social capital with social media use, both as a predictor and outcome. A wealth of research has established that heavy social media use results in increased bridging social capital online (e.g., Abbas & Mesch, 2018; Ellison, Steinfeld, & Lampe, 2007; Hampton, Goulet, Rainie, & Purcell, 2011; Papacharissi & Mendelson, 2011; Quinn, 2016). However, what is less clear is how offline social capital can play a role as a predictor of social media use and effects.

Consistent with the social enhancement hypothesis, people who have more active social connections offline are more likely to reap social benefits from their participation in social media (Valkenberg, Shouten, & Peter, 2005). For example, Abbas and Mesch (2018) found that Palestinian teenagers participating in their study who reported richer social capital in their offline lives were more likely to increase their online social capital via Facebook. Furthermore, when controlling for offline social capital, using the active and passive communication tools afforded by Facebook increased the teens' online social capital. Though existing research does link one's offline social capital to social media use, the nature of that relationship is not entirely clear.

In addition to social capital, contextual age can influence users' motivations for media use as well as their reliance upon media to fulfill goals (A. M. Rubin, 2009). Rather than measuring age in terms of years lived, R. B. Rubin and Rubin (1982) conceptualize age as a matter of life position. In their original conception of this construct, the researchers combined several life indicators to measure one's contextual age: physical health, mobility, economic security, interpersonal interaction, social activity, and life satisfaction. Sheldon and Bryant (2016) argued that three components of contextual age were particularly important to members of the 2DG with respect to social media use: life satisfaction, interpersonal interaction, and social activity.

Several studies have examined these variables with respect to social media (Akin & Akin, 2015; Jacobsen & Forste, 2011; Sheldon & Bryant, 2016). Research has shown that college students who were less satisfied with their lives were heavier

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users of Facebook (Akin & Akin, 2015). Additionally, students who interacted more with others offline were more likely to use social networking sites (Akin & Akin, 2015; Sheldon & Bryant, 2016) and exhibit different motives for use (Jacobsen & Forste, 2011; Sheldon & Bryant, 2016). These studies show the potential for both social capital and contextual age in explaining social media effects for members of the 2DG.

Given the aforementioned research on the contributions of individual factors on social media motives, use, and ICC, the following research question is posed:

RQ1: How do individual factors (social capital, contextual age) impact (a) social media motives, (b) social media use, and (c) interpersonal communication competence.

Motives

Motivation is central to the U&G perspective, which assumes that people are goal-driven in their communicative behaviors (Papacharissi, 2009a; A. M. Rubin, 2009). People seek out the channels and modes of communication that will best fulfill their goals. Motives then relate to expectations of the goals they hope to achieve with a particular channel (A. M. Rubin, 2009). Research related to U&G has shown that both interpersonal and mediated motives are related to media use (Papacharissi, 2009a). This is particularly important within the context of social media uses and effects.

Social media motives represent a blend of traditional media and interpersonal motives, and they have been shown to be contributors to media uses and effects (Ferris & Hollenbaugh, 2018; Sheldon, 2008; Sundar & Limperos, 2014). In their meta-analysis of traditional and new media motives, Sundar and Limperos (2014) found several new motives for using social media that differ from other types of media. These motives include relational needs such as interpersonal interaction, as well as traditional mediated motives such as entertainment and escape. Research has supported findings related to traditional media motives, as well as newer motivations related to interpersonal media use. Recent research by Ferris and Hollenbaugh (2018) found that young adults motivated to use social media to pass the time (a traditional media motive) were more reliant on social media to achieve their goals. Additionally, in her study on college students' unwillingness to communicate related to social media use, Sheldon (2008) found that unwillingness to communicate predicted students' motivations to use Facebook to pass the time and to feel less lonely.

Interpersonally motivated uses of social media have also been found to affect social media use. Hollenbaugh and Ferris (2014) found that those who were motivated to maintain their relationships with others through Facebook self-disclosed more information through this medium. Additionally, this study found that those who sought to meet new people on Facebook engaged in more personal self-disclosures. In their study on Instagram use, Sheldon and Bryant (2016) found that using Instagram to keep up with and find out about others was a strong predictor of use. Coolness, or wanting others to think you are popular, was also an important factor in determining Snapchat use. This research supports the inclusion of both mediated and interpersonal motives when studying social media communicative effects. However, the inconclusive nature of the research suggests the following question:

RQ2: How do social media motives predict (a) social media use and (b) interpersonal communication competence?

Media Uses and Effects

Lastly, U&G proposes that individual traits and communicative motives will result in different media uses and effects (A. M. Rubin, 2009). Media use can include assessments of consumption, content, cognitive and affective processing, and dependency (A. M. Rubin & Windahl, 1986). Research on social media use is often conceptualized using multiple measurement strategies (Ellison et al., 2007; Marshall, Lefringhausen, & Ferenczi, 2015; Papacharissi & Mendelson, 2011; Ross et al., 2009). In this study, the authors focus on three primary use functions: consumption (frequency of use), affective processing (social media affinity), and social media dependency.

Frequency of social media use has been related to perceptions of interpersonal relational closeness and friendship tie strength (Ledbetter, 2009b; Ledbetter, Taylor, & Mazer, 2016). With respect to social media affinity, research demonstrates that Facebook affinity is positively related to individuals' bridging social capital perceptions (Ellison et al., 2007), as well as the need to escape from reality (Papacharissi & Mendelson, 2011). Dependency has been linked to both social media motives (e.g., Sheldon, 2008; Ferris & Hollenbaugh, 2018) as well as individual variables, such as self-esteem, conscientiousness, and agreeableness (Ferris & Hollenbaugh, 2018).

Furthermore, according to U&G, media use will lead to various outcomes (A. M. Rubin, 2009). Given that social media users can be motivated to develop new relationships and maintain existing ones (Papacharissi, 2009b), ICC is a plausible outcome that may be affected by social media use. Although ICC has not yet been directly linked to social media use or motives, the authors can borrow from existing literature in these areas to inform the current study's research questions.

In that ICC relies on knowledge and skills learned over a lifetime, social media platforms may provide a laboratory within which users can practice and hone interpersonal skills. For example, social media use has been linked to increases in adolescents' abilities to communicate empathy (Vossen & Valkenburg, 2016), as well as college students' effective self-disclosure (Hollenbaugh & Ferris, 2014, 2015; Zhang, 2017) and supportive communication skills (Oh, Ozkaya, & LaRose, 2014). In these social spaces, one might expect that people exhibiting competency would be rewarded through such mechanisms as comments, likes, shares, and friend requests, thus facilitating social learning (Bandura, 1986). However, given that this is a largely unexplored area of U&G research, it is also possible that incompetent interpersonal communication skills might also be learned (i.e., flaming (Hmielowski, Hutchens, & Cicchirillo, 2014), deception (Drouin, Miller, Wehle, & Hernandez, 2016), inappropriate self-disclosures (Morgan, Snelson, & Elison-Bowers, 2010), etc.). Thus far, the nature of the relationship between ICC and social media use is ambiguous. Therefore, another research question is posed:

RQ3: How does social media use (frequency, affinity, dependency) impact interpersonal communication competence?

In sum, the U&G theoretical perspective can provide a useful framework for examining how members of the 2DG utilize social media related to the outcome variable of interpersonal communication competence. As the theory predicts, individual's psycho-social characteristics will impact one's motivations leading to media use, which can then produce various effects. Therefore, the authors proposed the following research question to test this model (summarized in Figure 1):

RQ4: What are the effects of individual psycho-social characteristics, motives, and use in predicting interpersonal communication competence?

Figure 1. Proposed U&G model of social media and interpersonal communication competence
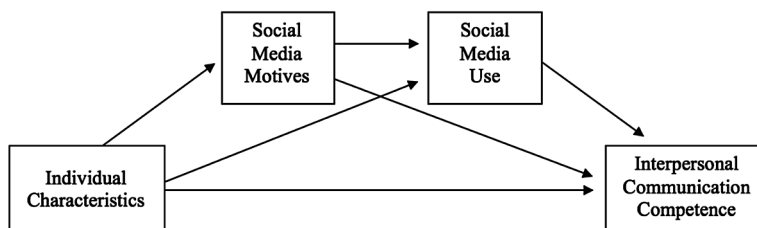
METHODS

Following approval from the lead author's Institutional Review Board, a cross-sectional study was conducted with online questionnaires to test the proposed research questions.

Participants

Study participants were recruited from a research pool of basic communication course students at a large Midwestern university. Criteria for participation included age (18-24 years old) and social media use (using at least one social medium at least once per month). The final sample included 373 students with an average age of 19.31 years ($SD = 1.24$). The sample was predominantly female ($n = 238$, 63.8%) and Caucasian ($n = 315$, 84.5%).

Procedures

Following informed consent, participants completed an online survey, composed through Qualtrics. This study utilizes a subset taken from a larger data set. Each scale used to measure variables in the model is described below.

Measures

Study variables were measured on 5-point Likert-type scales (1 = strongly disagree, 5 = strongly agree), unless otherwise indicated. Item responses in each (sub)scale were summed and averaged for each participant.

Social Capital

Williams' (2006) offline social capital scale was used to measure bonding and bridging connections in participants' offline lives. This 20-item scale includes 10 items in each subscale, measuring bonding and bridging social capital. Williams (2006) established the scale's strong reliability and construct validity. After dropping one reverse-coded item in the bonding subscale ("I do not know people offline well enough to get them to do anything important"), the scale was similarly found to be reliable with this sample (bonding $M = 3.91$, $SD = .62$, $\alpha = .83$; bridging $M = 3.99$, $SD = .59$, $\alpha = .89$).

Contextual Age

Participants' life satisfaction, interpersonal interaction, and social activity were measured through three subscales of A. M. Rubin and Rubin's (1982) contextual age scale. This scale has been supported in literature and has undergone rigorous testing (Bondad-Brown, Rice, & Pearce, 2012; A. M. Rubin & Rubin, 1986; Sheldon & Bryant, 2016). Five items, including "I am very content and satisfied in my life," measured life satisfaction ($M = 3.41, SD = .72, \alpha = .76$). One reverse-coded item from the interpersonal interaction subscale was removed to improve reliability, resulting in four total items, such as "I have ample opportunity for conversation with other people" ($M = 3.81, SD = .68, \alpha = .69$). Social activity contained five items (e.g., "I often travel, vacation, or take trips with others;" $M = 3.56, SD = .75, \alpha = .73$).

Social Media Motives

To measure motives for using social media, 41 items were adopted from previous social media motives research (Barker & Ota, 2011; Ferris & Hollenbaugh, 2018; Leung, 2014; Sheldon, 2008) and subjected to a three-stage exploratory factor analysis with Varimax rotation (Kim & Haridakis, 2009; Sun, Rubin, & Haridakis, 2008). In each stage, items that cleanly loaded on one factor with at least a .59 factor loading (less than .41 on any other factor) were retained for further analysis. The scree plot was consulted as well.

Following the first factor analysis with all 41 items, six factors emerged, explaining 61.76% of the variance in motives. Nine items were removed, and the remaining 32 were once again subjected to factor analysis with Varimax rotation. The same six factors emerged, explaining 66.02% of the variance in motives. Three items were removed, and maximal fit was achieved in the third stage when 29 items were entered into a final factor analysis. Using the same parameters as in prior stages, all 29 items were retained. This process revealed six factors (motives) with eigenvalues of at least 1. The final 29-item measure explained 67.04% of the variance in social media motives.

Companionship (eigenvalue = 9.86) explained 13.78% of the variance in social media motives. This factor contained six items measuring the use of social media because there is no one to talk to or to feel less lonely ($M = 2.72, SD = 1.01, \alpha = .89$). The second factor, *leisure* (eigenvalue = 3.78), contained six items explaining 12.95% of the variance in social media motives. Participants' motivated by leisure reported using social media as a part of their routine, to occupy their time, or because it is entertaining ($M = 4.19, SD = .67, \alpha = .86$). Five items measured participants'

use of social media for *information seeking* (eigenvalue = 1.99) about news events, products and services, and news that is not available in everyday life (*M* = 3.73, *SD* = .83, *α* = .84; 10.94% of variance explained). The fourth motive, *relationship maintenance* (eigenvalue = 1.46), explained 10.30% of the variance in social media motives. This factor was composed of four items measuring the use of social media to stay in touch with friends and other people one knows (*M* = 4.08, *SD* = .76, *α* = .87). Four items measured participants' *status-gaining* motive (eigenvalue = 1.29), which explained 10.04% of the variance in social media motives. Status-gaining is the use of social media to impress people and to be cool or fashionable (*M* = 2.73, *SD* = 1.03, *α* = .86). Participants who scored high in the four items measuring *virtual community* (eigenvalue = 1.07) reported they used social media to meet and interact with new people who are like them (*M* = 3.27, *SD* = .95, *α* = .85; 9.03% of variance explained).

Social Media Frequency of Use

Ledbetter (2009b) argued that when assessing media consumption related to CMC and interpersonal constructs, researchers should focus on use as a perceptual measure rather than a time-recall measure. Therefore, to assess the reported amount of social media use across all channels, participants reported how frequently they used various social media channels on a scale from 0 (never) to 5 (several times a day) (Ledbetter et al., 2016; Ponder & Haridakis, 2015). The four most popular social media channels among teenagers and young adults – Snapchat, Instagram, Twitter, and Facebook (Statista, 2017) – were assessed separately. A fifth category "other" was added, as well. Scores on these five items were summed and averaged, yielding an overall social media use score from 0-5 (*M* = 3.36, *SD* = 1.12).

Social Media Affinity

The six attitudinal items from Ellison et al.'s (2007) Facebook intensity scale, adjusted for general social media use, were adopted to measure social media affinity (*M* = 3.65, *SD* = .86, *α* = .88). These items included, "I am proud to tell people I'm on social media" and "I feel I am part of the social media community." Higher averaged scores indicate a stronger emotional connection of social media and integration into everyday life.

Social Media Dependency

Sun et al.'s (2008) 18-item Internet dependency scale, modified to fit the context, was used to measure social media dependency ($M = 3.47$, $SD = .69$, $\alpha = .92$). In this scale, participants reported how much they relied on social media to "keep up with world events," "gain insight into why I do the things I do," and "unwind after a hard day or week," for example.

Interpersonal Communication Competence

The 10 items in R. B. Rubin and Martin's (1994) interpersonal communication competence scale measured perceived competency in various interpersonal skills, such as self-disclosure ("I allow friends to see who I really am"), empathy ("I can put myself in others' shoes"), assertiveness ("When I've been wronged, I confront the person who wronged me"), and interaction management ("My conversations are characterized by smooth shifts from one topic to the next"). Other measured skills include social relaxation, altercentrism, expressiveness, supportiveness, immediacy, and environmental control ($M = 3.76$, $SD = .53$, $\alpha = .78$). This short form was chosen over other more detailed measures of interpersonal communication competence because of its usefulness as an overall assessment of interpersonal skill, as well as its integration into the functional model of communication that frames U&G.

Data Analysis

All of the study research questions were tested by examining results of a path analysis run through a series of regressions. First, six regressions were run on the psycho-social characteristics of social capital and contextual age predicting each social media motive (see Table 1). Next, three separate analyses were conducted, regressing each social media use measure on individual characteristics (step 1) and motives (step 2; see Table 2). Finally, the overall model was tested for direct effects through hierarchical regression. Social capital and contextual age were entered on the first step, followed by motives in the second step. Three social media use measures (frequency of use, social media affinity, and social media dependency) were entered on the last step. ICC served as the outcome variable.

RESULTS

In line with recent data collected on U.S. teens and young adults (Statista, 2017), the social media channels with the highest reported typical daily use for this sample included Snapchat ($M = 1.91$ hours, $SD = 2.67$), Instagram ($M = 1.75$ hours, $SD = 2.89$), Twitter ($M = 1.65$ hours, $SD = 2.91$), and Facebook ($M = 1.47$ hours, $SD = 2.51$). Facebook was the most commonly used social media in the sample, with 92.76% ($n = 346$) using it at least once per month.

Individual Factors

RQ1 explored the impact of social capital and contextual age on (a) social media motives, (b) social media use, and (c) ICC. Regressions reported in Tables 1, 2, and 3 were examined to test this RQ. Individual factors collectively explained a significant amount of variance in each of the six social media motives, with the most explained variance in companionship ($R^2 = .20$, $p < .001$) and the least in status-gaining ($R^2 = .12$, $p < .001$; see Table 1). Examining individual standardized betas in Table 1 reveals significant individual predictors. Participants with high bonding social capital were less motivated to use social media for companionship and to gain status, while those with high bridging social capital were more motivated by leisure, information seeking, and relationship maintenance. Regarding contextual age, participants were more motivated by companionship and leisure when their satisfaction in life was low. Social media users with high amounts of offline interpersonal interaction were more motivated to use social media for leisure, information seeking, and relationship maintenance. Finally, participants engaging in high amounts of offline social activity were more motivated to use social media for companionship, information seeking, status-gaining, and virtual community (see Table 1).

Results reported in Table 2 were examined to test RQ1b. Step 1 in the hierarchical regression, entering social capital and contextual age as predictors of social media use, contributed a significant amount of variance in frequency of social media use, $R^2 = .12$, $F(5, 367) = 10.31$, $p < .001$. Significant predictors in this step included bridging social capital ($\beta = .20$, $p < .01$), life satisfaction ($\beta = -.21$, $p < .01$), and social activity ($\beta = .25$, $p < .001$), although only life satisfaction emerged as a significant predictor after motives were added to the model (see Table 2).

Individual factors explained 10% of the variance in social media affinity, $F(5, 367) = 8.21$, $p < .001$. Although contextual age dimensions were significant predictors identified in Step 1 – life satisfaction ($\beta = -.16$, $p < .01$), interpersonal interaction ($\beta = .20$, $p < .01$), and social activity ($\beta = .18$, $p < .01$) – their effects were no longer significant once motives were entered into the model (see Table 2).

Table 1. Regressing social media motives on social capital and contextual age

Predictors	Companion-ship β	Leisure β	Information Seeking β	Relationship Maintenance β	Status-Gaining β	Virtual Community β
Bonding SC	-.20**	-.01	-.11	.04	-.30***	-.13
Bridging SC	.05	.23**	.32***	.22**	.12	.13
Life Satisfaction	-.42***	-.13*	-.06	-.08	-.10	-.12
IP Interaction	.06	.23***	.14*	.27***	.06	.10
Social Activity	.16**	.10	.15*	-.06	.30***	.31***
Model R^2	.20***	.16***	.17***	.14***	.12***	.13***

Note. All betas are standardized betas. $N = 373$.
*$p < .05$. **$p < .01$. ***$p < .001$.

Table 2. Regressing social media use on social capital, contextual age, and motives

Predictors	Frequency of Use β	SM Affinity β	SM Dependency β
Step 1			
Bonding SC	-.05	-.01	-.03
Bridging SC	.06	-.04	.31***
Life Satisfaction	-.17**	-.04	-.03
IP Interaction	.01	.08	.05
Social Activity	.11	-.01	-.04
Step 2			
Companionship	-.11	.04	.10
Leisure	.35***	.48***	.14**
Information Seeking	.17**	.12*	.25***
Relationship Maintenance	-.15*	-.12*	.00
Status-Gaining	.11	.24***	.07
Virtual Community	.18**	.13*	.14*
Model R^2	.33***	.53***	.45***

Note. All betas are standardized betas on the final step of the regression. $N = 373$.
*$p < .05$. **$p < .01$. ***$p < .001$.

Individual factors also explained a significant amount of variance in social media dependency, $R^2 = .23$, $F(5, 367) = 21.33$, $p < .001$. Bridging social capital ($\beta = .46$, $p < .001$), life satisfaction ($\beta = -.13$, $p < .05$), and interpersonal interaction ($\beta = .14$, $p < .05$) emerged as individual predictors in Step 1 of the hierarchical regression. However, only bridging retained its significance in the overall model, following the addition of social media motives (see Table 2).

To examine relationships between individual variables and ICC, the first step in the overall model test, presented in Table 3, was examined. Step 1 of the hierarchical regression revealed a significant effect of individual factors on ICC, $R^2 = .45$, $F(5, 367) = 56.46$, $p < .001$. In response to RQ1c, both bonding ($\beta = .22$, $p < .001$) and bridging social capital ($\beta = .26$, $p < .001$) were positively related to ICC; this relationship persisted even after the addition of media variables in the total model (see Table 3). Regarding contextual age, interpersonal interaction ($\beta = .18$, $p < .01$) and social activity ($\beta = .13$, $p < .01$) were significant predictors of ICC in Step 1. Likewise, their effects remained in the total model (see Table 3). However, life satisfaction was not a predictor of ICC ($\beta = .05$, $p = .27$).

Social Media Motives

RQ2 addressed the impact of motives on (a) social media use and (b) ICC. Results from Tables 2 and 3 were examined to address this question. Above and beyond the effects of individual factors, motives contributed a significant amount of variance in frequency of social media use ($\Delta R^2 = .21$, $p < .001$), social media affinity ($\Delta R^2 = .43$, $p < .001$), and social media dependency ($\Delta R^2 = .24$, $p < .001$). Leisure, information seeking, and virtual community motives were significant predictors of all three measures of use, such that participants more motivated for these reasons reported more frequency, emotional attachment, and reliance on social media to fulfill needs (see Table 2). Additionally, participants motivated to use social media to maintain existing offline relationships reported less frequency of social media use and less social media affinity. Those motivated by status-gaining expressed higher social media affinity (see Table 2). All of these findings were over and above the contributions of individual variables in the model.

In terms of RQ2b, the effects of Step 2 (social media motives) in the overall model, reported in Table 3, were scrutinized. The addition of social media motives following individual variables did not contribute a significant amount of variance, $\Delta R^2 = .02$, $p = .09$. Despite the lack of significance taken as a whole, one motive did emerge as a significant individual variable in Step 2 (companionship, $\beta = -.13$, $p < .05$). Participants using social media to compensate for loneliness in their offline lives also reported lower ICC scores. This effect was present in the final model, as well (see Table 3).

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Table 3. Regressing interpersonal communication competence on individual characteristics, motives, and social media affinity

Predictors	Interpersonal Comm. Competence
	β
Step 1	
Bonding Social Capital	.22***
Bridging Social Capital	.26***
Life Satisfaction	.01
Interpersonal Interaction	.15**
Social Activity	.13*
Step 2	
Companionship	-.13*
Leisure	.06
Information Seeking	.09
Relationship Maintenance	.04
Status-Gaining	.06
Virtual Community	-.01
Step 3	
Frequency of Social Media Use	-.05
Social Media Affinity	.12
Social Media Dependency	-.12*
Total Model R^2	.46***

Note. All betas are standardized betas on the last step of the regression. $N = 373$.

*$p < .05$, **$p < .01$, ***$p < .001$.

Social Media Use

RQ3 was posed to explore the relative effects of social media use on ICC. To test this RQ, data from Table 3 was consulted. Adding the three dimensions of social media use – frequency, affinity, and dependency – contributed an additional 1.3% of variance in ICC ($p < .05$). Social media dependency contributed this small, but significant explanatory power (see Table 3), such that individuals who were more reliant on social media to fulfill needs reported lower scores on ICC. This effect was unique over and above the effects of individual variables and social media motives in the model.

Overall Model Test

Researchers examined the results of the path analysis in total to respond to RQ4, which asked about the contributions of individual variables, social media motives, and social media use in participants' self-reported ICC. Together, the predictor variables account for 46.4% of the variance in ICC in the overall model, $F(14, 358) = 22.15$, $p < .001$. As discussed above, individual psycho-social characteristics entered on the first step accounted for 43.5% of the variance in ICC ($p < .001$). Adding motives in the second step did not contribute a significant amount of variance ($\Delta R^2 = .02$, $p = .09$), though the second model was significant overall, $F(11, 361) = 27.03$, $p < .001$. When three social media use variables were entered on the final step, they contributed an additional 1.3% of the variance in the outcome variable ($p < .05$). Significant standardized betas were identified on the final step to determine direct predictors of ICC (see Table 3). Figure 2 presents only the significant results of these analyses.

Four of the individual psycho-social characteristics were direct predictors of ICC. Participants with more bonding and bridging social capital, interpersonal interaction, and social activity reported higher levels of ICC. This set of variables contributed the vast majority of the variance in the model (43.5% of the total 46.4%). One motive

Figure 2. Model of significant indirect and direct predictors of interpersonal communication competence. Direct predictors of ICC include final betas on the last step of regression. See Tables 1-3 for other betas.
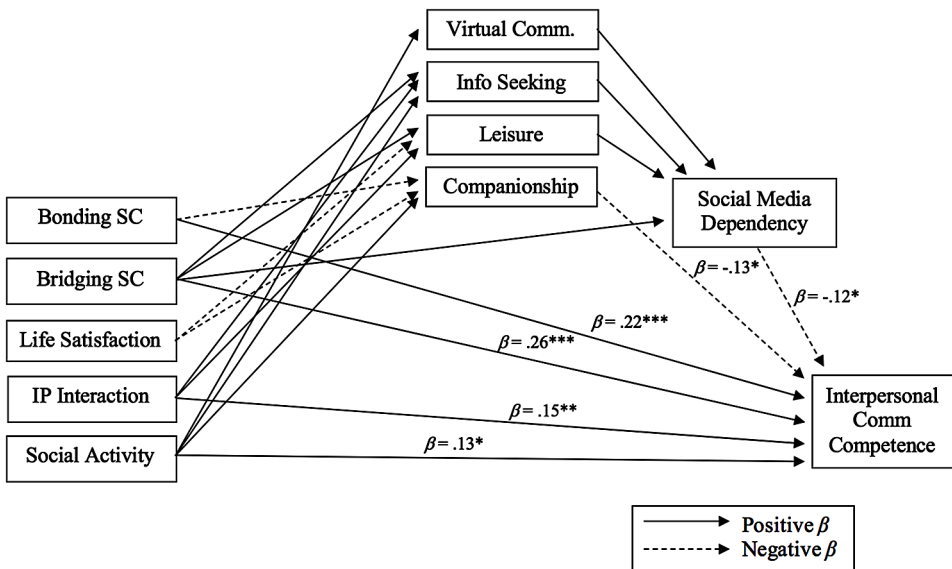
emerged as a significant predictor of ICC; specifically, participants who used social media for companionship, or to compensate for loneliness, reported lower levels of competence. Additionally, those who expressed more dependency or reliance on social media to fulfill needs reported less ICC.

Several indirect predictors of ICC emerged from examining results of the first stages of path analysis. Bonding social capital, life satisfaction, and social activity impacted ICC through the companionship motive. Namely, participants with fewer close relationships, lower life satisfaction, and less social activity were more motivated to use social media to compensate for loneliness, which then resulted in lower scores on ICC.

Three social media motives indirectly predicted ICC through social media dependency. Participants motivated by the need to fill their time and be entertained, seek information, and connect with a virtual community were more dependent on social media overall, which in turn negatively predicted ICC.

Finally, bridging social capital indirectly predicted ICC through social media dependency. Participants who reported higher bridging social capital and who were more dependent on social media scored lower in ICC. As outlined in Figure 2, bridging social capital served as both a direct and indirect predictor of ICC, though in different ways. This complex relationship will be further explored in the discussion.

DISCUSSION

The intent of this study was to uncover the potential impact of psycho-social characteristics, social media motives, and social media use on interpersonal communication competence (ICC) for members of the second digital generation (2DG). Pursuant to the assumptions of the U&G theory, individual psycho-social characteristics (offline social capital and contextual age) predicted the vast majority of the total explained variance in ICC. Participants reporting more strong- and weak-tie relationships in their offline lives, as well as more interpersonal interaction and social activity, also reported higher self-perceived ICC. These findings are unsurprising, given that the opportunities for interaction offline provide real-world practice for important ICC skills, such as emotional expression, self-disclosure, and conversation maintenance, which may translate into more competence in online communication (Hwang, 2011; Spitzberg, 2006; Wright et al., 2013). For individuals with many opportunities for quality FtF interpersonal communication, social media may serve as a social enhancement tool where the socially "rich get richer" (Valkenburg & Peter, 2007).

Along with social enhancement, a closer examination of the somewhat conflicting effects of bridging social capital and social activity deserve further exploration. Not surprisingly, participants with more weak-tie relationships offline (higher bridging social capital) also reported higher ICC scores. However, those with high bridging social capital who were also more dependent on social media reported lower ICC scores. Similarly, participants reporting higher levels of social activity also scored higher in ICC, above and beyond the contributions of all other study variables in the model. On the other hand, those scoring higher in social activity were more motivated to use social media to compensate for their loneliness (i.e., the companionship motive), which resulted in lower self-reported ICC. There appears to be one or more lurking variables unaccounted for in the model that split the sample in terms of their bridging social capital and social activity. Perhaps if there was a better understanding of the underlying individual factors driving participants' social activity, researchers might understand why for some this is a positive effect and for others, ultimately a negative effect on ICC.

Alternately, the answer may lie within the moderate to high correlations among independent variables in the study. Though bridging and bonding were highly correlated in the data ($R = .65, p < .001$), there may be a subset of people who have high bridging but low bonding social capital. They may seek out social activities to fulfill relational goals, as well as engage in more social media activities (expressed by the companionship motive and social media dependency). If those environments are unhealthy or unfulfilling, low ICC may result.

Although interpersonal factors were most influential in the model, the data reveal an important contribution that social media motives make for a subset of individuals. Specifically, young adults in this study who were drawn to social media for companionship reported lower levels of ICC. Path analysis showed that less bonding social capital and life satisfaction, but more offline social activity predicted the companionship motive. These individuals, lacking close relationships and satisfaction within their offline lives, may be reaching out to fulfill these basic needs through social media. Study results support the social compensation hypothesis, where people who have difficulty developing satisfying offline relationships turn to the Internet (Valkenberg et al., 2005); subsequently, these participants reported less competence in interpersonal communication skills.

A final contribution of this study to the social media literature is the employment of multiple measures of social media use. In most of the existing literature, social media use is measured by participants recalling how much they use social media as indicated by hours and minutes (e.g., Papacharissi & Mendelson, 2011; Ryan

& Xenos, 2011; Sheldon, 2008), frequency of use (e.g., Ryan & Xenos, 2011), or number of social media connections (e.g., Marshall et al., 2015; Sheldon, 2008). Others have added a measure of affinity, or attitude toward social media (e.g., Ellison et al., 2007; Ledbetter, 2009a). However, very few have considered dependency as a third dimension of media use as it was originally conceptualized by U&G scholars (A. M. Rubin & Windahl, 1986).

In the present study, all three measures of social media use were positively correlated with ICC by themselves, but only social media dependency emerged as a predictor of ICC. Additional social media motives indirectly predicted ICC through dependency, as well as bridging social capital. Participants drawn to use social media for leisure, information seeking, and virtual community were generally more dependent on social media for need fulfillment, leading to lower assessments of self-reported ICC. Though the effect sizes are relatively small, the fact that these media effects emerge when controlling for the more dominant impact of social capital and contextual age is telling. These results lend support for the inclusion of dependency as a viable media use measure. Measuring use in behavioral, affective, and cognitive ways could allow future researchers to further uncover more micro-level media effects as researchers continue to build a better understanding of the impact of new media in society.

LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

One limitation of this research is that personality factors were not assessed as individual characteristics. Personality factors have been shown to impact social media uses and effects (Hollenbaugh & Ferris, 2014; Ross et al., 2009; Ryan & Xenos, 2011) and may be meaningful in further explaining the findings of this study. For example, extroversion may impact one's motivations for using social media for interpersonal interaction and social activity, which may also relate to competence. Other factors such as communication apprehension or inhibition, which have been shown to affect the ICC of college students (Fenton, 1978), may also help explain the relationships between characteristics, motives, and use. Future research should continue to explore the various interpersonal characteristics related to motives and social media outcomes.

Additionally, with respect to interpersonal communication competence, it is possible that ICC could be an outcome conceptualized in the present study and a predictor of motivations for use as well. Given that ICC can also be considered an

individual characteristic, the possibility that it could also drive one's choices for using social media and its use cannot be ruled out. According to A. M. Rubin and Windahl (1986), media uses and effects are exhibited within a systems perspective, whereby societal functions, individuality, media use, and effects are interconnected. Future research could further examine this interconnectedness.

The present study did not assess the content factors of use that may play an important role in ICC. It would be fruitful to examine the content of social media posts to determine what types of competent (or incompetent) communication is occurring within this medium. If the content individuals are posting and/or reading exhibits effective communication skills, it may be possible that ICC skills can be enhanced through social media use. Conversely, if one's posting abilities are incompetent, or users are consistently exposed to incompetent content, interactions in the social media environment may negatively shape the ability to communicate interpersonally.

Lastly, research on other generations will allow a comparative analysis of this study's results. Though members of the 2DG receive much attention in the popular press as concern is expressed over how immersion in social media might impact young adults' communication skills, it would be interesting to see if social media impacts ICC for middle aged and older adults as well. Members of the first digital generation, as well as digital immigrants, matured into adulthood before social media were available, and therefore we may not see the same impact of social media on ICC.

CONCLUSION

In sum, this study presented a theoretical test of the uses and gratifications theory related to a largely unexamined outcome variable, interpersonal communication competence. Results showed interesting relationships between individual psycho-social characteristics of social capital and contextual age related to social media motives and use. Dependency also emerged as a potential fruitful method of measuring social media exposure. Future research should continue to explore the role of social media in both online and offline interpersonal communication competence. Studies should examine additional psycho-social factors that may impact this relationship, as well as the content of social media to determine what skills are being learned through social media. As future generations are further socialized in the social media environment, it is important to continue to examine how this pervasive communication technology impacts users.

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KEY TERMS AND DEFINITIONS

Contextual Age: Individuals' position in life relative to their life satisfaction, interpersonal interactions, and level of social activity.

Interpersonal Communication Competence (ICC): How effectively individuals can navigate communicative interactions to achieve specific goals through the use of interpersonal communication. Someone with a high degree of ICC will be more likely to achieve communicative goals than someone with a low level of ICC.

Motives: What drives social media users to engage with a specific medium. Common motives for using social media include: communicating with friends, to alleviate boredom, for entertainment, to meet new people, and to relieve loneliness.

Path Analysis: A robust statistical test utilizing a series of linear and hierarchical regressions that reveals the collective variance explained in the outcome variable by a set of predictor variables, as well as direct predictors and indirect predictors, mediated by other predictor variables.

Second Digital Generation (2DG): People born in the 1990s and more recent who are natives to social media.

Social Capital: Access to and utilization of social networks for beneficial outcomes.

Social Media Dependency: How reliant users are on social media to fulfill specific needs.

Uses and Gratification Theory (U&G): A theoretical perspective that examines why and how users engage with media to fulfill specific needs or achieve specific goals, based upon their psychological characteristics, social factors, and motives.

Chapter 7
Factors Related to Phone Snubbing Behavior in Emerging Adults:
The Phubbing Phenomenon

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ABSTRACT

Smartphones are a fundamental part of emerging adults' life. The aim of this chapter is to determine which factors play a role in "phubbing" during emerging adulthood as well as to propose and test a model of this phenomenon. We tested a model of relations between phubbing, self-esteem, self-control, well-being, and internet addiction. The following measures were used: the Rosenberg Self Esteem Scale, the Brief Self-Control Scale (BSCS), the Flourishing Scale, the Internet Addiction Scale, and the Phubbing Scale. The participants in the online study were 640 Italian emerging adults (526 females and 114 males), ranging in age from 18 to 29 (M = 21.7, SD = 2.18). The results showed that the model was well fitted, particularly in postulating that a decrease in the level of self-control is related to an increase in Internet addiction, that an increase in Internet addiction increases the probability of phubbing behavior, and that the level of self-esteem and well-being do not affect Internet addiction. Gender differences, in favor of males, occurred only in self-esteem.

INTRODUCTION

The Internet is an important part of our daily lives. It is a basic tool for finding information, social interactions, and the consequent construction of knowledge (Frozzi & Mazzoni, 2011; Mazzoni & Zanazzi, 2014). The evolution of the Internet has been accompanied by profound changes in the type of devices used to access it, including tablets, laptops, and smartphones. Web 2.0 has revolutionized the traditional ways of communicating, allowing easy access to an unprecedented amount of data and enabling the spread of news in real time (Kaplan & Haenlein, 2010). Millions of people have chosen to interact by means of virtual platforms such as blogs, social networks, chat, and e-mail rather than face to face, which generally requires more time and effort (Lee, 2014). Particularly the use of smartphones and mobile phones is an integral part of people's lives. In Italy, the number of smartphone users in 2018 was estimated at 33.3 million (Statista, 2018). Moreover, according to Pew Research Center (2015), 15% of Americans aged 18–29 are dependent on a smartphone for Internet access. According to Kempt (2015), smartphones account for more than 50% of active communication handsets worldwide. Thanks to their portability, smartphones tend to be preferred to computers for surfing the Internet and have become an integral part of people's daily lives (Jones, 2014; Oulasvirta, Rattenbury, Ma, & Raita, 2012; Roberts, Yaya, & Manolis, 2014). The possibility of being continuously connected increases the amount of the time spent online through mobile devices. Besides calling, texting, and basic Internet browsing, smartphones are used for online banking, seeking information about jobs, obtaining class materials or educational contents, and many other purposes (Blachnio & Przepiorka, 2018).

With the increasing number of smartphones, the benefits and side effects of using them should be discussed (Blachnio & Przepiorka, 2018). Researchers have become increasingly interested in the smartphone's potential for social interactions (Baron & Campbell, 2012; Campbell & Kwak, 2010; Choliz, 2010; Ha, Chin, Park, Ryu, & Yu, 2008, Khan, 2008; Lee, Chang, Lin, & Cheng, 2014). Some studies have suggested that smartphone use can be positive (connections are very important for receiving and sharing information; Smetaniuk, 2014), while others suggest that the use of social networking sites (SNSs) may lead to negative outcomes (Holmgren & Coyne, 2017; Steinfield, Ellison, & Lampe, 2008), which in turn may lead to Internet addiction. More and more people are developing problematic smartphone use, which gives rise to concern about the potential consequences of smartphone overuse (Beranuy, Oberst, Carbonell, & Chamarro, 2009).

This could be particularly relevant during emerging adulthood (Arnett, 2000; 2015), when the use of the smartphone and online connections is particularly important due to the residential changes typical of this life stage (Mazzoni & Iannone, 2014). Emerging adults' SNS use though smartphones happens when they are all together

(Holmgren & Coyne, 2017). In this regard, a new phenomenon related to smartphone use is emerging, called phubbing. The term "phubbing" has been derived from two words: "phone" and "snubbing," and means looking at one's mobile device during real conversations with another person (Karadağ et al., 2015). Because emerging adulthood is the age of exploration, change, and instability (Arnett, 2015), emerging adults are most at risk for phubbing behavior. Therefore, the aim of this chapter is to determine which factors play a role in phubbing during emerging adulthood (this includes testing for gender differences) as well as to propose and test a prospective model that will help explain this phenomenon.

BACKGROUND

Jeffrey Arnett (2004, 2006, 2012) first proposed a theory of emerging adulthood that covered the age range from 18 to 29, with a focus on ages 18 to 25. Arnett's theory centers around five characteristic features, which define emerging adulthood as:

1. **The Age of Identity Exploration**: Young people decide who they are and what they want from work, school, and love;
2. **The Age of Instability:** The post-high school years are marked by repeated residence changes, as young people go to university and live either with friends or with a romantic partner. For most, frequent moves end as families and careers are established around the age of 30 (in Italy, around the age of 34);
3. **The Self-Focused Age:** Free from parent(s) and the society-directed routine of school, young people try to decide what they want to do, where they want to go, and who they want to be with before these choices become limited by the constraints of marriage, children, and career;
4. **The Age of Feeling In-Between:** Many emerging adults say they take responsibility for themselves but still do not completely feel like an adult;
5. **The Age of Possibilities:** most emerging adults believe they have good chances of living "better than their parents did," and even if their parents are divorced they believe they will find a lifelong soul mate.

All these features begin to develop before emerging adulthood and continue to develop afterwards, but it is during emerging adulthood that they reach their peak (Reifman, Arnett, & Colwell, 2007).

Considering the characteristics listed above, emerging adults are at risk of feeling more insecure, having less self-control, and – as a result – feeling lower personal well-being (Galambos, Barker, & Krahn, 2006).

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An important aspect of emerging adults' life is related to their use of the Internet, particularly to build and maintain their social capital during their transitions (Ellison, Steinfield, & Lampe, 2007; 2011; Mazzoni & Iannone, 2014). However, the use of the Internet (especially the use of smartphones to be always connected), can lead to dysfunctional behaviors due to inverse instrumentality effects (Ekbia & Nardi, 2012), such as going to concerts or museums not in order to directly pursue one's interests but to share online photos of the events and receive positive feedback on their SNS profiles.

A further stage in the dysfunctional dynamics is phubbing behavior, as persons "snub" in-presence interactions to pay attention to online ones. One possible explanation for these results is that if individuals do not receive adequate social-support in daily life, they tend to create a parallel life to activate contacts and build relationships online in order to compensate for this shortage (Mazzoni, Baiocco, Cannata, & Dimas, 2016). Furthermore, low self-control leads to Internet addiction behaviors (Karadağ et al., 2015, 2016; Kim, Namkoong, Ku & Kim, 2008; Malouf et al., 2014; Mehroof & Griffiths, 2010; Tangney, Baumeister & Boone, 2004; Young, 1998) and manifests itself as mobile phone overuse (Kwon et al., 2013; Lopez-Fernandez, Honrubia-Serrano, Freixa-Blanxart, & Gibson, 2014; Salehan & Negahban, 2013; Smetaniuk, 2014). Phubbing also has an impact on interpersonal relationships and personal well-being (Roberts & David, 2017).

These patterns lead to many situations involving compulsive or impulsive online behavior (Baumeister & Heatherton, 1996; e.g., checking for, replying to, and sending updates, feedback, or text messages in SNS profiles for many hours per day), which in turn may predict phubbing. This concept has been defined as snubbing others in social interactions (Haigh, 2015; Karadağ et al., 2016), manifesting itself in individual behavior that consists in people looking at and using their mobile phone during a conversation with other individuals, thus escaping from interpersonal communication. Based on previous research concerning this behavior (Haigh, 2015; Karadağ et al., 2016; Blachnio & Przepiorka, 2018), it can be assumed that the factors that should be considered as potentially significant to phubbing include self-esteem, self-control, well-being, and Internet addiction.

PHONE SNUBBING BEHAVIOR DURING EMERGING ADULTHOOD: A THEORETICAL PERSPECTIVE

Phubbing is a multidimensional phenomenon, and it may occur during over the lifespan (Karadağ et al., 2015, 2016; Chotpitayasunondh & Douglas, 2016; Roberts & David, 2017; Blachnio & Przepiorka, 2018). In previous studies, researchers have highlighted different determinants of this behavior. Karadağ and colleagues

(2015; 2016) hypothesized that phubbing is a combination of five addictions: (1) mobile phone addiction, (2) SMS addiction, (3) Internet addiction, (4) social media addiction, and (5) game addiction. Moreover, Chotpitayasunondh and Douglas (2016) believed that phubbing could be a result of different addiction behaviors. In their research, they found that Internet addiction, fear of missing out, and self-control predicted smartphone addiction, which in turn predicted phubbing behavior and the extent to which people were phubbed. They also investigated whether the experience of being phubbed predicted the extent to which phubbing was perceived to be normative – i.e., whether it was normal for other people in a face-to-face situation to look at their smartphones and whether you could do it yourself without feeling judged or uncomfortable (Chotpitayasunondh & Douglas, 2016). Conversely, David, and Roberts (2017) explained this phenomenon as a result of three different factors: social exclusion, need for attention, and social media intensity. Their point of draws on the uses and gratifications theory (Katz, Blumler, & Gurevitch 1973; Chen 2011; Han et al., 2015) and on the optimal flow theory (Salehan & Negahban 2013). The uses and gratifications theory argues that people who use media satisfy particular needs (e.g., the need for attention from others). For example, in social situations after being phubbed, people feel excluded and desire consideration to feel included, so they look for attention on SNSs. The optimal flow theory argues that people's experience with SNSs (e.g., Facebook, Instagram, and YouTube) could be so enjoyable that users develop a very intense relationship. According to Soat (2015), receiving positive feedback (e.g., "likes" on Facebook) results in dopamine release similar to the rush we might get from an in-person hug or smile (Soat, 2015). These feelings could lead people to use SNSs more intensively in order to satisfy the need for attention so as not to feel socially excluded, even in the presence of others and when engaging in phubbing behavior. David and Roberts state "phubbing leads to individuals feeling excluded in person, and these feelings of being excluded in person lead to individuals intensely engaging with social media in hopes of receiving attention and gaining a sense of belonging." (David & Roberts 2017, p. 158). Finally, Blachnio and Przepiorka (2018) consider phubbing as resulting from communication disturbances and phone obsession. In their model, they explain that individuals with low self-esteem, high loneliness, and low life-satisfaction could be most at risk for overuse of SNSs (particularly Facebook) and to be obsessed with the use of their smartphones, which may result in phubbing behavior during face-to-face situations with other people.

Taking these perspectives into account, the researchers aim to add a different, integrative model and perspective, specifically designed for emerging adulthood and highlighting those factors, as antecedents of phubbing, that play a fundamental

role in this life stage: self-esteem, self-control, well-being, and Internet addiction. Drawing on the literature review, the model was developed to explicate factors and their links to phubbing behavior. The model is represented conceptually in Figure 1.

Emerging adults face numerous transitions and changes, which may affect different personal characteristics such as self-esteem, self-control, and well-being. As mentioned before, these affections could lead to an overuse of the Internet (Internet addiction). Valkenburg, Peter, and Schouten (2006) highlighted how the frequency of Internet use, particularly SNS use, indirectly affected self-esteem and psychological well-being. We agree with David and Roberts (2017) that the frequency of use is affected by the frequency of positive feedback (e.g., "likes" on Facebook or "re-tweets" on Twitter) which they received on their SNS profiles. Additionally, in another study, analyzing the relationship between social capital (i.e., the potential benefits of creating and maintaining interpersonal relationships), self-esteem, and the use of SNSs, it turned out that those who had low self-esteem were more driven to use Facebook to maintain social capital than those who had high self-esteem (Steinfield, Ellison, & Lampe, 2008; Mazzoni & Iannone, 2014). For instance, people preferred chatting, vocal messaging, to face-to-face interactions, because these relations are characterized by less harsh and more focused responses, less negative judgment, anonymity, as well as more expressive and uninterrupted communication (Walther & Boyd, 2002). According to LaRose, Linn, and Eastin (2003), compulsive or impulsive behavior (Baumeister & Heatherton, 1996), including online behavior (e.g., checking for, replying to, and sending updates, feedback, or text messages in online SNS profiles many hours per day), are marked by low self-control and play an important role in Internet overuse. As the capacity of employing self-control varies across individuals, those who find it more difficult are more likely to suffer negative consequences regarding emotional, social, and behavioral adjustment (Malouf et al., 2014). Thus, individuals start accessing the Internet to relieve boredom, reduce loneliness, or pass the time. These can be considered self-reactive incentives leading to a conditioned response that follows using the Internet to relieve negative mood states. Over time, this behavior evolves into a habit, and

Figure 1. Theoretical model of phubbing
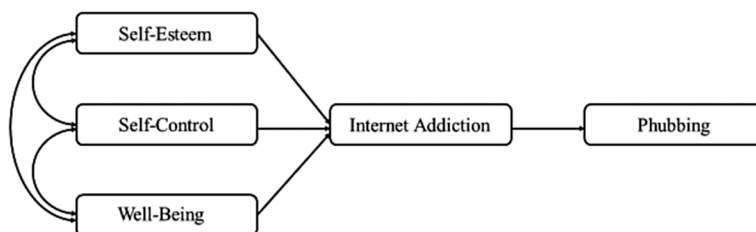
the impulse to be online becomes automatic. The more automatic the behavior, the less attention the individual pays to the self-regulatory mechanism (Bandura, 1991) and to the initial motivations that led them to be online. Derived from the above concepts and theoretical background, this study has two goals:

1. To test the following hypotheses using correlation analyses:
   a. H1. Self-esteem, self-control, and well-being are negatively associated with phubbing.
   b. H2. Self-esteem, self-control, and well-being are negatively associated with Internet addiction.
   c. H3. Internet addiction is positively associated with phubbing.
2. To test the fit of the model using structural equation modeling of the relationships between phubbing, self-esteem, self-control, well-being, and Internet addiction.

THE PHUBBING PHENOMENON: A STUDY ON ITALIAN EMERGING ADULTS

Method

Participants

The sample consist of 640 Italian emerging adults (526 females and 114 males), ranging in age from 18 to 29 (M = 21.7, SD = 2.18).

Materials and Procedure

The study uses a cross-sectional design (Shaughnessy, Zechmeister, & Zeichmeister, 2014). The participants completed the informed consent procedure and an online self-report questionnaire designed via Qualtrics software. The instrument was distributed online mostly through social media (mainly Facebook) and via email (voluntarily provided by the participants). The researcher has received approval from the Ethics Committee of Alma Mater Studiorum – University of Bologna. The questionnaire was prepared after careful evaluation of the existing instruments and was conceived to take account of a broad range of variables.

The questionnaire includes items related to demographic characteristics such as nationality, gender, age, type of occupation, and relationship status.

Measures

The main criteria for the choice of the scales were their validity, brevity, and theoretical background. All scales used were translated from English into Italian by the research team, since the study was targeted at Italian university students. Back translations were also performed to ensure the accuracy of the translation. A brief description of the research project, its purposes, and the reasons for students to participate in the study were presented at the beginning of the questionnaire. The questionnaire also included questions about the number of hours per day they used the Internet (on weekends and on weekdays), marital status, and the type of occupation. We decided to distinguish weekdays (Monday to Friday) from weekends (Saturday and Sunday) to verify whether there were differences between the days when people usually work and/or study and leisure time, which is usually Saturdays and Sundays. Despite the fact that the sample consisted of university students, the researchers decided to ask the participants about their type of occupation, because many student work. Finally, as affective relationships are very important during emerging adulthood (Arnett, 2015), we asked them about their marital status.

All the instruments used in this study were taken from the recent literature and had already been validated in other contexts. To assess face validity and eliminate the possible translation mistakes, the researchers had the survey examined by a small convenience sample. The indications given were used in redacting the final version of the survey. We tested the Cronbach's α reliability of the scales used in this study and found that they all had good reliability coefficients (α > .70).

Rosenberg Self Esteem Scale

Self-esteem was assessed by means of the Rosenberg Self-Esteem Scale (Rosenberg, 1965), adapted into Italian by Prezza, Trombaccia, and Armento (1997). Well-known in literature, this instrument consists of 10 items rated on a 4-point Likert scale from 1 (strongly agree) to 4 (strongly disagree).

Brief Self-Control Scale (BSCS)

The Brief Self-Control Scale, developed by Tangey, Baumeister, and Boone (2004) and re-validated by Maloney, Grawitch, and Barber (2012), is composed of 13 items rated on a 5-point Likert scale from 1 (not at all like me) to 5 (very much like me). The participants were asked to rate how well each item (e.g., "I am good at resisting temptation"; "I have a hard time breaking bad habits"; and "I never allow myself to lose control") related to them.

Flourishing Scale

The Flourishing Scale (Diener et al., 2009) consists of eight items rated on a 7-point Likert scale from 1 (strongly disagree) to 7 (strongly agree). The items describe important aspects of human functioning, ranging from positive relationships to feelings of competence and having a sense of meaning and purpose in life. All items are phrased positively (e.g. "I lead a purposeful and meaningful life"; "My social relationships are supportive and rewarding"). The total score can range from 8 (strong disagreement with all items) to 56 (strong agreement with all items).

Internet Addiction Scale

The Internet Addiction Scale, developed by Karadağ et al. (2015), was used to measure Internet addiction. It consists of six items (e.g., "The people around me say that I spend too much time dealing with the Internet"; "I spend time using the Internet more than I plan to"; "I can't wait to use the Internet if I don't have access to the Internet for a long time") rated on a 5-point Likert scale from 1 (never) to 5 (always).

Phubbing Scale

The Phubbing Scale was developed by Karadağ et al. (2015) and consists of 10 items (e.g., "My eyes start wandering on my phone when I'm together with others"; "I am always busy with my mobile phone when I'm with my friends"; "I feel incomplete without my mobile phone"). The items were rated on a 5-point Likert scale from 1 (never) to 5 (always).

Results

Descriptive Analyses

Results show that most emerging adults report being in a relationship (n = 344, 53.8%), while 46.3% (n = 296) report being single. Regarding types of occupation in the sample the vast majority of the participants were university students (n = 563, 88%); the second largest group were students who also worked during their university years (n = 60, 9.4%). The smallest group were those who worked but did not study (n = 5, 0.8%).

Turning on the time spent online on weekdays, the majority of emerging adults reported spending up to ten hours online per day (71.5%), while the others admitted to spending more than eleven hours online per day (28.5%). Finally, considering the time spent online on weekdays, most of the participants (more than on weekdays)

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spent up to ten hours online (78%), while others admitted to spending more than eleven hours online per day (22%).

The Relations Between the Variables
Analyzed, Gender, and Marital Status

The first purpose of the present study that was to investigate the correlations between self-esteem, self-control, well-being, Internet addiction, and phubbing. Table 1 shows the correlations among these variables.

It should be noted that there was a negative correlation between self-esteem, self-control, well-being, and phubbing, as well as between these variables and Internet addiction, which was positively associated with phubbing. Moreover, an interesting result derives from a comparative analysis between females and males in terms of all the variables discussed in the previous section (Table 2).

Table 1. Time spent online on weekdays

Variables	*M*	*SD*	1	2	3	4
1. Self-Esteem	29.3	6.73	(.90)			
2. Self-Control	41.8	8.77	.34** (.82)			
3. Well-Being	42.0	7.82	.66**	.43** (.86)		
4. Internet Addiction	2.22	0.68	-.22**	-.36**	-.27** (.71)	
5. Phubbing	2.60	0.58	-.12**	-.26**	-.13**	.59** (.74)

Note. ** $p < .01$ * $p < .05$ Cronbach's alpha values are showed in brackets.

Table 2. ANOVA between variables and gender

Variables	Females	Males	*F*	*p*
Self-esteem	28.9 (6.82)	31.2 (5.94)	11.7	.00*
Self-control	41.9 (8.95)	41.3 (7.93)	.42	.52
Well-being	41.9 (8.03)	42.7 (6.81)	.95	.33
Internet addiction	2.23 (.69)	2.13 (0.62)	2.40	.12
Phubbing	2.59 (.58)	2.48 (.61)	3.54	.06

Note. ** $p < .01$; * $p < .05$. Standard deviations are showed in brackets below the means.

The results do not show differences between females and males, except for self-esteem, on which males scored higher than females did. This result is not a novelty, since it probably argues that the same difference normally found in adolescence could continue into the early period of emerging adulthood (Quatman & Watson, 2001; Robins, Trzesniewski, Tracy, Gosling, & Potter, 2002; Orth, Trzesniewski, & Robins, 2010).

Finally, Table 3 shows a comparative analysis performed to verify if there are differences in the relations between the variables considered (self-esteem, self-control, well-being, Internet addiction, and phubbing) depending on marital status.

The results show that the people who are in a relationship have significantly higher self-esteem and well-being compared to those who are single. Self-control is higher in those who are in a relationship, while Internet addiction is higher in those who are single. Finally, phubbing is higher in those who are in a relationship than in singles.

Model Test

The second purpose of this chapter was to test the model using structural equations for interrelations between the variables. Using structural equation modeling, the authors tested the theoretical model (Figure 2) of relations between self-esteem, self-control, well-being, Internet addiction, and phubbing.

To test the structural equation model, we used IBM SPSS Amos 25. The values of RMSEA should be lower than .08 to indicate that the model is well fitted, and optimally they should be lower than .05 (Hooper, Coughlan, & Mullen, 2008). The

Table 3. ANOVA between variables and marital status

Variables	Marital Status		F	p
	Single	In a Relationship / Engaged		
Self-esteem	28.2 (6.76)	30.2 (6.58)	14	.00**
Self-control	41 (8.51)	42.5 (8.95)	4.27	.04*
Well-being	40.4 (7.95)	43.4 (7.45)	23.9	.00**
Internet addiction	2.28 (0.71)	2.16 (0.65)	4.34	.04*
Phubbing	2.52 (0.61)	2.62 (0.56)	5.13	.02*

Note. ** $p < .01$; * $p < .05$. Standard deviations are showed in brackets below the means.

Figure 2. The model of relations between the variables: test results
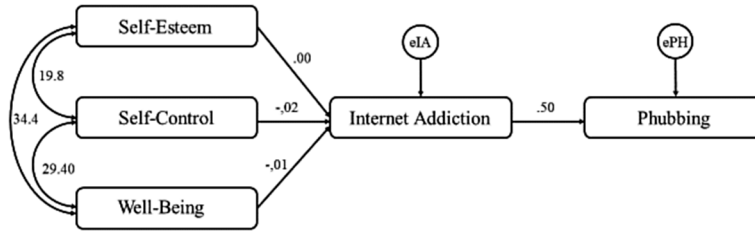
Table 4. Regression weights of the tested model

Dependent	Predictor	Estimate	SE	p
Internet addiction	Self-esteem	-.004	.005	.384
	Self-control	-.023	.003	< .001
	Well-being	-.010	.004	.022
Phubbing	Internet addiction	.505	.027	< .001

comparative fit index (CFI) should be higher than .90 for an acceptable model and equal to 1.0 for a perfect model (Hu & Bentler, 1998). The Tucker–Lewis Index (TLI) should range from 0 to 1: the higher the value, the better the fit (Schermelleh-Engel, Moosbrugger, & Muller, 2003). The goodness-of-fit indices demonstrated that the model was very well fitted to our data: maximum likelihood $\chi2$ = 6.44, df = 3, $\chi2$/df = 0.93, CFI = .97, TLI = .99, RMSEA = .04 [.01, .07].

As reported in Table 5, decreasing the level of self-control led to an increase in Internet addiction, and an increase in Internet addiction led to an increase in phubbing behavior, while the levels of self-esteem and well-being did not affect Internet addiction.

Table 5 shows the covariances between the predictors, with an increase in self-control, well-being, and self-esteem increasing the levels of both well-being and self-control.

Table 5. Covariances between variables

Covariance		Estimate	SE	p
Self-control	Well-being	29.3	2.95	< .001
Self-esteem	Well-being	34.4	2.49	< .001
	Self-control	19.8	2.46	< .001

DISCUSSION

The main goal of this study was to identify the factors (and their relations) that play a role in phubbing behavior during emerging adulthood. All the hypotheses formulated were confirmed. The correlation analysis and the model test allowed the researchers to gain a deeper understanding of the results obtained.

As regards the first hypothesis (H1. Self-esteem, self-control, and well-being are negatively associated with phubbing), the results show that if an emerging adult has low self-esteem, low self-control, and low well-being, he or she is more at risk of manifesting phubbing behavior in a face-to-face situation. As regards the second hypothesis (H2. Self-esteem, self-control, and well-being are negatively associated with Internet addiction), the results show that if an emerging adult has low self-esteem, low self-control, and low well-being, he or she is likely to exhibit Internet addiction behaviors. These results are strictly linked to those concerning the third hypothesis (H3. Internet addiction is positively associated with phubbing). The results show that Internet addiction could lead to phubbing behavior. These patterns are partially confirmed by the model test. Self-esteem and well-being were not good predictors of Internet addiction. The only significant predictor was self-control: it was related to Internet addiction, which in turn predicted phubbing behavior. This means that emerging adults are more at risk of manifesting phubbing behavior if they have a low level of self-control. One possible explanation of this can be found in the uses and gratifications theory (Katz, Blumler, & Gurevitch 1973; Chen, 2011; Han et al., 2015), and another explanation is provided by the optimal flow theory (Salehan & Negahban, 2013). In the light of the former theory, emerging adults feel excluded and they desire to feel included, which is why they look for attention on the Internet and SNSs. In the light of the latter, their enjoyment derives from SNS activity (or Internet use in general). This attitude leads to dopamine release similar to the rush one might get from an in-person hug or smile (Soat, 2015). Thus, emerging adults are pushed to use SNSs more intensively on order to satisfy the need for attention and in order not to feel socially excluded, even when they are in the presence of others – and this could be phubbing behavior. The most interesting results of the comparative analysis is the higher score on phubbing in those who are in a relationship compared to singles. A possible explanation lies in the fact that when a couple spend time together both partners look at the smartphone, which represent a barrier to meaningful communication, causing conflict, lowering relationship satisfaction, and undermining individual well-being (Krasnova, Abramova, Notter, & Baumann, 2016).

To the best of our knowledge, this study is the first to examine the determinants of phubbing in the emerging adult population, but it has certain limitations. Firstly, the design was cross-sectional and does not make it possible to draw conclusions

about causality. A longitudinal study would afford a better insight into problematic Facebook use and the development of phubbing. Secondly, the sample was not homogeneous: it represented mostly university students. This could make the findings difficult to generalize, but given that the researchers are referring to emerging adults, this could also be a positive aspect, since university students represent the group that Arnett and Schwab (2012) call younger emerging adults. Finally, the data were collected online by means of a snowball procedure, which is not free from bias (Tyrer & Heyman, 2016). Although we collected the data with these disadvantages in mind, other research has shown that this procedure is valid (Meyerson & Tryon, 2003) and yields reliable results (e.g., Blachnio, Przepiorka, & Rudnicka, 2016). Despite these limitations, the present findings may have some important implications for emerging adult research. Further research is required to establish how mobile phone use and phubbing behavior may differ between women and men in their emerging adulthood.

A significant proportion of emerging adults use SNSs via the mobile phone in their everyday lives (Poushter, 2017). It is therefore increasingly important to consider the impact that SNSs have on the quality of social life – especially on phubbing behavior, of which still little is known. Moreover, based on the results of the present study, further research could address other aspects of the phubbing phenomenon, such as the difference between younger and older emerging adults (Arnett & Schwab, 2012). Additionally, this study provides the groundwork for researchers to investigate the effects of phubbing behavior on the quality of emerging adults' offline social interactions, especially the consequences that this behavior has on romantic relationships.

SOLUTIONS AND RECOMMENDATIONS

The Internet has revolutionized our lifestyles. New generation devices such as smartphones, mobile phones, and tablets allow users to be always connected; the Web represents a significant part of their daily life. These epochal changes bring with them questions about the potentialities and risks of the Web. As revealed by the results of the present study, online environments such as SNSs bring together known and unknown individuals in a networked web of communication that is propelled by individual and group-based motivations. Research on SNSs suggests that they can negatively influence human development (see Caplan, 2005; Davis, 2001; Young & Case, 2004), as illustrated by increased compulsive Internet use tendency (i.e., Internet addiction). On the contrary, the study by Barker (2009) has

found positive outcomes of SNS use, such as identification with like-minded others and enhanced well-being in individuals with low self-esteem offline (Stern & Taylor, 2007; Valkenburg & Peter, 2007).

The consequences of Internet use (particularly SNS use) remains a popular research topic. The motivations and predictors of specific types of SNS use require further research that will clarify which types of behaviors users engage in on the Internet. Specifically, emerging adults' use of SNSs (and the reasons behind it) could better explain phubbing behavior. By identifying the behaviors that predict Internet (both problematic and functional) and SNS use, researchers could move the field of psychology forward and test more coherent causal chains between predictors, behaviors, and consequences of emerging adults' computer engagement.

FUTURE RESEARCH DIRECTIONS

In future studies, researchers must clarify some of the concepts that have merely been touched on in this study. They should further explore the issues suggested by the theoretical perspectives and by the empirical results of the present study. To better understand the phubbing phenomenon, future research could be conducted in different cultural, social, and economic contexts to show how the variables considered in this study (self-esteem, self-control, well-being, Internet addiction) influence phubbing behavior in emerging adulthood. Moreover, gender, marital status, and type of occupation have not been taken into consideration as moderating variables. Further research could also explore how, and in what way(s), these variables could influence phubbing. Finally, considering that most of the literature on Internet addiction (including this study) is based on student samples, it would be important to analyze the situation in different segments of the population, as the results could differ significantly.

CONCLUSION

In summary, the aim of this study was to obtain a wide-ranging picture of how phubbing is determined by a combination of different psychological variables during emerging adulthood. The contribution of the presented research is twofold. Firstly, it has identified the determinants of phubbing (self-esteem, self-control, and well-being) through emerging adults' Internet addiction behaviors. Secondly, the study has more deeply explained the antecedents Internet use in a phubbing situation. More precisely, we tested a model of relations between self-esteem, self-control, well-being, Internet addiction, and phubbing. This model added a different point of view that

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has not been explained by the existing literature. The relations found while testing the model might shed light on the new social phenomenon referred to as phubbing and could inspire researchers conducting studies on emerging adults to consider testing the differences in phubbing between younger and older emerging adults.

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KEY TERMS AND DEFINITIONS

Emerging Adulthood: A life stage (which depends on culture, social environment, and the financial situation) characterized by exploration, instability, self-focus, feeling in-between, and possibilities.

Internet Addiction: Behavior characterized by excessive use of the Internet that leads to impairment or distress.

Offline Life: The set of actions a person performs and the set of relationships he/she has when he/she is disconnected from the Internet.

Online Life: The set of actions a person performs and the set of relationships he/she has when he/she is connected to the internet.

Phubbing: Behavior that consists in an individual looking at his or her smartphone during a real-life conversation with other individuals, avoiding interpersonal communication.

Self-Control: A measure of how effectively a person controls himself or herself and his/her actions.

Self-Esteem: A measure of how popular and successful a person perceives himself or herself to be in his/her social interactions.

Well-Being: A state characterized by health, happiness, and prosperity.

Chapter 8

Associations Between Dependency on LINE Text Messaging and Occurrence of Negative Emotions in LINE Group Chats

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ABSTRACT

This study examined associations between dependency on LINE text messaging and the times at which negative emotions occurred in survey participants in LINE group chats in two situations—when waiting for a response and when making others wait for a response. The main results of correlation analyses of dependency scores and times are as follows. While effects were not observed for dependency as a whole, strong effects of partial subscales were observed. That is, the higher the score of relationship maintenance, which is a subscale of dependency, the shorter the time it takes for negative emotions to occur. On the other hand, it was partially suggested that the higher the score of excessive use, which is another subscale of dependency, the longer the time for negative emotions to occur. This study proposes that it is necessary to break down each aspect of LINE text-messaging dependency when examining the impact of the dependency on the timing of users generating negative emotions in LINE group chats.

INTRODUCTION

People spanning several generations are now using smartphones and other mobile devices on a daily basis for communication (Faulkner & Culwin, 2005; Skierkowski & Wood, 2012). Currently, the leading smartphone communication tool in Japan is the "Chat" text messaging function of the Line mobile app (hereinafter, the function and app are collectively referred to as "Line"), which is particularly widely used by young people. In 2016, 79.3% of teens and 96.3% of people in their 20s used Line (Ministry of Internal Affairs and Communications, 2017). Unlike previous generations, which mainly relied on handwritten letters and emails, which are tacitly understood as a form of asynchronous communication, text messaging via smartphones and other mobile devices requires users to exchange messages—that is, to reply—with haste (Kato & Kato, 2015; Kato, Kato, & Chida, 2013).

Line has a function that allows the sender to see whether their message has been read by the recipient (i.e., that the recipient has opened the sender's message in Line); conversely, the sender can see that their message has not been read (i.e., that the recipient has not opened the sender's message in Line) when the "Read" notification is not displayed (Hoyle, Das, Kapadia, Lee, & Vaniea, 2017). The presence of this function, also known as "read receipts," on Line has given way to the naming of two phenomena: "unread/ignored," which is when a sent message has not been read (or has been read via means other than opening Line) and has not been responded to, and "left on read," which is when a sent message has been read, but has not been responded to. Line also has various other features, such as group chat—in which users can have simultaneous exchanges with multiple group members—and stickers, a new type of expressive image that can be sent and received. These features have diversified the forms of communication available to users, and are seen as benefits of using Line. However, they can also lead to various problems. One example is the negative emotions that occur when a user's message has been read but not responded to (Kato, Kato, & Ozawa, 2017). In other words, users have come to feel greater pressure to respond immediately after reading a received message than with email and other forms of communication (Kato, 2016). Furthermore, group chat-rooms result in more instances of unread messages and read messages without responses compared to individual exchanges because the application displays only the number of views; thus, the sender cannot identify who has read their message and who has not (Usuki, Kato, Ozawa, & Kato, 2018). This problem is one factor behind reports that using group chats leads to interpersonal conflict and bullying (Schreiber, 2015).

Because Line is a communication tool, its use can invoke in users the various emotions associated with interpersonal relationships. In addition, there are gender differences; for example, high school girls use communication applications more often than high school boys in Japan (Ministry of Internal Affairs and Communications,

2014). According to research on gender differences in interpersonal dependency and internet use among high school students, girls, who use Twitter and Line more frequently than boys, tend to seek their own stability through close emotional relationships with others, while boys tend not to engage in communication toward those ends (Inagaki, Wada, & Horita, 2017). There are also gender differences in dependency on the Internet (Kimbrough, Guadagno, Muscanell, & Dill, 2013; Weiser, 2000, 2001). Girls show a noticeable dependency on aspects related to communication, while boys show a noticeable dependency on aspects related to games and online videos (Ministry of Internal Affairs and Communications, 2014). According to research on gender differences in internet dependency and how it correlates with academic life skills among high school students, anxiety over text messages has a substantial impact on academic life skills among girls; that is, girls tend to pay so much attention to text messages that they cannot spend time away from their mobile devices, which produces a psychological dependency on them (Inagaki, Wada, & Horita, 2016). As these examples demonstrate, in research on communication applications, it is necessary to analyze gender differences or focus investigations on the genders separately. In that spirit, this research focuses on female university students.

The researchers have conducted several studies on the speed of responses in individual exchanges on Line and the time it takes for negative emotions to occur when responses are not immediately forthcoming. The following are some prominent findings from that past research on Line response speeds. In one study, university students were asked open-ended questions about the response speeds they expected on Line (Kato, Kato, & Ozawa, 2018). The results revealed that most senders expect the recipient to respond at a speed that is convenient to the sender, which could be one cause for the trouble surrounding the timing of responses on Line. In another study, the researchers investigated the amount of time female university students who sent messages to one or more of four types of recipients (family and relatives, romantic partners or interests, platonic friends, and older acquaintances) on Line spent waiting for responses until they experienced one or more of four types of negative emotion (sadness, anxiety, anger, and guilt) (Kato et al., 2017). With all types of recipients, the subjects experienced the four negative emotions in a significantly shorter amount of time when the messages were read without a response than when they were unread, and experienced anxiety when they did not receive a response on the same day from a recipient with whom they had a close relationship, even when the message was unread. In another study, which added the impact of the degree of dependency on Line to the above analysis (Kato, Kato, & Ozawa, in press), the researchers found that, with respect to the amount of time waiting for a response before negative emotions occurred, differences in dependency on Line were noted only with recipients who were not family members.

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The above findings pertain to exchanges between individuals on Line; detailed studies have not yet been conducted as to how user characteristics and other attributes relate to the occurrence of negative emotions on group chats, which has been found to lead to interpersonal conflict and bullying (Kato, 2018). Therefore, the researchers have little knowledge to apply to providing guidance on these matters in academic settings. In addition, in an effort to produce findings applicable in teaching and guidance in academic settings, the researchers focused on the recipients (i.e., the people who make the senders wait for a response)—who have not been examined in past research—as well as the senders, and comprehensively examined the occurrence of negative emotions caused by exchanges in group chats.

FRAMEWORK OF THIS RESEARCH

Text messaging services, such as that examined in this study, require users to respond quickly (Kato & Kato, 2015). Several studies have found that late replies are a direct or indirect factor in interpersonal conflict and bullying (Hoyle et al., 2017; Kato, 2016, 2018), with the read notification and group chat features playing a major role. The current study is interested in the individual differences in time until negative emotions occur as a factor in late replies when making others wait for a response and when waiting for a response in Line group chats. Kato et al. (in press) suggested that Line text-messaging dependency affects the time for negative emotions to occur in interpersonal communication (not group chats). However, according to Yoshida, Takai, Motoyoshi, and Igarashi (2005) and Igarashi, Motoyoshi, Takai, and Yoshida, (2008), this dependency scale consists of three sub-scales (emotional reactions, excessive use, and relationship maintenance), each measuring different aspects of the dependency. Yoshida et al. (2005) showed that of the three subscales, one is associated with extroversion and two are associated with neuroticism. Therefore, in this study, the dependency scale score is decomposed according to the three subscales, and each influence is confirmed. Because this study focuses on the occurrence of negative emotions in Line communication, it is obvious that the subscale "emotional reactions," which consists of items related to the movement and change in emotion accompanying the use of text messaging, is related to this occurrence. Accordingly, the data from this subscale was not used in the analyses.

OBJECTIVE

This study's objective was to study the occurrence of negative emotions in members of a Line group chat, both when they were waiting for responses and when they were making others wait for responses, to study the association of those emotions and traits with each of two subscales of Line dependency (excessive use and relationship maintenance). The researchers focused on the occurrence of two types of emotion—anxiety and guilt—in consideration of the pressure to respond that recipients feel when they make others wait for responses, and four types of emotion—anxiety, guilt, sadness, and anger—in consideration of how senders feel when they are waiting for responses. The negative emotions used in this study correspond to those in the researchers' previous study (Kato et al., 2017). The researchers also studied both senders and recipients in cases when messages were unread, and when they were read but not responded to.

METHODOLOGY

Participants

In November 2017, the researchers used the questionnaire method to conduct a study of 183 female university students (mean age 20.27 years, standard deviation 1.17) in the greater Tokyo area. The study participants had completed classes in information media and participated voluntarily after listening to and understanding an overview of the study and explanation of how the researchers would handle the data gathered. Each of the study participants was using Line on a daily basis; the median number of Line friends (referring to people with whom the participants exchange messages on Line) was 150, and the median number of groups was 33.

Questionnaire to Measure Time Until Negative Emotions Occur

The researchers asked the study participants to imagine that they belong to five groups that comprise different members, and to comment on the occurrence and timing of negative emotions in two situations. In the first situation, each participant was asked to describe whether and when they would feel anxiety or guilt if a member from each group sent a message requiring a response to all members at noon on a non-school day, and the participant was unable to respond, either leaving the message unread or reading it and not responding to it. In the second situation, each participant was

asked to describe whether and after how much time they would feel anxiety, sadness, anger or guilt when they sent a message requiring a response from all members of a group chat at noon, and half of the members failed to respond.

The researchers provided 27 options for the times at which these feelings occur: 25 different hours starting at 13:00 on the day the message was sent (and ending at 13:00 the following day), an option of "sometime after 13:00 on the following day," and an option of "did not occur." The five groups were as follows: the Family group, which includes family members and relatives (e.g., Lepp, Li, & Barkley, 2016; Vogl-Bauer, Kalbfleisch, & Beatty, 1999); the Romantic group, which includes the participants' significant others and individuals for whom they have romantic feelings (e.g., Morey, Gentzler, Creasy, Oberhauser, & Westerman, 2013); the Friends group, which includes close friends of the participants (e.g., Hall & Baym, 2012; Jin, 2013); the Seminar group, which includes classmates from seminars, fellow students from their majors, and the like; and the Older group, which includes supervisors at the participants' part-time jobs, older students in their clubs, and other individuals who are older than them. Note that the researchers chose these five groups based on the researchers' past research (Kato & Kato, 2015) and open-ended discussions with female university students in seminars taught by the researchers.

Questionnaire to Measure Line Dependency

To measure Line dependency, the researchers used an abridged version (15 items) of a text message dependency scale created by Yoshida et al. (2005) and Igarashi et al. (2008), and modified part of it to accommodate Line messages (the researchers obtained consent from the creators of the original scale to alter the content to create the researchers' own questionnaire). The researchers' Line message dependency scale uses questions from the original text message dependency scale except that "text messages" has been replaced with "Line messages." The scale comprises three subscales: emotional reactions, excessive use, and relationship maintenance. "Emotional reactions" is a measurement of emotional dependency on Line for communication, such as when a user feels sad after checking Line and seeing that a response has not arrived; "excessive use" is a measurement of dependency in terms of frequency and extent of Line use, such as a user using Line for hours on end; and "relationship maintenance" is a measurement of dependency in terms of Line's contribution to interpersonal relationships, such as a user's inability to communicate their true feelings to someone else without Line. The dependency questionnaire includes five questions for each subscale, and respondents choose their answers from a scale of 1 (definitely does not apply) to 5 (definitely applies).

Participants answered a Japanese version of this scale. As mentioned above, the data for "excessive use" and "relationship maintenance" but not "emotional reactions" was used in the analyses, which are as follows.

ANALYSIS 1: ASSOCIATION BETWEEN OCCURRENCE OF NEGATIVE EMOTIONS WHEN MAKING OTHERS WAIT FOR A RESPONSE AND LINE DEPENDENCY

The pressure to respond to Line group chat messages can cause members who make others wait for a response feel negative emotions (Okamoto, 2017). Analysis 1 focused on the times at which negative emotions occurred in participants who received messages from other group chat members that required a response, yet did not respond—that is, participants who made others wait for a response. In each of the two message statuses (Unread and Read) and the five groups (Family, Romantic, Friends, Seminar, and Older), the correlation coefficients between each score of the two subscales (excessive use and relationship maintenance) of Line dependency and the time at which anxiety and guilt occurs were calculated. In the calculation of the correlation coefficient, Spearman's rank correlation was used.

Correlations between dependency on Line text messaging and the time until negative emotions occur when making others wait for a response is shown in Table 1. First, in the relationship between the time to anxiety and the subscale "relationship maintenance," a significant negative correlation was found in the Unread status of the Romantic group, and in both statuses of the Family and Friends groups. There was no correlation in the relationship between the time to anxiety and the subscale "excessive use." No correlation was found in the Seminar and Older groups.

Next, in the relationship between the time to guilt and the subscale "relationship maintenance," a significant negative correlation was found in the Read status of the Friends group and in both statuses of the Family and Romantic groups. In the relationship between the time to guilt and the subscale "excessive use," only a significant positive (not negative) correlation was found in the Read status of the Older group. No correlation was found in the Seminar group.

When the results are summarized, significant negative correlations are often found in the subscale "relationship maintenance," whereas "excessive use" is hardly seen. For the Friends and Romantic groups, the higher the score for relationship maintenance, the shorter the time it takes for anxiety or guilt to occur. Also, in the Family group, the higher the score of relationship maintenance, the more likely

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Table 1. Correlations between dependency on line text messaging and the time until negative emotions occur when making others wait for a response

| Emotion | Group | Message State | Subscales of Line Dependency | | | |
| | | | Excessive Use | | Relationship Maintenance | |
			Correlation Coefficient	p	Correlation Coefficient	p
Anxiety	Family	Unread	-.047	ns	-.248	**
		Read	.011	ns	-.195	**
	Romantic	Unread	-.069	ns	-.225	**
		Read	-.052	ns	-.143	ns
	Friends	Unread	.052	ns	-.151	*
		Read	.010	ns	-.200	**
	Seminar	Unread	.138	ns	-.070	ns
		Read	.117	ns	-.033	ns
	Older	Unread	.117	ns	-.139	ns
		Read	.101	ns	-.112	ns
Guilt	Family	Unread	.083	ns	-.244	**
		Read	.074	ns	-.217	**
	Romantic	Unread	-.026	ns	-.218	**
		Read	.006	ns	-.163	*
	Friends	Unread	-.013	ns	-.119	ns
		Read	.047	ns	-.149	*
	Seminar	Unread	.141	ns	-.018	ns
		Read	.124	ns	.024	ns
	Older	Unread	.129	ns	-.124	ns
		Read	.164	*	-.047	ns

Note: Correlation coefficient = Spearman's rank correlation coefficient, $**p < 0.01$, $*p < 0.05$, ns = No significance

it is that anxiety and guilt will occur in a shorter time. On the other hand, in the Seminar and Older groups, dependency and the time until negative emotions occur were hardly seen. The only result that ran contrary to the overall trend was in the Older group, in which the higher the score for excessive use, the longer it will take for guilt to occur.

ANALYSIS 2: ASSOCIATION BETWEEN OCCURRENCE OF NEGATIVE EMOTIONS WHEN WAITING FOR RESPONSES AND LINE DEPENDENCY

Previous studies (Y. Kato et al., 2017; S. Kato et al., in press) have shown that in one-to-one Line text messaging, waiting for a reply can induce negative emotions. Analysis 2 focused on the times at which negative emotions occurred in participants who sent messages that required responses from other members in group chats and were awaiting responses from half the members of the group. In each of the two message statuses (Unread and Read) and the five groups (Family, Romantic, Friends, Seminar, and Older), the correlation coefficients between each score of the two subscales (excessive use and relationship maintenance) of Line dependency and the time at which anxiety, sadness, anger, and guilt occurs were calculated. In the calculation of the correlation coefficient, Spearman's rank correlation was used.

Correlations between dependency on Line text messaging and the time until negative emotions occur when waiting for a response is shown in Table 2. First, in the relationship between the time to anxiety and "relationship maintenance," a significant negative correlation was found in the Read status of the Friends group, the Unread status of the Seminar and Older groups, and in both statuses of the Family and Romantic groups. In the relationship between the time to anxiety and "excessive use," only a significant positive (not negative) correlation was found in the Read status of the Seminar group.

Next, in the relationship between the time to sadness and "relationship maintenance," a significant negative correlation was also found in both statuses of all five groups. There was no correlation in the relationship between the time to sadness and the subscale "excessive use."

In the relationship between the time to anger and "relationship maintenance," a significant negative correlation was found in both statuses of the Friends, Romantic, and Older groups. There was no correlation in the relationship between the time to anger and "excessive use." No correlation was found in the Family and Seminar groups.

In the relationship between the time to guilt and "relationship maintenance," a significant negative correlation was found only in the Unread status of the Family group. There was no correlation in the relationship between the time to guilt and "excessive use." No correlation was found in the Friends, Romantic, Seminar, and Older groups.

When the results are summarized, significant negative correlations are often found in the subscale "relationship maintenance," whereas "excessive use" is hardly seen. Furthermore, as the only result that ran contrary to the overall trend was in

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Table 2. Correlations between dependency on line text messaging and the time until negative emotions occur when waiting for a response

| Emotion | Group | Message State | Subscales of Line Dependency | | | |
| | | | Excessive Use | | Relationship Maintenance | |
			Correlation Coefficient	*p*	Correlation Coefficient	*p*
Anxiety	Family	Unread	-.048	ns	-.244	**
		Read	-.033	ns	-.183	*
	Romantic	Unread	-.125	ns	-.247	**
		Read	-.060	ns	-.216	**
	Friends	Unread	-.007	ns	-.098	ns
		Read	.033	ns	-.145	*
	Seminar	Unread	.124	ns	-.151	*
		Read	.160	*	-.090	ns
	Older	Unread	.063	ns	-.157	*
		Read	.091	ns	-.143	ns
Sadness	Family	Unread	-.023	ns	-.258	**
		Read	.004	ns	-.292	**
	Romantic	Unread	-.089	ns	-.271	**
		Read	-.024	ns	-.248	**
	Friends	Unread	-.033	ns	-.259	**
		Read	.039	ns	-.224	**
	Seminar	Unread	.077	ns	-.216	**
		Read	.114	ns	-.187	*
	Older	Unread	.072	ns	-.207	**
		Read	.059	ns	-.230	**
Anger	Family	Unread	.090	ns	-.166	*
		Read	.105	ns	-.066	ns
	Romantic	Unread	-.036	ns	-.296	**
		Read	-.045	ns	-.270	**
	Friends	Unread	.019	ns	-.220	**
		Read	.032	ns	-.207	**
	Seminar	Unread	.075	ns	-.103	ns
		Read	.070	ns	-.139	ns
	Older	Unread	.119	ns	-.147	*
		Read	.138	ns	-.148	*

Table 2. Continued

Emotion	Group	Message State	Subscales of Line Dependency			
			Excessive Use		Relationship Maintenance	
			Correlation Coefficient	p	Correlation Coefficient	p
Guilt	Family	Unread	-.057	ns	-.165	*
		Read	-.097	ns	-.107	ns
	Romantic	Unread	-.105	ns	-.110	ns
		Read	-.054	ns	-.095	ns
	Friends	Unread	-.094	ns	-.050	ns
		Read	-.051	ns	-.028	ns
	Seminar	Unread	.049	ns	-.033	ns
		Read	.032	ns	-.023	ns
	Older	Unread	.080	ns	-.018	ns
		Read	.026	ns	-.041	ns

Note: Correlation coefficient = Spearman's rank correlation coefficient, $**p < 0.01$, $*p < 0.05$, ns = No significance

the Seminar group, in which the higher the score for excessive use is, the longer it will take for anxiety to occur.

In all five groups, effects of "relationship maintenance" in Line text messaging dependency on the time to sadness were observed. That is, in any of the five types of groups, the higher the score for relationship maintenance, the shorter the time in which sadness occurs.

DISCUSSION

This study focused on the associations between dependency on Line text messaging and the times at which negative emotions occurred in participants in Line group chats. The main result is that effects were not observed for dependency as a whole, but were strongly observed for partial subscales. That is, the higher the score of relationship maintenance, the shorter the time it takes for negative emotions to occur. On the other hand, it was partially suggested that the higher the score of excessive use, which is one of the three subscales of dependency, the longer the time for negative emotion to occur. This study proposed that it is necessary to break down each aspect of Line dependency when examining the impact of dependency on the timing of users generating negative emotions in Line group chats.

According to Yoshida et al. (2005), excessive use is composed of items related to daily overuse of text messaging. Relationship maintenance is composed of items related to using text messaging as a complement or alternative to face-to-face communication. There are two possible types of text messaging dependencies: (1) "extroverted text messaging dependency," which is highly correlated with extroversion and social skills, involves active communication with other people, and has a negative impact on one's daily life by sending a large number of text messages, and (2) "neurotic text messaging dependency," which is characteristic of those who are not good at face-to-face communication and therefore use non-face-to-face, asynchronous text-based communication as an alternative (Igarashi et al., 2008). In other words, extroverted text messaging dependency corresponds to excessive use whereas neurotic text messaging dependency corresponds to relationship maintenance. Users with high "excessive use" scores frequently use Line text messaging (on a daily basis), are accustomed to this, and consequently do not mind slow replies. On the other hand, users with a high "relationship maintenance" score tend to overvalue response speed as an important non-verbal signal, and thus tend to worry about late replies.

Next, the types of groups are discussed. In this study, especially in the Friends and Romantic groups, the influence of dependency on the times at which negative emotions occurred was basically clarified. Of course, this effect is occasionally seen in the Family, Seminar, and Older groups, but generally the effect is smaller than in the Friends and Romantic groups. This tendency is more pronounced in situations in which one must make others wait for a response than in situations in which one is waiting for a response. The Family group is in principle a solid relationship (Synder, Li, O'Brian, & Howard, 2015; Williams & Merten, 2011), whereas Older groups, which may include supervisors at the participants' part-time jobs, older students in school clubs, and so on are generally more formally structured groups. On the other hand, in friendships and romantic relationships, each person is incentivized to build and maintain a good relationship (Murray, 1999; Reis & Shaver, 1988). Therefore, it is thought that in the Friends and Romantic groups, especially by making others wait for a response, the tendency to worry about the negative emotions that others may feel or the tendency to feel sorry for others is greater than in other groups. The influence of relationship maintenance, which tends to regard text messaging as an important tool for maintaining interpersonal relationships, can be seen in the Family group in particular. This influence may have been seen here because the Family has a higher density among members than do the Seminar and Older groups.

Finally, the types of emotions are considered. In situations in which one must make others wait for a response, the same influence of dependency was confirmed in this study for both anxiety and guilt. However, in situations in which one must wait for a response, the effects for anxiety and sadness were nearly the same in all five groups, but for anger the effect was significant only in the Friends and Romantic

groups. For the Friends and Romantic groups in particular, where efforts to maintain and build personal relationships are required, the higher the score of dependence is, the shorter the time to anger.

PRACTICAL SIGNIFICANCE

It is often pointed out that mental and physical ailments are caused by Internet-based media dependency and addiction (e.g., Grüsser, Thalemann, & Griffiths, 2007; Inagaki et al., 2016). For children and young students in particular, this dependency may cause sleep deprivation and disrupt learning activities (e.g., Inagaki et al., 2016; Li, Lepp, & Barkley, 2015). Excessive media consumption is often mentioned as an indicator of such dependency (e.g., Sapacz, Rockman, & Clark, 2016). Because such excessive use is relatively easy to observe, in educational settings, guidance is often given on this point. However, now that texting has become a common form of communication, it may be old-fashioned to view excessive use negatively.

The present study showed that "relationship maintenance," among other subscales of dependence, strongly influences the emergence of negative emotions in text-messaging communication. At the same time, it may be possible for individuals who overuse text messaging to better familiarize themselves with it and use it in a more healthy manner. In other words, based on this research, excessive texting may not always be viewed as a negative behavior.

LIMITATIONS AND FUTURE WORK

The survey participants in this study were all Japanese female college students. Also, the text messaging targeted in this study was a Line app that is widely used in East Asians countries such as Japan. However, other text messaging services exist, such as Facebook Messenger, that have group chats and read receipt functions. In order to generalize the findings, surveys including people of different races, genders, and generations are needed. Furthermore, it is necessary to examine other text messaging services in addition to Line.

This study considered the Seminar group as a formal chat group and showed that the influence of Line text-messaging dependency is generally not seen in this group. The Line group by class in high school and junior high school corresponds to this Seminar group. However, the group's cohesion, importance of relationships, and various other qualities are completely different between classes and seminars in university. In high school and junior high school, bullying often occurs in classes. Therefore, in class-based Line group chats, it is fully expected that the speed and

timing of responses will differ between the participants in this study on the one hand and junior high and high school students on the other hand. In order to recommend practices for schools to prevent cyberbullying and the like, it is will be essential to survey participants who are younger than the participants in this study.

In this study, the sizes of the five groups (number of members) were not predetermined, and the situations, including group size, envisioned in the questionnaire items were left to the imagination of each survey participant. However, considering the bystander effect, which is a classical finding of social psychology, group size is an important factor. In the future, consideration of group size will also be required.

Finally, the attributes of the sender of the message must also be considered, particularly in situations in which one must make others wait for a response. In other words, the occurrence of negative emotions may differ depending on whether the person waiting is the subject of romantic interest, someone the sender does not like, or a leader-like person.

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KEY TERMS AND DEFINITIONS

Communication Tools in Japan: Currently in Japan, communication tools that can be used with smartphones include mobile email, Twitter, and LINE. The most used social media in Japan is LINE, followed by Twitter and then Facebook.

Digital Immigrants: Digital immigrants are the generations preceding digital natives, who initially used traditional media before gradually adopting new information/communications technologies and services as they became available.

Digital Natives: Digital natives are born into an information/communications technology environment where the Internet, email, and mobile phones are commonly used.

LINE Application: LINE is an instant messenger that is similar to other internet-based messengers, such as WhatsApp, and is the most-downloaded social media/messenger application in Japan. The application was released in June 2011, following the Great East Japan Earthquake of March 2011, with the aim of creating an application where users can easily communicate even in the event of a disaster. In Japan, LINE has come to replace traditional mobile text messaging services (including SMS), especially among young people.

LINE's Read Receipt Status: LINE's read receipt function automatically informs the sender that the recipient has read the message.

LINE's Unread Receipt Status: LINE's unread receipt function automatically informs the sender that the recipient has not read the message.

Speed of Reply: Although LINE can easily exchange text messages, its users typically expect faster replies than with cell phone text messaging. In fact, the act of periodically checking one's smartphone for incoming messages happens daily.

Stickers: The sticker is a newer graphical element similar to emoji or emoticons that conveys emotional state, attitude, and opinion and is a small illustration that is sent in place of a message. The sticker originated as an attachment in LINE, but by 2013, Facebook Messenger was equipped with similar features, followed by Facebook timeline in 2014. In 2016, iMessage for iPhone added sticker functionality.

Section 3

Social Media and Mental Health

There are many concerns regarding the role of social media for mental health. The literature reviews and empirical studies included within this section discuss the impact (and lack of impact) of social media on mental health related constructs, including sleep, stress, subjective well-being, and self-esteem.

Chapter 9
Addicting Content, Blue Light, and Curtailed Sleep:
The ABCs of Social Media Use and Sleep

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ABSTRACT

Sleep is essential for physical and mental wellbeing, but many adults and adolescents do not get the recommended amount of sleep. Recently, studies have identified technology use as having negative impacts on sleep. This is concerning given that mobile technologies have permeated the lives of today's young adults and adolescents. First, the effects of social media use, both throughout the day and before bedtime, on sleep quantity and quality are synthesized. Second, the mechanisms through which social media use disrupts sleep, namely that 1) social media use displaces time spent sleeping, 2) that the content on social media is stimulating, and 3) that the blue light emitted by digital devices suppresses the production of melatonin, decreasing sleepiness are discussed. Third, the research designs and methods that were employed are explored. Fourth, future research directions are proposed. Finally, tips to improve sleep in the digital age are provided.

INTRODUCTION

Sleep is essential for physical and mental wellbeing. Not getting enough sleep is associated with a host of negative outcomes such as cardiovascular disease, obesity, diabetes, breast cancer, increased symptoms of depression, anxiety, and paranoia, impaired emotional empathy (i.e., the ability to experience emotions when observing others), memory, and cognition (Beihl et al., 2009; Chee & Chuah, 2007; Gangwisch et al., 2005; Guadagni, Burles, Ferrara, & Iaria, 2014; Haus & Smolensky, 2013; Hoevenaar-Blom et al., 2010; Kahn-Greene et al., 2007; Nishiura et al., 2010). Sleep deprivation also increases the risk of accidents on the road and in the workplace (Swanson et al., 2011; Williamson & Feyer, 2000). According to the National Sleep Foundation and the American Academy of Pediatrics, adolescents need 8-10 hours of sleep and adults need 7-9 hours per night, but nearly half of adolescents and one third of adults do not get the recommended amount (American Academy of Pediatrics, 2016; Liu et al., 2016; National Sleep Foundation, 2006; National Sleep Foundation, 2016). Concerns about sleep have increased in recent years, as the percentage of adults who do not get enough sleep has gone up (Knutson, Van Cauter, Rathouz, DeLeire, & Lauderdale, 2010). Given the prevalence of sleep deprivation and the severe consequences associated with it, addressing factors that affect sleep is crucial.

Several review articles have identified links between youths' electronic media use (e.g., watching television, using computers, playing electronic games, using mobile devices) and sleep (Carter, Rees, & Hale; 2016; Cain & Gradisar, 2013; Hale & Guan, 2015). Most studies that were included found that electronic media use was associated with reduced sleep and poor quality sleep. In the years since these reviews were published, many researchers have turned their attention to understanding the impacts of social media use on sleep quantity and quality, as social media has become pervasive among adolescents and young adults. In 2010, 72% of adolescents and 73% of young adults used social media. Those numbers have continued to rise and by 2018, 80% of adolescents had their own accounts and 88% of young adults used social media (Lauricella et al., 2016; Pew Research Center, 2015; Smith & Anderson, 2018). In 2015, 24% of adolescents reported going online almost constantly (Lenhart, 2015). In only three years, that number had nearly doubled to 45% of teens (Anderson & Jiang, 2018).

Social media platforms provide a never-ending stream of content for users, which may make putting down devices difficult. Currently, the most popular social media platforms among adolescents and young adults in the United States are Facebook, Instagram, Snapchat, Twitter, and YouTube (Anderson & Jiang, 2018; Perrin & Anderson, 2019). On these platforms, users can share messages, images, and videos with a group of friends or followers and can browse, comment, and like content posted

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by others. They can also browse through and respond to content from celebrities, sports teams, music artists, politicians, news outlets, and brands. Additionally, these platforms contain features that introduce users to content based on their preferences. For example, Instagram contains an Explore page where users can see pictures and videos that are similar to images they have liked and accounts they follow. YouTube contains an AutoPlay feature where a video that is similar to the one the user just watched begins to load immediately after the user finishes watching the first video. With all these features, users constantly have access to new content.

This chapter will begin by summarizing the research on social media use and sleep. The authors will discuss the ways through which social media use could affect sleep, the research designs and methods that were used, directions that warrant further inquiry, and will conclude by providing tips to improve sleep in the digital age.

IS SOCIAL MEDIA USE ASSOCIATED WITH SLEEP?

Sixteen articles that looked at whether social media use could be related to sleep quantity or quality were gathered. As the focus is on social media use, studies that looked at overall electronic media use, smartphone use, or computer use were not included. These studies were conducted with adolescents or young adults and they were primarily conducted in North America, Europe, and Australia. See Table 1 for more information about participants' backgrounds.

Social media use was measured differently across the studies. In some studies, researchers were interested in use throughout the day, while in others, researchers focused on use before bed or at night. Still, other studies captured dependence on social media, which was generally characterized by excessive use or desire to use social media platforms to the point that it interfered with relationships, responsibilities, and wellbeing (Atroszko et al., 2018).

Researchers were also interested in a range of sleep outcomes. These included sleep duration, overall sleep quality, sleep efficiency (i.e., the percentage of time spent sleeping while in bed), sleep onset latency (i.e., the amount of time it takes to fall asleep), difficulty falling asleep, the number of nighttime awakenings, nightmares, sleepwalking, early awakening (i.e., awakening before intended time), and daytime sleepiness.

Is Social Media Use Throughout the Day Associated With Sleep?

There is not enough evidence to suggest that social media use throughout the day is related to the quantity or quality of sleep. Four studies looked at whether social media use throughout the day is associated with sleep quantity. Only two of them found that adolescents who spent more time on social media during the day slept less (Sampasa-Kanyinga & Chaput, 2018; Twenge, Krizan, & Hisler, 2017). The other two studies did not find any relationship between social media use and sleep (Tavernier, Heissel, Sladek, Grant, & Adam, 2017; Tavernier & Willoughby, 2014). These conflicting findings may be attributed to the differences in the designs of the studies. The first two studies were cross-sectional, meaning that participants were asked about their social media use and sleep quantity at one time point. The other two were longitudinal; participants reported on their social media use and sleep quantity at more than one time point. See the "Capturing the Relationship between Social Media Use and Sleep" section below for a more detailed explanation on how to interpret these different research designs.

Three studies looked at whether social media use throughout the day was related to sleep quality. Again, the results were not conclusive. One study, which had a cross-sectional design, found that greater social media use was related to poor sleep quality (Levenson et al., 2016). However, a study that used a longitudinal design found that social media use throughout the day was not at all associated with more sleep problems (Tavernier & Willoughby, 2014). Finally, a study that used a cross-sectional design found that social media use throughout the day was not associated with sleep quality after taking into account participants' social media use at night (Woods & Scott, 2016).

Is Nighttime Social Media Use Associated With Sleep?

Before looking at whether nighttime social media use is related to sleep outcomes, it is important to note that nighttime use was defined differently across studies. Some studies asked participants about a specific duration of time before bedtime such as: "30 minutes before falling asleep at night", "the hour before intending to sleep", and "two hours before bedtime" (Harbard, Allen, Trinder, & Bei, 2016, p. 427; Levenson, Shensa, Sidani, Colditz, & Primack, 2017, p. 2; Orzech, Grander, Roane, & Carskadon, 2016, p. 45). One study specified a period of time (i.e., 2am-6am) that counted as late night social media use (Garett, Liu, & Young, 2018). Other studies, defined nighttime social media use more broadly. It was defined as the period of time "before bed" or the period "when you go to sleep" or "after you have gone to bed" (Arora, Broglia, Thomas, & Taheri, 2014, p. 241; Whipps, Byra,

Gerow, & Guseman, 2018). One study was more comprehensive, asking participants about their social media use "before bed," "in bed and intending to go to sleep," and "after bedtime" (Woods & Scott, 2016). There seemed to be little consistency in how participants' nighttime social media use was measured across studies.

Nighttime social media use does not seem to be associated with sleep quantity. Only one of four studies found an association between social media use before bed and quantity of sleep (Arora et al, 2014). Other cross-sectional studies found that social media use in the two hours before bed and social media use after going to bed were not associated with sleep quantity (Orzech et al., 2016; Whipps et al, 2018). Similarly, a longitudinal study did not find any associations between social media use in the hour before bed and sleep quantity on weekdays or during vacation (Harbard et al, 2016). Interestingly, social media use was related to later sleep onset latency on vacation days, but not on weekdays.

Evidence from four of the six studies that were reviewed suggests that nighttime social media use is related to poor sleep quality. Use before bed was associated with early awakening, difficulty falling asleep, and nighttime awakenings (Arora et al., 2014). Checking social media in the 30 minutes before bed was associated with sleep quality, problems with sleep, difficulty falling asleep, and whether sleep was refreshing (Levenson et al., 2017). Additionally, Twitter use during late night on weekdays was associated with poor sleep quality (Garett, Liu, & Young, 2018). Finally, social media use shortly before bed, in bed, and after bedtime were associated with poor sleep quality (Woods & Scott, 2016). The remaining two studies did not find associations between social media use after bed and sleep quality or nighttime awakenings (Orzech et al., 2016; Whipps et al., 2018).

Lastly, there is some evidence to suggest that waking up in the middle of the night to use social media is associated with daytime sleepiness. In a cross-sectional study, adolescents who reported that they almost always woke up to check or send messages on social media reported more daytime sleepiness than those who never did (Power, Taylor, & Horton, 2017).

Is Social Media Dependency Associated With Sleep?

Social media dependency, which is characterized by frequent use, unintentional extended use, and discomfort when unable to use, was associated with poor sleep quality in three cross-sectional studies. This was the case for both general social media dependency, and dependency on Facebook (Atroszko et al., 2018; Wolniczak et al., 2013; Xanidis & Brignell, 2016). These studies did not examine the impact of dependency on other parameters of sleep such as duration and sleep onset latency.

Does Age Matter?

The findings on social media use and sleep were consistent across age groups. For example, social media use at nighttime and social media dependency was related to sleep quality for both adolescents and young adults. Nevertheless, as social media platforms are also used by preadolescents and older adults, more research is needed for whether the relationship between social media use and sleep differs across a wider range of ages (Rideout & Robb, 2018; Smith & Anderson, 2018).

Concluding Thoughts

The research on social media use and sleep is messy and hard to interpret because of the differences in research designs. Some studies used longitudinal designs, but most used cross-sectional designs. Researchers also had slightly different definitions for nighttime media use. One of the conclusions that can be drawn from these studies is that social media use at night and social media dependency is associated with lower quality of sleep. However, it is unknown whether social media use and dependency causes poor quality sleep. There is also some evidence from cross-sectional studies that social media throughout the day is associated with the quantity and quality of sleep, but these findings were not replicated in longitudinal studies. Finally, social media use at night does not seem to be related to sleep quantity. As there is some evidence that social media use is associated with sleep, the mechanisms by which social media use could affect sleep are discussed in the next section.

HOW COULD SOCIAL MEDIA USE AFFECT SLEEP?

Social Media Use Displaces Sleep

Cain and Gradisar (2010) proposed three mechanisms by which electronic media use could affect sleep. The first is that using electronic media displaces the time people would have normally spent sleeping. According to this mechanism, social media use would affect sleep quantity, but not quality, as spending time on social media would replace time spent sleeping, but not cause nighttime or early awakenings. There seems to be some evidence for this mechanism as two studies have found a link between total social media use (not just before bedtime) and duration of sleep (Sampasa-Kanying et al, 2018; Twenge et al., 2017). Nevertheless, it cannot be concluded from these studies whether sleep was simply displaced or whether there were other factors that explained why high social media users slept less.

Social Media Content Is Stimulating

The second mechanism is that people interact with content that is mentally, emotionally, or physiologically stimulating on electronic media (Cain & Gradisar, 2010). For example, adolescents felt less sleepy and took longer to fall asleep after playing an intense shooter game than after watching a tranquil nature video (Weaver, 2010). Perhaps this mechanism could also explain the effects of social media use on sleep quantity and quality. Unlike the first mechanism, this mechanism only pertains to social media use before bed.

The evidence for this mechanism is stronger because it has been found that while social media use throughout the day is not linked with sleep quality, nighttime use is (Woods & Scott, 2018). Moreover, adolescents who spent more time on social media at night were more alert before bed, which then increased sleep onset latency and decreased sleep duration (Woods & Scott, 2018). In a study on cell phone use, people who were more dependent on their cell phones tended to ruminate or fixate on thoughts more, which then led to poorer quality sleep (Liu et al., 2017). It is possible that these findings generalize to social media use. After viewing their friends' posts on social media, people may ruminate on how their lives are not as exciting or fun as those of their friends (Feinstein et al., 2013). This may affect the quality of their sleep. However, to make a more compelling argument for this mechanism, research is needed on the types of content users access through social media and the effect different types of content can then have on sleep.

Blue Light From Electronic Devices Suppresses Melatonin

The first two mechanisms are not inherent to social media or even electronic media use. Other activities can displace time for sleeping; people who spent more time on socializing and leisure also spent less time sleeping (Basner et al., 2007). Other experiences that are mentally, emotionally, or physiologically stimulating, such as interpersonal conflicts, can also be associated with sleep disturbances (Brissette & Cohen, 2002). The third mechanism, however, is unique to digital devices. The third mechanism that was proposed by Cain and Gradisar (2010) is that the blue light or short wavelengths emitted by digital devices suppresses the production of the hormone melatonin, which is responsible for regulating the sleep-wake cycle. The production of melatonin induces sleepiness.

Studies thus far suggest that continuous exposure to blue light over long periods can suppress melatonin production. In one experimental study, young adults were asked to complete cognitive tasks and watch a film on a computer for five hours before bed (Cajochen et al., 2011). On one of the nights they used a regular LED computer screen, while on the other night, they used a non-LED screen that reduced

the amount of blue light from the screen. On nights when participants used the LED screen, melatonin production was delayed and reduced. Participants also reported feeling less sleepy when they used the LED screen. In another experimental study, melatonin production was reduced after participants used an iPad for two hours (Wood, Rea, Plitnick, & Figueiro, 2013).

Melatonin production did not seem to be impacted, however, when participants only used the iPad for an hour before bed (Wood et al., 2013). There were also no differences in sleep onset latency, sleep duration, and subjective sleepiness between adolescents who played games and watched videos for an hour on an iPad with regular settings and adolescents who played games and watched videos on an iPad with an app that filtered out the blue wavelengths (Heath et al., 2014). It seems then, that melatonin suppression occurs after more than one hour of digital device use.

There is some evidence for all three the mechanisms, but few studies have attempted to test these mechanisms against one another. One exception is an experimental study by Bowler and Bourke (2018), where the combination of the Facebook content they viewed (their own profile which would be more stimulating vs. a mock profile designed to be unappealing to young adults) and the lighting setting on their iPad (no filter vs. amber filter to block out the blue wavelengths) varied each night. For example, on the first night a participant would use an iPad without a filter to view their own profile. On the second night, they would use an iPad without a filter to view the mock profile. On the third night, they would use an iPad with a filter to view their own profile, and finally, they would use an iPad with a filter to view the mock profile on the fourth night. This study design allows for an understanding as to whether it was the blue light or the more stimulating content (i.e., the participant's own profile) that was responsible for poor sleep outcomes. Surprisingly, researchers found that not using the filter and viewing content that was more stimulating did not negatively affect sleep. This may have been because participants were only instructed to use Facebook for 15-30 minutes before bed, which may not have been long enough to make a difference. Interestingly, using a filter in conjunction with viewing content that was less stimulating was the best for sleep; sleep duration was higher, sleep onset latency was shorter, and daytime dysfunction was lower compared to the other days.

Experimental studies such as this can be very useful in helping explain the relationship between two variables. In the next section, the measures and study designs that researchers used to examine the relationship between social media use and sleep are discussed.

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HOW HAVE RESEARCHERS STUDIED SOCIAL MEDIA USE AND SLEEP?

This section presents an overview of the methods that have been used and methodological issues to consider for researchers who are interested in this topic.

Capturing Social Media Use

Most of the studies that were reviewed used self-report measures. Participants completed surveys on their typical social media habits. Unfortunately, participants are often inaccurate in their reporting. Adults tended to overestimate the number of texts they send and the amount of time they spent on Facebook (Boase & Ling, 2013; Junco, 2013). Young adults reported spending an average of 145 minutes per day on Facebook, when actual usage, as captured by an application that they installed onto their computers for a month, was only 26 minutes (Junco, 2013). Despite the stark difference, self-report estimates were moderately to strongly correlated with actual use[1,2]. Thus, while researchers may not be able to accurately capture the amount of the time participants spent on social media, they may still be able to distinguish between people who text frequently and people who text infrequently.

An alternative to self-report is to log participants' social media activity. In one study, researchers used Twitter's REST API to download participants' tweets over a three-month period (Garett et al., 2018). If participants had set their accounts to private, the researchers asked for temporary access. From this they were able to gather information about the frequency of Twitter use, the time when Twitter use occurred, and even the content of tweets. A similar method is to temporarily install an app onto participants' phones or computers that automatically logs all activity on the social media platform (Yau, Reich, Wang, Niiya, & Mark, 2018). In this study, the app logged information such as when participants used Facebook, how long they used it for, and the number of friends they sent messages to over the course of a week. The app was then uninstalled at the end of the week. Using log data is also less burdensome for participants because they do not have to recall and report their experiences.

There are many advantages to logging participants' social media use, but there are also many concerns about confidentiality. For example, researchers must consider whether to capture the identities of the people with whom participants interact. These people did not consent to be in the study. Researchers must also consider whether the content of posts or messages should be recorded. Again, even if participants consent, this may violate the privacy of their friends and family members. These concerns are especially critical when participants are under the age of 18.

Another concern with logging software is that participants may change their social media habits because they know that they are being recorded. One solution is to extend the length of the study so that participants have some time to get used to the software. After a while, participants may forget about the software and revert back to their usual habits.

Capturing Sleep

Participants' quantity and quality of sleep were also most frequently obtained through self-report. Among the studies reviewed here, the most commonly used measure was the Pittsburgh Sleep Quality Index or PSQI (Whipps et al., 2018; Wolniczak et al, 2013; Woods & Scott, 2016; Xanidis & Brignell, 2016). Participants are asked about their sleep duration, sleep disturbances, sleep onset latency, daytime dysfunction due to sleepiness, sleep efficiency, the use of medications for sleep, and subjective sleep quality in the past month (Buysse, Reynolds, Monk, Berman, & Kupfer, 1989). Researchers can report the items separately or create a composite sleep score. The PSQI is suitable for adolescents as well as adults. One limitation of the PSQI is that many of the items are measured on a categorical, rather than continuous scale.

Other surveys include the School Sleep Habits Survey, which was designed for adolescents, and the Patient-Reported Outcomes Measurement Information System (PROMIS®) Sleep Disturbance measure, which was designed for adults (Buysse et al., 2010; Wolfson et al, 2002). In some studies, researchers elected to only ask about one or two components of sleep. Examples include, "How satisfied are you with your sleep?" and "On an average school night, how many hours of sleep do you get?" (Atroszko et al., 2018; Twenge et al., 2017).

An alternative to self-report is actigraphy, where participants wear a device called an actigraph that records their movements (Ancoli-Israel et al., 2003). The device can then infer, based on the level of movement, whether the participant is awake or asleep. Actigraphs are typically worn on the wrist like a watch. They are unobtrusive, can be worn outside of a lab setting for weeks, and are cost effective (Ancoli-Israel et al., 2003). However, it can be difficult to obtain an accurate estimate of when participants fall asleep. One solution is for participants to record when they intend to sleep using the event marker function on the actigraph. Another solution is for participants to write down the time in a diary (Berger et al., 2008; Meltzer, Montgomery-Downs, Insana, & Walsh, 2012).

Two of the studies reviewed in this chapter used actigraphy (Harbard et al., 2016; Tavernier et al, 2017). Both used models of the Actiwatch by Philips Respironics and the accompanying Actiware software. The duration of the studies varied— from 3 to 21 nights (Harbard et al., 2016; Tavernier et al, 2017). Like with social media use, self-report estimates of total sleep time were higher than, but moderately to strongly

correlated with the estimates obtained through actigraphy (Lauderdale, Knutson, Yan, Liu, & Rathouz, 2008; Thurman et al., 2018).[3] The actigraphy and self-report data were also strongly correlated for sleep onset time[4] and sleep offset time[5], but they were only weakly correlated for sleep onset latency[6] and not correlated at all for number of nighttime awakenings and the amount of time spent awake after sleep onset (Thurman et al., 2018).

Major considerations when using actigraphy include creating clear instructions for participants regarding use of the watch, selecting the days of the week for the study to take place as sleep varies between weekdays and weekends, and determining the length of the study that would enable researchers to obtain the needed data without burdening participants (see Berger et al., 2008 and Meltzer et al., 2012 for a more detailed description of challenges and recommendations). Nevertheless, as wearable devices such as Fitbits and Apple Watches have become increasingly common, participants may not find actigraphs to be all that inconvenient.

Capturing the Relationship Between Social Media Use and Sleep

It is possible that the discrepancies in the findings on total social media use and sleep duration may be explained by the differences in study design. The studies that found that social media use was associated with less sleep used cross-sectional designs (Sampasa-Kanyinga & Chaput, 2016; Twenge et al., 2017). The studies that did not find an association between use and sleep used daily diary and other longitudinal designs (Tavernier & Willoughby, 2014; Tavernier et al., 2017). Thus, while it can be said that high social media users sleep less, it cannot be concluded that social media use *causes* less sleep within an individual. In this section, some of the different research designs that have been used in studies on social media and sleep are explored.

Cross-Sectional Surveys

Many of the studies reviewed in this chapter were cross-sectional and relied on surveys where participants thought back and reported their typical patterns of sleep and social media use. However, there are many limitations to surveys. One limitation is that participants' responses may be biased. It is difficult to accurately summarize behaviors that occurred over time (Shiffman, Stone, & Hufford, 2008). Participants may overreport events that stand out because they can be remembered more easily. For example, participants are asked on the PSQI to respond to questions about their sleep in the past month. Participants may remember the week of their midterm exams when they did not sleep much and woke up frequently from nightmares. They may

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then report poor sleep despite sleeping well for the rest of the month. Participants' recall can also be biased by their current experiences (Shiffman et al., 2008). Participants who slept poorly the past couple of days may find it easier to recall days when they did not sleep well than the days where they did. Finally, surveys that ask participants to summarize their experiences cannot capture fluctuations across a time period. College students' sleep schedules often vary depending on the day of the week and even through the course of the semester (Hawkins & Shaw, 1992; Pilcher & Ott, 1998). These nuances, which may be important in examining the impact of social media on sleep, would not be recorded.

Another limitation of cross-sectional surveys is that they do not enable researchers to determine the direction of effects. If a study with a cross-sectional design finds that there is an association between social media use and sleep, it could mean that using social media causes people to sleep less. Or it could mean that having trouble sleeping causes people to use social media more. People who have trouble sleeping may browse social media as a way to unwind before bed.

A third limitation of cross-sectional surveys is that they do not always capture factors that may explain the relationship between variables. This is known as omitted variable bias. For example, the association between social media use and sleep could be explained by a third variable, like anxiety. Adolescents who have anxiety spend more time on social media and also have more sleep problems (Fuller, Waters, Binks, & Anderson, 1997; Spoormaker & van den Bout, 2005; Vannucci, Flannery, & Ohannessian, 2017). In that case, sleep problems did not actually have anything to do with social media use. Sometimes, surveys fail to ask about these variables, which turn out to be important.

Daily Diaries

An alternative to asking participants to think back and summarize their experiences is to ask participants to write down their experiences daily for a period of time. This is known as the daily diary approach, because participants traditionally wrote their experiences down like they would in a diary (Bolger, Davis, & Rafaeli, 2003). Nowadays, participants can record their experiences through surveys sent to their mobile devices (Shiffman et al., 2008). This approach reduces the chance of inaccurate reporting because participants typically report their experiences throughout or at the end of the day, making it less likely that they would forget. This approach also helps eliminate the problem of omitting important variables because researchers compare participants against themselves rather than against other people. In other words, researchers compare the number of sleep problems participants have on days when they use a lot of social media against the days when they barely use social media.

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Conversely, in cross-sectional studies, researchers could compare the number of sleep problems for people with high social media use against the people with low use.

One of the main challenges of daily diary methods is participant compliance. In a study by Thurman and colleagues (2018), participants were asked to record the time they went to bed, the time it took for them to fall asleep, the time they woke up, the number of nighttime awakenings, and the amount of time they spent awake each day for 16 weeks. Compliance declined from 87% of participants at the beginning of the study to 66% at the end of the study. Participants also delayed completing their diary entries; in the beginning of the study, they completed their entries 1.77 hours after awakening, but by the end of the study, they were completing their entries around 2.66 hours after waking up. The time at which they completed their entries is important, because the agreement between data from actigraphy and from self-report was higher for participants who submitted their entries sooner after awakening. For longer studies, participant compliance may be higher when data is gathered from actigraphy, because it requires less effort. Although the compliance for self-report logs fell to 66%, the compliance rate for actigraphy remained at 95%.

Experiments

Researchers may consider using experimental designs where participants are randomly assigned to either use or avoid social media before bed. Experimental designs are the gold standard for eliminating unmeasured factors that may explain the relationship between variables. Experiments can also contribute to an understanding of why social media use affects sleep, by disentangling the different factors. For example, an experiment was used to determine whether it was the blue light emitted from the devices or the stimulating content that impacted sleep (Bowler & Bourke, 2018). In an experiment, it is possible to randomly assign some participants to use an iPad with the normal lighting settings, while assigning others to use a filter that blocked out the blue wavelengths. Some participants can be assigned to view more stimulating content (i.e., their own profiles), while others can be assigned to view content that is less stimulating (i.e., a researcher-designed profile tailored for a different age demographic). It is not possible to disentangle the different factors using surveys.

Finally, experiments enable researchers to determine the direction of effects. For example, if researchers want to see whether social media use before bed causes people to take longer to fall asleep, some participants can be randomly assigned to spend 30 minutes on social media before bed and others assigned to do something else. Researchers can then see if the participants who spent 30 minutes on social media took longer to fall asleep than those who did not.

Having discussed different research approaches, the authors now take a look at some of the questions about social media use and sleep that still remain.

WHAT QUESTIONS DO WE STILL HAVE ABOUT SOCIAL MEDIA USE AND SLEEP?

What Are People Doing on Social Media and Does It Matter for Sleep?

Young adults and adolescents use social media to develop and maintain relationships with family, friends, and romantic partners, seek health resources, pursue career opportunities, and engage in political activism (Anderson, Toor, Rainie, & Smith, 2018; Gentzler, Oberhauser, Westerman, & Nadorff, 2011; Lenhart & Duggan, 2014; Naslund, Aschbrenner, Marsch, & Bartels, 2016; Smith & Anderson, 2018; Yau & Reich, 2018). Given the wide range in purposes for using social media, it would be worthwhile to examine whether the associations between social media use before bed and sleep vary depending on the purpose of use. Some activities may be more stimulating than others.

Who Might Be More Likely to Use Social Media Before Bed?

The relationship between social media use before bed and sleep quality could mean that people who already have trouble sleeping spend more time on social media before bed. A theory known as the hyperarousal model of insomnia suggests that people with insomnia pay extra attention to their attempts at falling asleep (Riemann et al., 2010). This actually makes the problem worse. They may then develop poor sleep habits that further exacerbate their insomnia. For example, they may use social media before bed in an attempt to wind down. A study published in 2006 indicated that over half of adolescents use music and over a third use television to help them fall asleep (Eggermont & Van den Bulck, 2006). Given the increase in ownership of mobile devices, which can be easily placed bedside, it is possible that even more people rely on media as a sleep aid. In a more recent study, college students reported accessing social media before bed to "relax or debrief for the day" (Mark, Wang, Niiya, & Reich, 2016). Thus, adolescents and adults who already have trouble sleeping may inadvertently spend more time on social media as they try to fall asleep.

People who are anxious about missing out on rewarding experiences, such as being included in fun activities with friends and understanding inside jokes, may also be prone to experiencing disrupted sleep. A college student described losing sleep because she would stay on social media past her bedtime if she were in the middle of a good conversation (Adams et al., 2017). Indeed, adolescents who were more afraid of missing out spent more time on social media (Scott & Woods, 2016). This then led to later bedtimes and less sleep.

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Finally, people who are less confident in their ability to control the environment around them and the outcomes of their behaviors may spend more time on social media before bed. Previous research has found that individuals who were less confident in their abilities to control the environment spent more time before bed on their cell phones, which then led to lower quality sleep (Li, Lepp, & Barkley, 2015). The same may be true of social media use before bed as individuals who feel less confident in controlling their environment may be more susceptible to scrolling mindlessly on social media.

When Might People Be More Likely to Use Social Media Before Bed?

Situational factors may also influence whether people use social media at night. For example, social media use before bed may change with relationship status. Adolescents and young adults report using social media to initiate and maintain romantic relationships, especially those that are long distance (Billedo, Kerkhof, & Finkenauer, 2015; Van Ouytsel, Van Gool, Walrave, Ponnet, & Peeters, 2016). For example, a college student who used Skype with her long-distance boyfriend regularly stayed up video chatting with him until they both fell asleep with their computers still on (Adams et al., 2017). It is possible that her social media habits would change if her boyfriend lived nearby and they were able to spend time face-to-face more frequently. Thus, there may be certain circumstances under which people are more likely to use social media at night. This is important because to reduce social media use before bed, it is important to first identify the factors that promote use.

Who Might Be More Affected by Social Media Use Before Bed?

Some people may be more affected by social media use before bed. For example, using social media before bed may be more harmful for adolescent girls than for adolescent boys. When using social media, adolescent girls were more likely than boys to worry about how their physical appearance compared to others' (Nesi & Prinstein, 2015). The content on social media may thus be more negatively stimulating for girls, making it harder for them to fall asleep.

Using social media before bed may also be more detrimental for people with depression. When viewing the social media profile of an attractive person, people with depression tended to experience greater jealousy and reductions in self-esteem than people who were not experiencing depression (Appel, Crusius, & Gerlach, 2015). Thus, viewing social media may be more negatively stimulating for people with depression and the extra worry may disrupt sleep.

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HOW CAN WE IMPROVE SLEEP IN THE DIGITAL AGE?

Although the exact impact of social media on sleep duration and quality is still unknown, research suggests that social media use at night is associated with lower sleep quality. There is also evidence that the blue light emitted from devices and the stimulating content on social media platforms impact sleep quality. Based on these findings, recommendations for improving sleep include minimizing extended screentime before bed and leaving devices outside of the bedroom. The third recommendation is to consider the reasons for using social media before bed because individuals' motivations for use may vary depending on personality and context.

Minimize Extended Screentime Before Bed

First, the authors recommend minimizing extended use of social media (and screentime in general) before bed because exposure to blue light for two or more hours can suppress the production of melatonin (Cajochen et al., 2011; Wood et al., 2013). Both Android and Apple devices are now equipped with features that help users minimize extended screentime before bed. One such feature on Google Pixel devices is called "Wind Down" (Google, 2019). After a set time determined by the user, calls and notifications are silenced and do not appear on the lock screen. Users can use "Wind Down" in conjunction with the "Night Light" feature, which reduces the amount of blue light emitted from the devices. An equivalent feature on Apple devices is the "Do Not Disturb Bedtime Mode," which silences calls and notifications after a user-determined time (Apple, 2018). The screen is dimmed and the lock screen is blacked out. Alarms are not silenced, however, and remain fully functional while phones are on "Do Not Disturb Bedtime Mode." Another built-in feature to help users manage use at night on iPhones and iPads is called "Downtime" (Apple, 2019). Individuals can set a time during which apps appeared grayed out on the home screen and cannot be accessed. Exceptions can be made so that some apps can still be accessed. Parents can also set up "Downtime" on their child's device to prevent use after a certain time. It should be noted, that some melatonin suppression occurred even when the Night Shift application on the iPad, which was designed to reduce the emission of blue wavelengths, was used (Nagare, Plitnick, & Figueiro, 2017).

Leave Devices Outside the Bedroom

An alternative to relying on these features, which can be bypassed, is to leave mobile devices outside of the bedroom. As many social media platforms are designed so that viewers can keep finding new content to scroll through, keeping mobile devices

away from the bed may prevent users from unintentionally spending more time on social media than intended. A study found that adults who felt more compelled to check cell phone notifications at night had poorer quality sleep than adults who felt less compelled to check (Murdock, Horissian, & Crichlow-Ball, 2017). Keeping the phone in a different room may help reduce the compulsion to check notifications. Users can also designate some time before bed to respond to messages or to browse social media, and then leave the device in a different room. Adults who participated in a study where they were instructed not to use their smartphones in their bedrooms even reported better communication with their partners (Hughes & Burke, 2018).

Adolescents, who tend to be more impulsive than adults, may especially struggle to leave a rewarding activity (e.g., chatting with friends on social media) for one that is less immediately rewarding (i.e., sleeping; Shulman et al., 2016). Adolescents are also more sensitive to what peers think, so teens may spend more time on social media because they are concerned about their online presence (Dumontheil, 2016).

Consider Reasons for Using Social Media Before Bed

Third, the authors recommend assessing the reasons for using social media before bed. This recommendation may especially be helpful for parents, counselors, or health care professionals trying to help their children or patients reduce their bedtime use. Some people may spend a lot of time on social media before bed simply because there is a lot of content to keep them engaged. Others may spend a lot of time on social media before bed because they do not want to miss out on what their friends are talking about. Still, others may have trouble sleeping for a different reason (e.g., anxiety) and use social media to pass the time as they try to fall asleep. Finally, some users may regularly use social media heavily, but others may experience a temporary increase in use. For example, adolescents or young adults who are interacting with potential romantic partners on social media may temporarily spend more time on social media as they make their profiles look more attractive, browse through their potential partner's profiles, and interact with their potential partner. Understanding the reasons for heavy social media use may help parents and counselors develop tailored strategies for improving the quality and quantity of their children's sleep.

Given the prevalence of social media use across the globe, understanding its impact on sleep is crucial in working to improve sleep and ultimately, wellbeing.

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KEY TERMS AND DEFINITIONS

Actigraph: A device that records movements and can be used to infer whether the user is awake or asleep.

Blue Light: Also known as blue wavelengths, blue light is part of the visible light spectrum. Blue wavelengths are between 400-490nm.

Cross-Sectional Study: A study where data is collected at one time point.

Early Awakening: Awakening before intended time.

Longitudinal Study: A study where data is collected at multiple time points.
Sleep Efficiency: The percentage of time spent sleeping while in bed.
Sleep Onset Latency: The amount of time it takes to fall asleep.

ENDNOTES

[1]   The correlation between self-reported Facebook use and actual Facebook use is .587 (Junco, 2013).

[2]   The correlation between self-reported texts sent and actual texts sent is .41 (Boase & Ling, 2013).

[3]   The correlations between self-reported sleep and actigraphy estimates are .45 (Lauderdale, Knutson, Yan, Liu & Rathouz 2008) and .62 (Thurman et al., 2018).

[4]   The correlation between self-reported sleep onset time and actigraphy estimates is .73 (Thurman et al., 2018).

[5]   The correlation between self-reported sleep offset time and actigraphy estimates is .77 (Thurman et al., 2018).

[6]   The correlation between self-reported sleep onset latency and actigraphy estimates is .1 (Thurman et al., 2018).

APPENDIX

Table 1. Participant demographics

Article	Country	Platform	Age	Gender	Ethnicity	Parental Income Status
Arora et al., 2014	United Kingdom	Not specified	Range: 11-13	54.5% male	42.9% White, 41.8% Asian, 5.1% Black, 4.2% Mixed race, 6% Other	Type of school was used as proxy for SES: 57.8% Secondary, 37.5% Grammar, 4.7% Independent
Atroszko et al., 2018	Poland	Facebook	M = 20.33 (SD = 1.68)	51.9% female, 47.2 male	Not reported	Not reported
Garett et al, 2018	United States	Twitter	M = 18	60.2% female	26.5% Asian, 11.6% Black (non-Hispanic), 29.3 Hispanic, 21.6% White (non-Hispanic), .6% American Indian, 6.1% Multiracial, 4.4 Other	Not reported
Harbard et al, 2016	Australia	Not specified	M = 16.2 (SD = 1)	47.26% male	Not reported	Not reported
Levenson et al, 2016	United States	Facebook, Twitter, Google Plus, Instagram, Reddit, Tumblr, Snapchat, Pinterest, Vine, Linkedin	Range: 19-32	50.3% female, 49.7% male	57.5% White, 13% Black, 20.6% Hispanic 8.9% Other	22.9% below $30k, 38.4% 30k-74K, 38.7% 75k and above
Levenson et al., 2017	United States	Not specified	Range: 19-32	50.1% female, 49.9% male	57.3% White, 13.2% Black, 20.7% Hispanic, 8.9% Other	22.8% below 30k, 38.6% 30k-74k, 38.7% above 75k
Orzech et al., 2016	United States	Not specified	1st year university students	48% male	Not reported	Not reported
Power et al., 2017	Wales	Not specified	Range: 12-15	67% male	95% White	Not reported
Sampasa-Kanyinga et al., 2018	Canada	Facebook, Twitter, Instagram, MySpace	Range: 11-20	51.4% male	58% White	67.4% High income
Tavernier et al, 2014	Canada	Facebook, MySpace, Twitter, Messenger	M = 19.01 (SD =.90)	71.5% female	Not reported	Not reported
Tavernier et al, 2017	United States	IM, Facebook, twitter	M =14.5 (SD = 1.84)	43.7% female	19.7% White, 19.7% Black, 22.5% Latino/Hispanic, 19.7% Mixed, 18.3% Other	Not reported
Twenge et al, 2017	United States	Not specified	8th, 10th, 12th graders	Not reported	Not reported	Not reported
Whipps et al., 2018	United States	Not specified	M = 18.7 (SD = .04); Range: 18-24	55% female	93.7% white	Not reported

Table 1. Continued

Article	Country	Platform	Age	Gender	Ethnicity	Parental Income Status
Wolniczak et al, 2013	Peru	Facebook	M = 20.1 (SD = 2.5)	77% female	Not reported	Not reported
Wood & Scott, 2016	Scotland	Not specified	Range: 11-17	Not reported	Not reported	Not reported
Xanidis & Brignell, 2016	United Kingdom	Not specified	Males: M = 26.11 (SD = 6.54) Females: M = 24.76 (SD = 6.37)	70.4% female	Not reported	Not reported

Chapter 10
Stress, Coping, and Social Media Use

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ABSTRACT

Social media has become a part of people's lives and many psychological processes are suggested to be related with social media use. This chapter examines social media use from a stress and coping perspective. Social media can be a stressor for users with the content of posts they see, with a fear of negative evaluation, as an unhealthy attachment to social media accounts, and as a result of cyberbullying. Social media use can also be a problem-focused coping as a source of information, an emotion-focused coping as a distraction, and a source of social support. Lastly, it can be a predictor or a part of well-being as well as a moderator or mediator between coping and well-being. After elaborating on social media use as a part of the coping process, implications for research and practice are discussed. The key points from a coping viewpoint are specified for users, parents, teachers, and professionals. While problematic use of social media can be part of dysfunctional coping and a worse well-being, healthy use can help individuals deal with stresses and lead to a better well-being.

INTRODUCTION

With the increase in the use of technological devices and the internet, social media use has emerged as a new way of communication in people's lives. Social media was defined as internet-based applications by which users generate and share content (Kaplan & Haenlein, 2010). With the advancements in technology and an easy access,

more and more people have moved their daily activities to online environments, including social lives. Different types of social media include social network sites, user generated content, trading and marketing sites, and game sites (Dijck, 2013). The focus of the present chapter is especially on social exchange and sharing activities via social media. To examine the use of social media, many psychological theories have been used in relation with certain psychosocial variables (Ngai, Tao, & Moon, 2015). The aim of the present chapter is to examine social media use from a stress and coping perspective. As an electronic form of communication, social media provides a social setting, with its challenges and opportunities. Therefore, it can be evaluated as both a source of stress, i.e. a threat to the person, and a coping mechanism, i.e. efforts against the threat, as elaborated in "Theoretical Background". Social media use can buffer the negative effects of stress when used as a healthy coping mechanism, for example as a source of social support. On the other hand, similar to other sources of stress and maladaptive coping mechanisms, it can be related to negative long-term consequences such as anxiety disorders, depression, or addiction. In other words, problematic use of social support can itself be an indicator of reduced well-being. Thus, social media use has been the focus of research investigating its relation with stress and coping variables.

Lazarus and Folkman's classical Transactional Model of Stress (1984) is utilized in this chapter as the theoretical framework for the role of social media. The theoretical model is introduced to provide the background for an analysis of social media use in relation with stress and coping. Then, social media use is explained as a part of each stage of the Transactional Model of Stress, that is, stress appraisal, coping, and well-being. Misuse of internet and social media; such as for harassing others, (i.e. cyberbullying), and use in excessive durations - as an addiction or in inappropriate contexts (e.g. use during working hours for non-work related purposes, i.e. cyberloafing) (Lim, 2002) are also acknowledged. Furthermore, implications of the relations between stress and social media use are included. Lastly, functions of healthy use of social media and possible solutions to the problematic use of social media from a coping perspective are provided, which may guide not only users of social media, especially young adults and their parents, but also related professionals, such as teachers and mental health professionals.

THEORETICAL BACKGROUND

By considering its relationship with health and illnesses, stress has been extensively investigated by researchers. Stress has been defined mainly from three perspectives, namely, stimulus, response, and stimulus-response interaction. Some researchers like Holmes and Rahe (1967) and Harris (2007), have defined stress as a stimulus.

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From this perspective, life events like the loss of a loved one or daily hassles like time restraints are defined as stress. Other researchers, like Selye (1976) have defined it as a response, including the physiological changes in the body as a fight or flight response. Moreover, Selye (1974) defined eustress as the biological response of the body for positive changes, enhanced functioning, and growth. Therefore, a distinction between a negative distress and a positive eustress was used. While distress included a negative state of mind, negative emotions, adverse functioning and disconnection, eustress included a positive state of mind, positive emotions, beneficial functioning, and connection (Branson, Turnbull, Dry, & Palmer, 2018). A third definition of stress, that of like Lazarus and Folkman (1984) have classified it in interactional terms. Stress as an interaction includes an interpretation for a stressor considering various personal and situational factors.

Stress has physiological, cognitive, and emotional counterparts. Physiological stress reactions are related to preparation of the body against threat, for example, increase in heart rate and respiration, or stimulation of sweat glands (Brannon, Feist, & Updegraff, 2013). Cognitive symptoms of stress include such negative thoughts as harm, threat, or loss of control (Aldwin, 2007). Emotional symptoms include an increase in negative emotions like anxiety, anger, or sadness, as well as a change in the experience of positive emotions (Folkman, 2008). Stress is considered as a risk factor for psychological problems. For example, interpersonal stress was a predictor of depression, anxiety, and somatization for college students (Coiro, Bettis, & Compas, 2017).

According to Transactional Model of Stress and Coping (Lazarus & Folkman, 1984), there is a dynamic two-way relationship between stress and coping. Stress is described as a relationship between the person and the environment, which is appraised as excessive, and that threatens to a person's capacity. Therefore, cognitive appraisal, that is the person's own evaluation of the situation, is a cognitive mediator of the person-environment relationship. It is a source of individual differences in terms of stress management. A particular situation may not be appraised as stressful by different individuals, whose characteristics, values, motivations, beliefs, and assumptions play an important role for cognitive appraisal. In a context of these background variables related to the person and their environment, the individual faces new situations over time. In this primary appraisal process, the person appraises the situation as irrelevant, positive, or stressful. Then, if the situation is appraised as stressful, including harmful, threatening or challenging, the process continues with secondary appraisal, in which the person appraises one's potential to cope with the stressful situation. Evaluation of one's own coping potential is a cognitive task before the actual coping process. The person evaluates different coping options, possible consequences, and the likelihood of a successful outcome. The appraisal process is dynamic in its own right. In other words, it is open to change based on

incoming information (reappraisal). Psychological vulnerability is also a part of cognitive appraisal, which is considered as a risk factor for poorer coping processes. Vulnerability is defined as having a deficiency in personal resources in psychosocially important areas. In addition to individual-related factors, Lazarus and Folkman (1984) also mentioned situation-related variables such as novelty, predictability or uncertainty, and duration and timing of the situation in the life cycle.

After the appraisal process, which includes an evaluation of the person-environment relationship, the next step is coping. Coping is defined as a dynamic process in which the person manages the demands of the person-environment relationship which is appraised as stressful. It involves both behavioral and cognitive efforts. The person may use two basic coping strategies, namely problem-focused and emotion-focused coping. Problem-focused coping takes an analytical perspective, which includes approaching the problem and attempting to change either the situation or the personal aspects of the stressful person-environment relationship. Emotion-focused coping includes avoiding the problem, distancing the self from the stressful situation or alleviating the negative emotions. The use of emotion-focused coping does not change the reality, however the person's evaluations and related emotions may change. Problem- and emotion-focused coping strategies may be used at the same time, and they can ease or inhibit each other during the process. As a result of this stress and coping process, the person evaluates the effectiveness of the coping process. S/he experiences short-term outcomes such as physiological and emotional changes, and long-term outcomes such as health, psychological well-being, and positive social functioning (Lazarus & Folkman, 1984).

Researchers have investigated the model in terms of different stressful situations and personal characteristics. For example, the goodness-of-fit hypothesis (Conway & Terry, 1992) referred to a fit between the controllability of the situation and certain coping strategies. Therefore, if problem-focused coping is used in a controllable situation, it potentiates better outcomes. Similarly, emotion-focused coping is more functional in uncontrollable situations. The effectiveness of a coping strategy in relation to the demands of the situation were confirmed for different samples such as athletes (Poliseo & McDonough, 2012), and university students (Mayordomo-Rodriguez, Melendez-Moral, Viguer-Segui, & Sales-Galan, 2015). A future oriented type of coping is proactive coping, which was defined from two perspectives. Aspinwall and Taylor (1997) defined proactive coping as a preparation to future stressful situations. From a more positive viewpoint, Schwarzer's (2000) definition of proactive coping includes preparation for future goals and challenges to achieve. Proactive coping is especially important for transition periods such as easier adjustment to college (Gan, Hu, & Zhang, 2010), and healthy aging (Ouwehand, de Ridder, & Bensing, 2007).

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A classification and measurement of different coping strategies were suggested by Carver, Scheier, and Weintraub (1989) by using Lazarus and Folkman's stress model (1984) and the Ways of Coping Inventory (Folkman & Lazarus, 1985). Accordingly, in the COPE questionnaire (Carver, Scheier, & Weintraub, 1989), dimensions such as active coping and planning can be considered as a part of problem-focused coping, while dimensions such as mental disengagement, denial, and focusing on and venting emotions can be considered to represent emotion-focused coping. In terms of emotion focused coping, distraction gave a better physiological recovery response after an acute stress as compared to denial (Janson & Rohleder, 2017). Therefore, it is important to distinguish between different types of emotion-focused coping activities. Carver, Scheier, and Weintraub (1989) also suggested some other dimensions of coping, such as acceptance, turning to religion, and seeking social support. Especially for uncontrollable situations such as chronic illnesses, acceptance coping and religious coping can be functional (e.g., Cieslak & Golusinski, 2017; Lin, Saffari, Koenig, & Pakpour, 2018). In another study, seeking social support emerged as a third coping strategy in addition to problem- and emotion-focused coping (Gençöz, Gençöz, & Bozo, 2006). Thus, apart from avoiding, or approaching a problem, a person may make use of a social-support network to cope with the stressful situation. Thus, coping strategies are not limited to problem- or emotion-focused orientations.

As coping is a complex mechanism and one does not always have to choose only one coping strategy at a time, a dynamic and interactional mechanism is more appropriate than a categorization-based approach while investigating stress- and coping-related processes (Aldwin & Park, 2004; Folkman & Moskowitz, 2004). To illustrate, coping flexibility is an ability to change the chosen coping mechanism accordingly (Cheng, 2001). The same interactional approach can be used while evaluating social media use as a stress and coping related variable. In the following sections, social media use is primarily discussed in terms of the Transactional Model of Stress (Lazarus & Folkman, 1984), i.e. social media as a stressor, social media as a coping strategy, and well-being as a result of social media use. The current literature on stress and coping which also includes the use of the internet and social media as variables are evaluated below in terms of the theoretical model.

STRESS APPRAISAL AND SOCIAL MEDIA AS A STRESSOR

Stress appraisal is the first stage of the coping process. In this stage, people evaluate the situation as benign positive, irrelevant or stressful (Lazarus & Folkman, 1984). If the situation is appraised as stressful, the person considers his/her potential to

cope. In this context, four types of relationships between social media use and stress appraisal are explained below: (1) exposure to the content of the posts, (2) evaluation by others after sharing, (3) attachment to social media accounts, and (4) victimization by cyberbullying.

First, people may encounter stressful content easily while they are online and be affected negatively. Kramer, Guillory, and Hancock (2014) revealed that others' emotions shared on social media influence people's emotions. In their experimental design, the authors manipulated the shared emotional posts as negative and positive. The viewer's own posts became more negative or positive in accordance with the emotions of posts they had previously seen (Kramer et al., 2014). Moreover, even if the content was not directly negative, the situation might still be appraised as negative because of a social comparison process (Chou & Edge, 2012). Similarly, the use of internet and other technologies during classes for non-class related activities, i.e. a cyberloafing behavior at educational context (Gerow, Galluck, &Thatcher, 2010), was found to be associated with increased negative emotions. In other words, being in class but attending to someone else's happy moments might make a student unhappy (Metin-Orta & Demirtepe-Saygili, 2019). A possible psychological mechanism of this stress appraisal is upward social comparison. According to Social Comparison Theory (Festinger, 1954), people evaluate themselves as a result of a comparison with others. Upward social comparison can be explained as perceiving others as better and oneself as worse. Social network sites as a source for upward social comparison was related to higher levels of depressive symptoms. Moreover, this relationship was reported to be mediated by self-esteem and moderated by optimism (Liu, Zhou, Yang, Niu, Tian, & Fan, 2017). Based on Lazarus and Folkman's theory (1984) low self-esteem and optimism can be regarded as psychological vulnerability factors, which are counter-indicated as positive resources for handling stress. As an aspect of situational factors, the characteristics of the social media platform are also important in the appraisal process. Blogs, Instagram and LinkedIn were related positively with social comparison, whereas Twitter was negatively related (Chae, 2018). Chae (2018) attributed this difference to the use of Twitter to communicate news rather than the presentation of self. To sum up, social media users may be affected emotionally by both negative and positive content of others' posts and experience stress.

Second, being an active content creator in social media may lead to a fear of negative evaluation such as receiving negative comments, or a low number of "likes". Fear of negative evaluation was related with problematic smartphone use in a college student sample (Wolniewicz, Tiamiyu, Weeks, & Elhai, 2018). Female students between the ages of 12 and 18 reported placing importance to the number of likes and positive comments for their posts of selfies. Adolescent females especially with low self-esteem were more vulnerable to the feedback. Moreover, the more the important online peer feedback is, the more the use of problem focused coping (Li,

Chang, Chua, & Loh, 2018). Therefore, depending on the other background variables (e.g. self-esteem and the meaning of criticism for the individual), a possibility of negative reactions from others may be a stressor for a person.

Third, depending on an individual's relationships with or attachment to their social media accounts, the use of social media itself can be regarded as a source of stress. For example, if the use of social media is perceived as the only way of interacting with others and the world, being away from social media may be a stressor. Fear of missing out was defined as fear of missing what others experience (Przybylski, Murayama, DeHaan, & Gladwell, 2013) in the absence of social media or smartphone use. Beyens, Frison and Eggermont (2016) pointed out that adolescents have a fear of missing out as a potential stress source. Moreover, social needs, such as the need for belonging and popularity was positively related with fear of missing out, which predicted problematic Facebook use (Beyens, Frison, & Eggermont, 2016). Similarly, Elhai, Hall and Erwin (2018) asked their student participants to imagine losing their social media accounts or smart phones for two days, and measured their emotion regulation, depression, and anxiety levels. Their findings revealed that imagined social media loss group reported more stress and depression with a higher level of emotion suppression as compared to imagined smartphone loss group (Elhai et al., 2018).

Last, cybervictimization as a result of problematic internet use such as cyberbullying, cyberstalking, and trolling can be considered as a stress source. Cyberbullying is defined as a repetitive and intentional harassment of others via technological devices (Beran & Li, 2005; Campbell, 2005). Being a victim of cyberbullying is associated with negative emotions such as sadness, anger, and anxiety (Beran & Li, 2005), psychological problems such as depressive and anxiety symptoms (Schenk & Fremouw, 2012), concentration problems and low self-esteem (Fauman, 2008). College student victims of cyberbullying reported different coping strategies like sharing with their friends, avoidance of social media or relationships, or revenge (Schenk & Fremouw, 2012). When adolescents used rumination to cope with cybervictimization, it was associated with inadequate sleep (Jose & Vierling, 2018). Similar to cyberbullying, cyberstalking is another source of stress for the victim. It includes the use of internet and communication systems to stalk or harass others through tracking online activities (Rensburg, 2017). Another problematic use is trolling and fake news. Sharing inappropriate, provocative, or inaccurate content can be stressors for members of online communities, employees, and other readers (Baccarella, Wagner, Kietzmann, & McCarthy, 2018).

From a more positive viewpoint for social media as a stressor, researchers focused on eustress. Eustress in the context of internet use is referred to as techno-eustress. The challenging aspects of technology with a positive outcome expectancy is also

possible. An opportunity for improvement of skills, help with work life, socialization through internet are some examples of the challenge appraisal, which lead to eustress (Tarafdar, Cooper, & Stich, 2017).

Overall, stress appraisal can be related to the use of social media, resulting in distress. Access to someone else's negative or positive experiences may be appraised as a stressful situation. Moreover, the possibility of being evaluated negatively after sharing on social media includes a threat for some users. Additionally, people's relationship with their social media accounts and being harassed through social media can be a part of stress appraisal.

SOCIAL MEDIA USE AS A COPING STRATEGY

After the appraisal of a situation as stressful, two basic coping strategies can be used to deal with the situation (Lazarus & Folkman, 1984). By using problem-focused coping, the person may choose to approach the problem and try to solve the personal or the situational aspects of the problem. On the other hand, by using emotion-focused coping, the person may avoid the problem or try to manage the negative emotions related to the situation. Under different circumstances, social media use can serve as different coping strategies; for example, social media use as a problem-focused strategy, an emotion-focused strategy, a source of social support, and a combination of these strategies. Before accepting social media use as a coping strategy, studies were conducted to answer the question "do people use the internet in stressful situations?" Individuals reported the use of online coping after a negative life event by varying means (van Ingen, Utz, & Toepoel, 2016). For example, mental disengagement such as playing games can be considered as emotion-focused coping, whereas searching for information can be seen as problem-focused coping. The use of social network sites or support groups was defined as socioemotional coping, which corresponds to seeking social support (van Ingen, Utz, & Toepoel, 2016). Regarding the effectiveness of using internet for coping, mental disengagement and socioemotional coping were negatively related with well-being, whereas problem-focused coping was not significantly related with well-being (van Ingen et al., 2016). This study is also considered important since it included the development of an online coping scale by using Carver's Brief COPE questionnaire (1997). For example, an item about getting emotional support from others in Carver's Brief COPE questionnaire (1997) was turned into getting emotional support through the internet in this online coping scale (van Ingen et al., 2016). Although many reliable and valid assessment devices were developed to measure stress and coping, the development of scales including online coping or coping by using social media needs particular attention for the future studies.

A limited number of studies examined social media use as a coping strategy directly; nevertheless, essential implications about coping can be derived from the following findings: In an experimental study in which the participants were presented with a stressful situation, the ones that were allowed to use Facebook reported lower levels of psychosocial and physical stress (Rus & Tiemensma, 2018). Moreover, they evaluated the source of stress as less threatening than the control group. Thus, Facebook use had a stress-buffer role for psychosocial stress when it was used before engaging in an acute stress situation (Rus & Tiemensma, 2018). Likewise, university students reported more use of Facebook as a self-disclosure tool in stressful situations to feel better and make use of social support by sharing their emotions and experiences (Zhang, 2017). Moreover, the stress-buffer effect of social support was also verified for online social support from social media. In other words, using social media as a self-disclosure tool was a moderator between stress and psychological well-being, by interacting with stress and lessening the negative effects of stress on people's well-being (Zhang, 2017).

From a psychopathological point of view, early patterns of stress and coping were also related with later problematic internet and social media use. For example, anxious and avoidant attachment was related to problematic internet users among adult workers (Shin, Kim, & Jang, 2011) and among university students (Odacı & Çıkrıkçı, 2014). Moreover, problematic social media use was predicted by anxious attachment style and childhood maltreatment. In particular, the relationship between childhood maltreatment and problematic use was mediated by anxious attachment and depressive symptoms (Worsley, McIntyre, Bentall, & Corcoran, 2018).

Online gaming is another part of social networking, which can also be investigated from a stress and coping perspective. Playing games excessively was proposed to be a coping mechanism for people with high levels of psychosocial problems and low self-esteem (Kardefelt-Winther, 2014a). Playing online games acted as an escape coping especially when people expect a negative outcome after the stressful situation (Kardefelt-Winther, 2014b). Moreover, among the players of massively multi-player online role-playing games, the ones who use problem-focused coping were affected less from negative gaming outcomes (Bowditch, Chapman, & Naweed, 2018). Therefore, a similar mechanism for stress and coping is also applicable for online gaming.

Online support groups, applications, social media accounts, and online interventions are some sources that people use to cope with some problems for the purpose of sharing and getting information. The use of social media rather than web sites can be preferred more, since individuals share information when they perceive fairness in the sense that the others also share their information, from a social exchange theory perspective (Zhou, Zuo, Yu, & Chai, 2014). For example, in terms of health information exchange on social media, when people perceive interactivity

and expect social relationships as an outcome, they are more inclined to exchange health information such as sharing and acquiring health related information through social media (Lin & Chang, 2018).

Another area that social media is used for coping is health and illnesses. Patients reported the use of online health communities for social support and information (Johnston, Worrell, Gangi, & Wasko, 2013). Moreover, it was found that social media use had positive relationships with community participation in a sample of individuals with psychiatric diagnoses (Brusilovskiy, Townley, Snethen, & Salzer, 2016). For health management, specific integrative technologies can be used for positive functioning, such as Positive Technology (Riva, Banos, Botella, Wiederhold, & Gaggioli, 2012).

The function of the social media as a health-related coping source is relatively new and rarely studied experimentally. It was suggested that confidentiality issues need to be clarified to gain the trust of participants in future studies of interventions enhancing health behaviors, because people may hesitate to share their personal information (Maher, Ryan, Kernot, Podsiadly, & Keenihan, 2016). One of the few studies tested the effectiveness of psychosocial interventions by using social media for pregnancy and postpartum periods. Baker and Yang (2018) explored the use of social media as a source of social support during pregnancy and postpartum periods of women. The mothers reported that they used social media for information seeking and connecting with other mothers to ask for advice. Considering postpartum period as having a potential risk for isolation, social media provided a sharing environment and a source of social support (Baker & Yang, 2018). In addition, when the sample characteristics of studies about online coping are examined, it can be observed that the studies targeted the people with limited chances of face-to-face communication. For example, a study conducted with migrants in Chinese cities revealed that social media use was positively associated with migrants' subjective well-being and social integration (Wei & Gao, 2017). Therefore, social media use can be considered as an alternative source of social support against a risk of isolation especially for migrants, people with physical and psychiatric diagnoses, or other conditions including physical constraints or social limitations such as women who are pregnant or during the postpartum period.

Social media studies mostly address adolescents and young adults; however, older people can make use of social media for communication purposes as well. It was found that older adults prefer sharing positive content more and select more positive games, as compared to younger individuals (Ossenfort & Isaacowitz, 2018). They also expect to feel more positive emotions (Bartsch, 2012). People over the age of 55 reported their motivations for social media use as information search, assistance for daily life, and communication with their families (Chou, Lai, & Liu, 2013). They also reported some concerns such as safety and privacy, and problems

such as vision and cognition. In terms of psychological consequences of social media use by elderly, it was revealed that participation in social network sites was related to higher life satisfaction, through decreasing isolation and increasing self-efficacy (Zhou, 2018). Considering the positive effects of social media, suggestions for facilitating social media use by elderly were provided by Xie and colleagues (2012). Educational strategies to teach how to use, explanation of privacy issues and increased commitment by sharing more are the most essential suggestions (Xie, Watkins, Golbeck, & Huang, 2012).

In a stressful situation, social media can act as a part of coping process. It is possible to seek information to find a solution (problem-focused), to distract from negative emotions (emotion-focused), and to connect with friends or to join online support groups (seeking social support).

WELL-BEING AS A RESULT OF SOCIAL MEDIA USE

Well-being indicators are included as outcome variables in the Transactional Model of Stress and Coping (Lazarus & Folkman, 1984). In addition to being a part of coping strategies mentioned in the previous section, social media use can be evaluated as (1) a direct predictor of well-being, (2) moderator or mediator in the relationships between coping and well-being, and (3) an outcome variable as a part of well-being.

First, researchers evaluated excessive or problematic social media use as a risk factor and investigated its relationship with psychological well-being and problems such as depression, anxiety or addiction (e.g., Barry, Sidoti, Briggs, Reiter, & Lindsey, 2017; Brooks, 2015; Vannucci, Flannery, & Ohannessian, 2017). Having a high number of social media accounts and checking more frequently were related with loneliness as reported by adolescents; and inattention, hyperactivity, depressive and anxiety symptoms as reported by their parents (Barry et al., 2017). Similarly, as the amount of time spent using social media increased, the level of dispositional anxiety increased as well (Vannucci, Flannery, & Ohannessian, 2017). An indirect way that social media use may affect well-being is through decreasing performance at work or school. Brooks (2015) revealed that the use of social media use had negative effects on task performance at an experimental class environment in addition to lower happiness ratings. Therefore, impairment of school or job performance may interact with a reduced well-being.

Second, as a part of the coping and well-being relationship, social media use can play a moderator or mediator role. That is, social media can interact with other variables or play a role in between predictors and outcome variables. For example, high level of stress was associated with more misuse of internet including social media use such as smartphone addiction and cyberloafing for university students

(Gökçearslan, Uluyol, & Şahin, 2018) as well as for employees (Henle & Blanchard, 2008). Moreover, cyberloafing acted as a mediator between stress and smartphone addiction relationship. In addition, cyberloafing was positively related with emotion-focused coping, more specifically it moderated the relationship between emotion-focused coping and psychological symptoms (Demirtepe-Saygili & Metin-Orta, 2019). When the problematic social media use is examined as a predictor of preferences for coping strategies, researchers found that emotion-focused coping was preferred more by people with social media addiction, i.e. a subtype of internet addiction associated with compulsive checking and updating (Longstreet & Brooks, 2017), which contributed to emotional exhaustion (Sriwilai & Charoensukmongkol, 2015). Moreover, cyberloafing was negatively related to the students' school performances (Hinsch & Sheldon, 2013). The frequency, duration, and context of smart phones and social media are some important variables in investigating its relationship with well-being.

Examining social media use as a possible coping strategy also requires an in-depth investigation of various activities of social media. Activities such as socialization, shopping and following the people that they do not know were related with conduct problems, whereas playing games and posting were associated with compulsive use (Velozo & Stauder, 2018). Thus, various activities were found to be related with different aspects of mental health. Qualitative descriptions of adolescents with a depression diagnosis were investigated by Radovic, Gmelin, Stein, and Miller (2017). The participants reported entertainment, distraction, and seeking social connection as the positive aspects of social media use. On the other hand, sharing risky behaviors, cyberbullying, and social comparison were stated as the negative aspects. The participants also reported more use of social media when they feel bad to improve their mood (Radovic et al., 2017). From a stress and coping perspective, entertainment and distraction can be a form of emotion-focused coping, especially when the adolescents reported using social media more to feel better.

In addition to being a direct predictor of and moderating or mediating the relationships between coping and well-being, a third function of social media is being a part of well-being. For example, addiction in general is included as a psychiatric diagnosis. The use of dysfunctional coping strategies and a high level of perceived stress is associated with addictive problems (Sinha, 2008). Besides, alcohol-drug disengagement is considered as a coping strategy (Carver, Scheier, & Weintraub, 1989), which carries a risk for addiction or substance abuse. Internet addiction is defined as a need for and a compulsive use of the internet, by developing dependence on the internet for psychological well-being, and feeling withdrawal when away from it (Longstreet & Brooks, 2017). Problematic social media use can be considered as a part of internet addiction. Social media addiction is a subtype of internet addiction, including the behaviors of checking and updating (Longstreet

& Brooks, 2017). Social media addiction was related with depressive symptoms in a university student sample (Jasso-Medrano & Lopez-Rosales, 2018). Moreover, it was found that higher levels of stress were associated with less life satisfaction, which in turn was related with higher levels of social media addiction (Longstreet & Brooks, 2017).

Considering the severity and frequency of social media addiction, measurement issues gained importance. Scales have been developed to measure social media addiction in various cultures. Facebook Addiction Scale (Andreassen, Torsheim, Brunborg, & Pallesen, 2012), The Social Media Disorder Scale (van Den Eijnden, Lemmens, & Valkenburg, 2016), Chinese Social Media Addiction Scale (Liu & Ma, 2018), and Turkish Social Media Addiction Scale (Bakır Ağyar & Uzun, 2018) are some examples of the scales. Thus, more research should be conducted by using those scales to investigate the antecedents and consequences of social media addiction.

In addition to addiction, social media fatigue can be considered as a well-being variable, as well. Social media fatigue is defined as an overload and a mental exhaustion as a result of a prolonged use of social media (e.g., Bright, Kleiser, & Grau, 2015). Use of social media was positively related with social media fatigue, which predicted a higher level of anxiety and depression (Dhir, Yossatorn, Kaur, & Chen, 2018). Another concept about overload of social media use is 'technostress'. The concept was proposed by Brod (1984) to define a situation in which individuals cannot adapt to or cope with new computer technologies in a healthy way. Technostress was recently investigated in terms of smartphone usage and social media use (e.g. Lee, Chang, Lin, & Cheng, 2014; Krishnan, 2017). Compulsive use of smartphones was positively associated with external locus of control. From the transactional theory of stress (Lazarus & Folkman, 1984) and goodness-of-fit (Conway & Terry, 1992) perspectives, appraisal of uncontrollability is related with emotion-focused coping, which can be dysfunctional in specific situations.

Thus, the relationship between social media use and psychological well-being can be evaluated as a predictor of well-being; such as depression and anxiety, moderator or mediator between coping and well-being, and an outcome variable as a part of well-being.

FUTURE RESEARCH DIRECTIONS

Together with the advances in technology, especially smartphones, the increase in the prevalence of social media use is relatively new. Therefore, long-term effects will be identified more clearly with further studies. Understanding the mechanism of the effects of social media on people's well-being is an important area of focus for research. Beginning with 2000s, researchers have been interested in the use of social

media in relation with other variables, yet causes and effects need further investigation (Ngai, Tao, & Moon, 2015). Using a stress and coping perspective can provide an insight to studies on the relationship between social media use and well-being or psychological problems. Thus, the process that leads to psychological well-being can be clarified and preventive actions can be taken accordingly. Including coping in well-being studies will help people understand a possible mechanism through which social media use is related with well-being. The mechanism, background variables and situational variables need further investigation in relation with coping variables and social media use. Reliable and valid measurement devices such as online coping, internet addiction, which were mentioned above can be used in those studies. Effectiveness of social media coping interventions for risk groups having high stress levels is another scope of research. Therefore, studies on the examination of social media use in relation with stress and coping, development of assessment devices, and effectiveness of interventions will enlighten the functions of social media in people's lives and well-being.

Studies show that rather than the use of social media, problematic use is associated with psychological problems. Considering the link between social media use and mental health, regulation strategies of the use can be suggested (Frost & Rickwood, 2017). The aim of using social media, the type of activities on social media, the frequency and duration of use, and the attachment of the person with his/her social media accounts determine healthy or unhealthy use. Examples of healthy social media use include being aware of the rationale for social media use, not replacing face-to-face interactions with it, and not spending too much time for social media activities. Moreover, knowing about symptoms of addiction, such as compulsive checking and updating, feeling fear of missing out or deprivation while away, may help people detect the problem at an early stage and take precautions for it. Stress related to work, school, health, and relationships is a part of modern life, similar to the internet. In terms of stress management, the aim is to learn coping effectively with stress. As it is impossible to be away from stress or internet, having healthy relationships with them is the key point for solid psychological well-being.

Considering the wide use of social media especially during adolescence and young adulthood, which is a critical period for learning, forming relationships, and making life decisions, emphasis should be put on adaptive ways of coping, as well as healthy use of social media. Social media literacy interventions can help individuals gain awareness and learn healthy use. Moreover, social media literacy interventions can be used for other problematic behaviors. As a result of a social media literacy intervention, including information about advertising on social media, appearance comparisons, unrealistic images, and commenting; healthier results were obtained for the experimental group in terms of body image and dieting, which are some risk factors of eating disorders (McLean, Wertheim, Masters, & Paxton, 2017).

SOLUTIONS AND RECOMMENDATIONS

In addition to the research implications mentioned above, practical implications for specific samples like adolescents, young adults, and adults, parents of adolescents, teachers and professionals working with problematic cases of social media use are as follows:

- **For adolescent, young adult, and adult social media users**: Developmental stages have their own tasks and carry their own risks for reduced well-being. For example, beginning with adolescence, improvement of interpersonal communication and coping skills are expected with the development of reasoning and judgment. Young adulthood is a period of stressful life events such as finding a job, and getting married. This developmental stage includes the acquisition of new skills and emotion regulation (Aldwin & Levenson, 2005). Therefore, accumulation of coping skills is expected throughout the life span, however not everyone is able to cope with stress effectively (Aldwin, 2007). A healthy adaptation to the improvements in technology is possible in the development process. Using social media as a source of information and support, to communicate with friends, and sometimes for a short-term distraction may contribute to one's well-being. On the other hand, misuse or overload from social media use, avoidance of a problem which is associated with a stressful situation, continuation of relationships only through social media are some problematic use examples. Every social media user can monitor and control his/her own use, gain awareness of the function of social media in their lives, and seek help in problematic cases such as addiction and cyberbullying.

- **For parents of adolescents**: As a part of control, parents may include some limitations over their children's social media use. During preadolescent years, parental control in terms of time spent on social media was related with a better well-being (Fardouly, Magson, Johnco, Oar, & Rapee, 2018) whereas parental monitoring of social media use by their adolescent children was not related with the adolescent's psychological adjustment (Barry et al., 2017). Therefore, parenting which corresponds to the children's developmental level is functional for their social media use. Still, the parents may be able to notice the presence of a problematic internet or social media use in their children, and seek appropriate professional help. Moreover, as learning through modelling is possible, parents' own use of social media is also important. They have similar vulnerabilities and experience similar processes as their children. For example, mothers' social comparison on social media was related with higher levels of parent role overload and depression, and lower levels of competence

(Coyne, McDanile, & Stockdale, 2017). Thus, a gradually decreasing control over the child's social media use, awareness of the signs of a problematic social media use, and monitoring own use and misuse of social media are suggested for parents.

- **For teachers of adolescents**: To help students gain healthy social media use habits, social media literacy can be included in the curriculum as part of a media literacy. Furthermore, a directly school-related misuse of social media is cyberloafing. This in-class social media use can be regulated and controlled by the teachers. Moreover, other types of problematic use like cyberbullying and the signs of addiction can be detected and monitored with the help of teachers. They can be part of the solution for problematic use during adolescence.

- **For mental health professionals working with problematic cases of social media use and addiction**: Social media or internet addiction may be a result of continuous use as a coping mechanism. Furthermore, stress may be a triggering factor behind this addiction. These factors may contribute to the etiology and prognosis of people with internet or social media addiction. If this is the case, including awareness of the function of social media in their lives and stress management programs can help to better well-being. Moreover, as a preventive approach, stress management or stress resilience programs can be conducted for the risk groups. Moreover, interventions for problematic internet use to reduce cybervictimization are being developed. For example, a multi-component preventive program resulted in decreased reports of cybervictimization and cyberbullying as compared to the control group (Sorrentino, Baldry, & Farrington, 2018).

CONCLUSION

Social media use was evaluated from a stress and coping perspective in the present chapter. Research has shown that social media can be a stressor, a possible coping mechanism, and a part of psychological well-being in an interaction with stress and coping. Considering the wide use of social media, it is important to figure out the important components of this process for healthier users of social media.

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KEY TERMS AND DEFINITIONS

Coping: A dynamic process in which the person manages the demands of the person-environment relationship which is appraised as stressful.

Cyberbullying: A repetitive and intentional harassment of others via technological devices.

Cyberloafing: The use of internet and other technologies during classes for non-class related activities.

Fear of Missing Out: A fear of missing what others experience.

Internet Addiction: A need for and a compulsive use of the internet, developing dependence on the internet for psychological well-being and feeling withdrawal when away from it.

Social Media Addiction: A subtype of internet addiction, including the behaviors of checking and updating.

Social Media Fatigue: An overload and a mental exhaustion as a result of a prolonged use of social media.

Stress: A relationship between the person and the environment which is appraised as beyond the person's capacity and threatening one's well-being.

Technostress: A situation in which individuals cannot adapt to or cope with new computer technologies in a healthy way.

Chapter 11

Facebook, Social Comparison, and Subjective Well-Being:
An Examination of the Interaction Between Active and Passive Facebook Use on Subjective Well-Being

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ABSTRACT

Facebook use has implications for subjective well-being. Previous research has revealed that passive Facebook use is typically related to deficits in subjective well-being, which is thought to be linked through upward social comparison. In contrast, active Facebook use is typically related to enhancements in subjective well-being. The main objective of the present study was to synthesize findings related to Facebook use and subjective well-being and to expand by proposing and testing whether the benefits associated with active Facebook use compensate for the negative effects associated with passive use. The second objective was to discuss policy and research directions. A total of 310 undergraduate students completed an online survey with questions regarding Facebook use, social comparison, and subjective well-being. Bootstrapping analyses revealed that active Facebook use did not buffer the negative effects for subjective well-being that occur during passive Facebook use. Recommendations for future research and education programs are discussed.

INTRODUCTION

Subjective well-being is a phenomenon that is comprised of people's personal evaluations of their lives, including emotional responses to life events, as well as a personal assessment of one's overall satisfaction with life (Diener, Suh, Lucus, & Smith, 1999). Subjective well-being is influenced by many factors (Diener, et al., 1999), but the factor most relevant to the current study is social comparison. Given that social media is pervasive among young adults today and offers, opportunities to connect with friends and expose them to the successes of others, in other words offering ample opportunities to compare oneself to online friends, it too has the potential to contribute positively or negatively to subjective well-being. There are three aims of the present chapter: First, to provide an overview of how passively and actively using Facebook impacts users' subjective well-being; second, to further investigate these relationships by proposing and testing a model, as well as explore individuals' perceptions of the positive and negative consequences of Facebook use; and third, to provide recommendations for future research and potential policy applications.

AN OVERVIEW OF THE CURRENT LITERATURE

Social media has become pervasive in society today, with the potential to influence psychosocial functioning. Among the most popular of these sites includes the social networking site, Facebook. While on Facebook, users are able to create online profiles that contain personal information (photos, personal disclosures, memories and so on) about the self, which are then broadcasted to a network of individuals that the user deems a Facebook "friend." The content posted by a Facebook user is done so at the discretion of the profile owner and may be updated at any time. The information broadcasted on Facebook is then open to receiving both quantitative (i.e., likes, reactions), and/or qualitative (i.e., comments, messaging) feedback from the user's Facebook friends. Since Facebook was introduced to the public in 2005, the basic function of creating a personal profile, which is then viewed, and responded to, by friends has remained consistent, although Facebook has continued to create features (e.g., reactions, Facebook messenger) that make connecting with friends' content even easier (Gramlich, 2018).

Facebook has rapidly gained popularity since it's induction to the general public. Internationally, over 2.27 billion people visit Facebook every month, with over 1.49 billion visits taking place every day (Stats, 2018). In fact, in October 2018 the Pew Research Centre reported that Facebook remains the most popular social networking site among adults in the United States by a large margin (Gramlich, 2018). Further,

Facebook was rated second in the United States (to video sharing site YouTube) for most visited social media website in 2018 (Gramlich, 2018). One of the potential reasons for its immense popularity is that there are a multitude of features on Facebook, as well as a variety of different ways to use the social networking site—all of which offer the user the ability to instantaneously connect with their friendship network. For instance, people can passively observe their Facebook friends by scrolling through the newsfeed, or browsing friends' photos/timelines; this type of Facebook behaviour is typically regarded as *passive Facebook use* (e.g. Ryan & Xenos, 2011; Tandoc, Ferrucci, & Duffy, 2015). In addition, people can engage more actively while on Facebook, such that users are able to disclose information about themselves in the form of photo and status updates (writing what is on a person's mind), as well as sharing links, memories, or memes that one affiliates with. These types of Facebook behaviours are typically referred to as *active Facebook use* (e.g., Ryan & Xenos, 2011). Due to the huge popularity and variety of social functions while on Facebook, researchers have begun to examine how this particular site may actually impact users' subjective well-being.

Early investigations of the relation between Facebook use and subjective well-being presented inconsistent results. Some research indicated that time spent on Facebook may be detrimental to users' subjective well-being (Valenzuela, Halpern, & Katz, 2014; Steers, Wickham, & Acitelli, 2014; Lou, Yan, Nickerson, & McMorris, 2012). Others found that time spent on Facebook may, in fact, enhance subjective well-being (Burke, Kraut, & Marlow, 2011; Valenzuela, Park, & Kee, 2009). Still, others suggested no relation (Benjanin, Benjanin & Dimitijevic, 2014; Glynn, Huge, & Hoffman, 2012; Jelenchick, Eickhoff, & Moreno, 2013). While investigating the discrepancy among the preceding results, researchers found that the direction of the relationship between Facebook use and subjective well-being is dependent on how Facebook is used. Specifically, whether the user was actively (e.g., posting a photo/status update) or passively (e.g., browsing the Facebook newsfeed) engaged while on Facebook.

Typically, passive Facebook use is related to decreases in subjective well-being (Ryan & Xenos, 2011), while active Facebook use is associated with enhancements in subjective well-being (Burke & Kraut, 2016; Csepeli & Nagyfi, 2014; große Deters & Mehl, 2013). In an experiment, Verdyun et al. (2015) dichotomized Facebook use into two conditions, such that participants were asked to use Facebook either solely passively (scrolling through Facebook without posting or interacting), or solely actively (constantly posting, liking, or commenting) for 10 consecutive minutes. At the end of the day, participants were asked to answer questions regarding their affective well-being. The results revealed that participants in the passive Facebook condition experienced decreases in well-being, whereas participants in the active condition did not experience any negative effects (Verdyun et al., 2015). It should be noted that

while there are a variety of factors that have been studied to explain *why* passively browsing Facebook leads to deficits in subjective well-being, most researchers agree that the underlying mechanism responsible for this negative relationship is upward social comparison (see Verdyun et al., 2017 for review). As such, the present study focuses on upward social comparison as the mediating variable in the relationship between passively browsing Facebook and subjective well-being.

The Link Between Passive Facebook Use and Subjective Well-being

Humans possess a fundamental drive to compare themselves with others viewed as similar to themselves (Festinger, 1954). Social comparison helps individuals establish their standing (Brown, Ferris, Heller, & Keeping, 2007), as well as provides information about what is considered attractive, acceptable, powerful, popular, and so on (Verduyn et al., 2017). Self-evaluation also depends on how one compares oneself with other people, with the evaluative outcomes depending on whether the comparisons being made are in an upward or downward direction (Major, Testa, & Bylsma, 1991). In upward comparisons, one perceives the other as better on a particular dimension, which typically leads to feelings of inadequacy, jealousy, or negative affect. Downward comparisons, on the other hand, are those comparisons for which the individual perceives the self as better than the target, which typically results in enhancements for subjective well-being.

Empirical research has well-established the influence of social comparison on subjective well-being (Fujita, 2008), such that people's emotions, moods, and subjective evaluations are significantly influenced by how people perceive they compare to the people in their social circle (Gilbert, 2000). When considering the structure of Facebook, where a mouse click can link users to friends' and friends of friends' social media posts, social comparisons can be carried out on an unprecedented scale. Because of this, when individuals passively browse through the social information posted on Facebook they are inundated with the power, popularity, and physical attractiveness exemplified by their Facebook friends and followers, and compelled to compare themselves accordingly (Tandeoc et al., 2015). This may be especially problematic given that Facebook also provides an opportunity for users to set-up, retake, and edit images which allows people to portray themselves in the most flattering ways, also referred to as selective self-presentation (Walther, 2007). When users do selectively self-present online, this can create an exaggerated expectation of power and attractiveness, which are then confirmed and reinforced through the social interactions that occur online (Walther, 2007). Evidence suggests that social comparisons, both upward and downward, do exist on Facebook, although only upward comparisons impact subjective well-being (Vogel, Rose, Roberts, &

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Eckles, 2014). Further, the upward social comparisons that exist on Facebook are consistently associated with deficits in subjective well-being (Nesi & Prinstein, 2015; Steers et al., 2014; Vogel et al., 2014). In other words, while Facebook users passively browse through their friends' information on Facebook they are comparing themselves, on a massive scale, to unrealistic targets, feeling as though they do not measure up, and thus feeling less satisfied in their own lives.

The current literature has well established that passive Facebook use leads to upward social comparison, and ultimately then deficits in subjective well-being (see Joseph, Desjarlais, & Herceg, 2019 for review). It is also clear that actively sharing/interacting on Facebook is at least marginally better for subjective well-being than passively browsing (Verdyun et al., 2015). However, one limitation in the literature is that when Facebook users are dichotomized into either passive or active users, researchers are not able to investigate the interaction effects of passive and active Facebook use on subjective well-being. In effect, this approach neglects the instances where users use some combination of both the passive and active features of Facebook. In a study by Joseph and Desjarlais (2016), participants were asked to indicate how passively or actively they used Facebook on a scale from 1 (*solely passively*) to 10 (*solely actively*). The results revealed that the vast majority of participants reported their Facebook use as a reasonably equal combination of both the passive and active features of Facebook, with some tendency to favour passive Facebook use. Thus Facebook use could potentially be viewed on a continuum where users use some combination of the active and passive features of Facebook, rather than in an either or fashion. Moreover, the findings suggest that all users passively observe Facebook and what differs among users is their level of active Facebook use. Considering that when using Facebook actively, to a greater extent, users exhibit increases in their subjective well-being (Csepeli & Nagyfi, 2014), or at the very least they do not experience the deficits for subjective well-being that are associated with passive Facebook use (Verdyun et al., 2015), the question that arises is: Could actively posting on Facebook compensate for the negative experiences associated with passively browsing Facebook? The current study addresses this question.

THE PRESENT STUDY

There are two main purposes for the current study. First, the author sought to replicate findings in the current literature and provide further support demonstrating passively browsing Facebook leads to upward social comparison, which then leads to deficits in subjective well-being. Second, the present study will expand the current literature by (1) identifying whether the preceding indirect relationship is moderated by active Facebook use by examining whether active Facebook use buffers the deficits in

subjective well-being that result from the upward social comparison that takes place while passively browsing Facebook; and (2) examining individuals' perceptions of the positive and negative outcomes associated with using Facebook.

Based on the positive relationship between active Facebook use and subjective well-being reported previous research (Kim & Lee 2011), it is plausible that if users actively post on Facebook they feel better about themselves (Kim & Lee, 2011) and thus be less impacted by the upward social comparison that accompanies passive Facebook use. Specifically, the author hypothesized that: The negative indirect relationship between passive Facebook use and subjective well-being through upward social comparison will only exist if the frequency of active behaviours is low. If the frequency of active Facebook use is high, users who passively use Facebook and negatively compare themselves to their friends will not experience the deficits in subjective well-being.

METHOD

Participants

A total of 310 introductory psychology students from a Canadian undergraduate university (76.77% female) between the ages of 17 and 50 years ($M = 21.21$ years; $SD = 4.26$) completed an online survey between November 1, 2016 and January 29, 2017. Participation lasted approximately 15 minutes as they completed the scales in the order listed below.

Materials

Demographic Variables

The following scales were included to gain information regarding who is using Facebook and how relevant Facebook is relative to other social networking sites, in order to investigate whether the impacts of Facebook use are still meaningful.

Understanding Facebook Use

The Facebook Intensity Scale (FBI; Ellison, Steinfield, & Lampe, 2007) was used to gain a better understanding of participants' Facebook use. The FBI assessed participants' level of Facebook engagement (i.e., the amount of time spent on Facebook), the size of participants' friendship networks on Facebook (i.e., number of Facebook friends), and participants' emotional connection to Facebook. This scale

has demonstrated high internal consistency in previous research (α = .83; Ellison et al., 2007; Whitman & Gottdiener, 2015).

- *Facebook Engagement*. To measure how engaged participants are on Facebook, the amount of time participants spend on Facebook was measured using the FBI (Ellison et al., 2007). Participants were asked to indicate how much time they spend on Facebook on a scale from 1 (*less than 10 minutes*) to 8 (*more than 3 hours*). Higher scores indicated more time spent on Facebook.
- *Number of Facebook Friends*. To gain an understanding of the size of friendship networks on Facebook across the sample, I used the number of friends subscale from the FBI (Ellison et al., 2007). Participants were asked to indicate the number of friends they currently have on Facebook on a scale from 1 (*10 or less*) to 9 (*more than 400*). Higher scores indicated a greater number of Facebook friends.
- *Emotional Connection to Facebook*. This FBI subscale (Ellison e al., 2007) assessed participants' emotional connection to Facebook. Participants were asked to indicate the extent to which they agree or disagree with six statements (e.g., I would be sorry if Facebook shut down) on a scale from 1 (*strongly disagree*) to 6 (*strongly agree*). The scores were then averaged, where higher scores indicated higher levels of emotional attachment to Facebook. This subscale demonstrated high internal consistency (α = .88).

General Social Media Use

To gain an understanding of the popularity of a variety social media sites used across the sample, a social media use scale was created. Participants were asked to indicate on a scale from 1 (*never*) to 7 (*several times a day*) how often they used a variety of social media websites, including social networking sites (e.g., Facebook, Twitter); photo sharing networking sites (e.g., Instagram, Snapchat); messaging networking sites (e.g., Facebook messenger, WhatsApp); and video sharing sites (e.g., YouTube). Higher scores indicated higher levels of engagement for each social media site presented.

Variables Included in the Hypothesized Model

Subjective Well-Being

Chan's (2013) adaptation of Diener et al.'s (2009) Psychological Well-being Scale, which included eight items, was used to assess participants' subjective well-being. Participants were asked to indicate the degree to which they agreed or disagreed

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with each of the eight statements (e.g., "I lead a purposeful and meaningful life") on a scale from 1 (*strongly disagree*) to 6 (*strongly agree*). The scores were then averaged, where higher scores indicated higher levels of subjective well-being ($M = 5.01$, $SD = 4.41$). This scale demonstrated high internal consistency ($\alpha = .89$).

Facebook Use

To get an accurate depiction of participants' use of both the passive and the active features of Facebook, the author collected the duration of passive Facebook use and the frequency of active use separately.

- *Passive Facebook Use.* Using a single item, participants indicated the amount of time they spend per day passively using Facebook (i.e., browsing their newsfeeds/friends timelines) on a scale from 1 (*Less than 10 minutes*) to 8 (*More than 3 hours*). Higher scores indicated more time spent passively using Facebook ($M = 2.79$, $SD = 0.48$).
- *Active Facebook Use.* Based on previous research assessing active Facebook use (Verduyn et al., 2015; Ryan & Xenos, 2011), the author created an active Facebook use scale for the current study. Participants indicated the frequency that they engage in five of the most prominent active Facebook features: Status updates, sharing links/memories, uploading photos, commenting on friends' posts, and like/reacting to friends' posts. Participants indicated how often they use each of the preceding five active features during a typical Facebook session on a scale from 1 (*never*) to 7 (*always*). The five scores were then averaged and higher scores indicated higher frequency of active Facebook use ($M = 3.24$, $SD = 1.18$). This scale demonstrated high internal consistency ($\alpha = .86$).

Social Comparison

To assess participants' level and direction of social comparison while on Facebook, Allan and Gilbert's (1995) Positive and Negative Social Comparison Scale was adapted to be specific to Facebook. To address upward social comparison specifically, participants were asked to indicate on a scale from 1 (*never*) to 6 (*always*) how often they feel 11 negative constructs (e.g., inferior) when comparing themselves to their Facebook friends. The negative comparison scores were averaged for a total upward social comparison score, where higher scores indicated higher levels of upward social comparison on Facebook ($M = 2.71$, $SD = 1.07$). This scale demonstrated high internal consistency ($\alpha = .95$).

Supplementary Information

Qualitative Question

For supplementary information regarding participants' perception of the positive and negative consequences of Facebook use, one qualitative item was created. Participants were asked to reflect on their Facebook use and determine how Facebook has been either positive or negative in their lives. This was an open-ended question that was coded for common themes among participant responses.

RESULTS

Describing the Sample

To gain information regarding who is using Facebook and whether investing the impacts of Facebook use is still meaningful, frequency procedures were run on all demographic variables. The five most frequently used social media sites included Facebook ($M = 6.12$, $SD = 1.24$), Snapchat ($M = 5.92$, $SD = 1.90$), Instagram ($M = 5.81$, $SD = 1.98$), YouTube ($M = 5.18$, $SD = 1.72$), and Twitter ($M = 3.07$, $SD = 2.48$). Furthermore, as depicted in Table 1, participants were avid users of Facebook,

Table 1. Results for understanding Facebook use

	%
Time Spent (in Minutes)	
< 10	16.1
10 – 30	30.6
31 – 60	23.5
60 – 90	10
Number of Friends	
251 – 300	10.3
301 – 400	13.9
> 400	45.2
Emotional Connection to Facebook	
Not emotionally connected	57.3
Somewhat emotionally connected	22.7

Note. $N = 310$. % = Percentage of participants who reported each category.

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who typically had over 400 friends (45.2%). Although participants were frequently engaged on Facebook, they were not typically emotionally connected to Facebook.

Testing the Model

The hypothesis was tested via bootstrapping analyses using the SPSS PROCESS macro developed by Hayes (2013). The bootstrapping analyses created a 5,000 participant sample from the original data set through a process of sampling with replacement, and constructed a 95% confidence interval (CI) around the proposed indirect effects. Indirect effects were significant when the range across the CI's did not contain a zero (Hayes, 2013).

It was predicted that the indirect negative association between passive Facebook use and subjective well-being, through upward social comparison, is moderated by active Facebook use. Active Facebook use was predicted to buffer the negative association between upward social comparison and subjective well-being after passively using Facebook. The hypothesis was analyzed using model 14 of the PROCESS macro (Hayes, 2013). This model simultaneously added active use, passive use, upward social comparison, and the interaction between upward social comparison and active use as predictors of subjective well-being. The analysis revealed that the overall model was significant, $F(4, 305) = 5.166, p = .001, R^2 = .122$; passive Facebook use was positively related to upward social comparison ($B = 0.095, t = 2.400, p = .017$), which was negatively related to subjective well-being ($B = -0.194, t = 4.053, p < .001$). Further, active Facebook use was positively related to subjective well-being ($B = 0.106, p < .05$). The interaction between upward social comparison and active Facebook use however, was not significant ($B = 0.051, t = 1.112, p = .267$). An index of moderation was also calculated (Hayes, 2013) and it was not significant, 0.005, $SE = .005$, 95% CI [-0.002, 0.019]. Thus, the moderated mediation did not occur, and deficits in subjective well-being that came from the upward social comparison that accompanies passive Facebook use were not buffered by active Facebook use.

Qualitative Analysis

The qualitative item was coded for major themes based on the frequency in which participants referred to specific subjects in their responses. A total of 292 of the 310 participants responded to this question. Multiple themes were identified for each participant. Overall, 125 participants indicated that Facebook was both positive and negative in their lives. In addition, 110 participants indicated that Facebook was only positive in their lives, 33 participants indicated that Facebook was only negative, and 24 participants indicated that Facebook did not affect them.

In total, 226 participants reported that Facebook positively impacts their lives. The most prominent positive outcomes reported were as follows: Relationship maintenance ($n = 193$), anytime participants indicated that they found Facebook was positive because they could be in touch or connect with their friends and family, this was coded as relationship maintenance; entertainment purposes ($n = 52$), anytime participants indicated that they found Facebook positive because of the news, memes, videos, or quotes found on the SNS this was coded as entertainment; and posting information about the self ($n = 7$) anytime participants indicated that Facebook was positive because of the ability to post or share information about themselves, this was coded as posting personal information on Facebook.

On the other hand, 156 people reported that Facebook negatively affects their lives. The most frequently reported negative outcomes were as follows: Spending too much time on Facebook ($n = 64$), anytime participants indicated that they spent too much time, or waste their time on Facebook, this was coded as spending too much time on Facebook; negative social comparison ($n = 36$), anytime participants indicated that they negatively social compare on Facebook, or that they feel worse about themselves after comparing to their Facebook friends, this was coded as negative social comparison; and feeling bullied ($n = 8$), anytime participants indicated that they feel bullied, marginalized, or received mean comments on Facebook, this was coded as feeling bullied.

DISCUSSION

The purpose of the current study was to identify whether the positive effects of active Facebook use compensate for the negative effects of passive use on subjective well-being. Consistent with previous studies, and the fact that users in this sample typically reported that using Facebook positively impacted their lives, actively posting on Facebook was associated with enhancements for users' subjective well-being. Contrary to expectations however, the benefits associated with actively posting on Facebook were not strong enough to compensate for the deficits in subjective well-being that are produced by the upward social comparison that accompanies passive Facebook use.

Replicating previous findings, passively browsing Facebook led to increases in upward social comparison, which then led to decreases in subjective well-being. In addition, there were participants in this sample who referenced that negatively comparing themselves to their Facebook friends as a negative outcome for using Facebook. These findings reaffirm the negative consequences for subjective well-being that accompany passive Facebook use.

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Although active use was associated with enhancements to users' subjective well-being, the enhancements were not strong enough to buffer the deficits in users' subjective well-being after passively browsing Facebook and negatively comparing themselves to their Facebook friends. In general, there are inconsistencies in the literature regarding whether active use does in fact enhance subjective well-being (see Verdyun et al., 2017 for review). Among the studies that have found that active Facebook use enhances subjective well-being, a commonality among them is including Facebook messaging when measuring active Facebook use (Ryan & Xenos, 2011; Kim & Lee, 2011). In fact, in a recent review of the relationship between Facebook and subjective well-being, active Facebook use was categorized as actively self-disclosing through communicating with Facebook friends (Verdyun et al., 2017). Considering that it is self-disclosure via communicating online has been linked to increases in friendship quality (Desjarlais & Joseph, 2017) and subjective well-being (Valkenburg & Peter, 2009), and that communication with friends on Facebook is typically accomplished through the chat and messaging and features (Pempek, Yermolayeva, & Calvert, 2009), it may be that the posting of photos, status updates, memes and so forth used to measure active Facebook use in the present study did not capture enough meaningful self-disclosure to enhance users' subjective well-being enough to compensate for the observed negative effects.

In addition, it may also be that how and why people use Facebook is evolving. In early Facebook research, social networking sites such as Facebook were typically used to publically share information to offline friends (boyd & Ellison, 2007), as well as maintain friendships (Davis, 2012). In the present study, although users reported that Facebook positively impacted their lives via some form of relationship maintenance, few people reported using Facebook to post information about themselves or communicate with friends in any deep or intimate way. In fact, users more frequently reported enjoying the funny, or inspirational, memes and videos on Facebook than communicating or disclosing with friends. Furthermore, only one participant mentioned using social networking sites to express themself, and they indicated that they used Instagram and Snapchat to do so. In fact, more recent research has shown that Instagram and Snapchat are more popular than Facebook messenger (Lee, Lee, Moon, & Sung, 2015), especially among adolescents (Gramlich, 2018). Given the rise in popularity of Instagram and Snapchat among adolescents and emerging adults (Lee et al., 2017), it may be that Facebook is no longer being used to disclose information, but rather be entertained with friends online, and that disclosing about oneself on social media may now take place on either Instagram or Snapchat, which are more photo and feedback based sites as opposed to the sharing of content/memes that occur on Facebook.

Despite the rise in popularity of other social networking sites like Instagram and Snapchat, young adult users in this sample did report using Facebook more frequently than the preceding sites. However, due to the changes in the how people are using Facebook, it may be that studying the effects of actively posting on Facebook may not be as meaningful as it was in earlier studies. To clarify whether actively using Facebook enhances subjective well-being enough to buffer the deficits in subjective well-being associated with passively browsing Facebook, future research will need to target the features of Facebook that allow for meaningful communication and self-disclosure such as direct messaging via Facebook messenger.

RECOMMENDATIONS FOR RESEARCH AND POLICY

Although previous researchers have advocated for encouraging posting on Facebook to decrease the likelihood of experiencing negative effects, the results of the present study indicate that posting photos, status updates, and memes on Facebook are not enough to compensate for the negative effects from the upward social comparison that occurs while browsing Facebook. Therefore, the way people use Facebook is evolving and these changes should be reflected in how researchers study the effects of Facebook in future research.

As suggested in previous research, support networks such as clinicians, educators, and parents should be aware of negative consequences associated with browsing Facebook. If members of an individual's support network are aware of the effects on subjective well-being associated with browsing Facebook, they could encourage emerging adult users to lessen their browsing behaviours, or encourage them to recognize and avoid the negative social comparison that results from passive browsing. It should also be noted that the upward social comparison that occurs while passively browsing only accounted for 12% of the variability in subjective well-being. Thus, the effects found in the present study are meaningful, but not large enough to warrant a complete boycott of Facebook. Additionally, relatively few people in this sample recognized that they engaged in upward social comparison when using Facebook, and thus awareness alone may be enough to alleviate the deficits in subjective well-being and related constructs such as depression and loneliness.

In addition to awareness, positive strategies for coping with the upward social comparison that occurs online could also be promoted. For instance, Facebook users could be encouraged to develop self-compassion using mindfulness techniques while on Facebook (Rumsey, 2018). Given that social comparison is an automatic process (Festinger, 1954), perhaps especially on Facebook (Vogel et al., 2014; Feinstein et al., 2013), users could be encouraged to employ mindfulness skills once they notice they are comparing themselves to their Facebook friends. For example,

users could be encouraged to overcome any negative emotions by taking a moment to practice expressing gratitude for the things they do have, and compassion for themselves (Rumsey, 2018). Further, social comparison theory states that upward social comparison can be used as motivation for self growth and improvement (Festinger, 1954). As such, users could be encouraged to use the target's information to create goals for themselves and promote personal growth as opposed to feelings of inadequacy (Rumsey, 2018).

Social media users could also be encouraged to manage their Facebook newsfeeds to set themselves up for more positive experiences while browsing. In essence, users could organize the content they are exposed to on their Facebook newsfeeds by setting boundaries and removing content that triggers negative emotions. For example, users could block, or unfollow any accounts that make users feel badly about themselves (Rumsey, 2018). This could include removing friends, or celebrities, that consistently present themselves as perfect, removing friends who constantly boast about body image, or removing people that represent a negative part of their past, such as a former partner (Miller, 2017). In addition to blocking or unfollowing, which are more permanent forms of removing users on Facebook, in December 2017 Facebook unveiled a 'snooze' feature to help users organize their newsfeeds and prevent negative experiences (Muraleedharan, 2017). This feature allows users to take a 30 day break from Facebook users by temporarily unfollowing them for 30 days.

In what context should these techniques be taught and/or employed? Given that, roughly 85 percent of American adolescents (13-17 years) are exposed to online social environments (Anderson & Jiang, 2018), and that social comparisons and peer feedback is an imperative part of adolescents' self evaluations and development (Harter, 1999), an ideal setting to start conversations about the impact of social media and employ these techniques would be as part of the educational curriculum in middle schools. For instance, in May 2018 the New Democratic Party in Alberta, Canada suggested that the government donate 5 million dollars to Alberta schools to implement mental health education in schools (Ferguson, 2018). These programs were developed in response to complaints from parents and educators regarding the need for mental health programing in schools, and are aimed at reducing mental health stressors, including the stressors students face while on social media (Ferguson, 2018). These mental health programs could potentially then offer a venue for educators, parents, and counsellors to inform adolescents about the upward social comparison that occurs on Facebook, and the consequences for subjective well-being that ensue, possibly before social media becomes ubiquitous in their daily routine. Further, these programs could promote the preceding positive strategies that could act as protective factors and enable youth to combat the consequences for subjective

well-being that accompany passive Facebook use. In essence, programs like these could be implemented in schools across North America to help young social media users avoid these deficits in subjective well-being.

CONCLUSION

A clear theme in the current literature, and consistent with the results of the present study, is that passively browsing Facebook leads to upward social comparison, which then leads to deficits in subjective well-being. Further, active Facebook use may produce some enhancements for subjective well-being, albeit not enough to compensate for the deficits associated with passive use. While the effects are not large enough to encourage users to boycott Facebook altogether, users should be aware of the negative consequences for subjective well-being that accompany passive Facebook use. An avenue to spread awareness and employ protective strategies, such as using mindfulness skills and controlling content while browsing Facebook, would be in the education system. Given that parents, educators, and clinicians have advocated for mental health programs in schools, and that there is some notion of progress in some Canadian provinces (Rumsey, 2018), the author proposes that the consequences for subjective well-being associated with Facebook use, and the skills to combat them, be incorporated into such programs across North America.

ACKNOWLEDGMENT

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KEY TERMS AND DEFINITIONS

Active Facebook Use: An approach by which Facebook users interact with other users through sharing textual and pictorial information, sending messages, and reacting to others' posts. Instances where the targets of social comparison appear to be doing better than oneself.

Downward Social Comparison: Instances where the targets of social comparison appear to be doing worse than oneself.

Passive Facebook Use: An approach by which Facebook users surveil others through scrolling the newsfeed and browsing timelines.

Selective Self Presentation: The idea that users are able to manipulate the information presented about themselves on social media so that it is framed in the most attractive, desirable, socially acceptable way.

Social Comparison: A process by which individuals compare themselves to others as means of gaining information on what is most popular and acceptable, then making self-evaluations based on these observations.

Social Media: Any technological medium that enables individuals to connect with their social networks (e.g., texting, e mail, social networking sites).

Subjective Well-Being: The evaluation of one's own life including an assessment of overall life satisfaction and emotional responses to life events.

Upward Social Comparison: Instances where the targets of social comparison appear to be better than oneself.

Chapter 12

The Effects of Virtual Likes on Self-Esteem:
A Discussion of Receiving and Viewing Likes on Social Media

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ABSTRACT

Social networking sites offer opportunities for users to express themselves and receive immediate feedback in the form of virtual likes. Adolescents place a great deal of value on the number of likes, regarding them as indicators of peer acceptance and support. Since peer feedback and social comparison are integral to adolescents' self-evaluations, the aim of the current chapter is to determine whether self-esteem is sensitive to the number of likes associated with their own (peer feedback) and others' posts (social comparison). The synthesis of literature indicates that self-esteem is responsive to indicators of one's value to others as well as the value of others, supporting the sociometer and social comparison theories. Indications of liking online serve to enhance self-esteem, whereas rejection deflates it. In addition, seeing others get many likes negatively impacts viewers' self-esteem. The gaps in the literature are discussed and future research is suggested.

INTRODUCTION

Social media has become ubiquitous in the daily life of adolescents and young adults, providing a forum for youths to interact and make connections with peers, practice social skills, observe others, and to provide and receive feedback (Boyd & Ellison, 2007). Facebook, Instagram, and Snapchat are consistently among the top social networking sites in North America (Greenwood, Perrin, & Duggan, 2016; McKinnon, 2015; Smith, & Anderson, 2018). Users create online profiles containing personal information about the self, in the form of images and/or textual content, that are broadcasted to other social networking members. Not only do users share information with a much larger audience compared to interactions in real life, but they also are open to immediate feedback from the larger audience in the form of quantitative (virtual likes which are represented as a thumbs up symbol or heart) and qualitative (comments) remarks. Overall, social networking sites have the potential to influence psychosocial functioning.

As adolescence is characterized as a developmental period of increased focus on the self, peer feedback and social comparison become integral to adolescents' self-evaluations (Harter, 1999). In effect, adolescents' self-esteem may be sensitive to the number of likes they get in response to their social media posts as well as the number of likes that their peers may acquire. Therefore, the primary objective of the current chapter is to outline research regarding the potential enhancing and adverse effects one's own virtual likes as well as other posters' virtual likes may have on users' self-esteem. First, the chapter will describe theoretical perspectives of self-esteem to support the potential influence of liking indicators on self-esteem. Second, a description of the virtual like is provided, including what likes may stand for, and the types of images that are most likely to elicit a greater number of likes. Third, the author will synthesize the literature that examines (1) the relationship between self-esteem and the number of likes users receive for their information shared on social networking sites, and then (ii) the relationship between self-esteem and seeing how many responses others have received for their posts. Finally, the gaps in the literature will be discussed and future research suggested. Overall, this chapter may aid in the advancement of research, increase public awareness, facilitate policy development, and expand clinical applications related to protecting or enhancing self-esteem among social media users.

SELF-ESTEEM BACKGROUND

Self-esteem can be conceptualized as the extent to which individuals accept, approve of, or value themselves. While state self-esteem represents the momentary fluctuations in one's feelings about him/herself, trait self-esteem captures one's global appraisal of his/her value (Leary, 1999). Researchers agree that low self-esteem is associated with a variety of psychological challenges, including depression, loneliness, substance abuse, and academic failure (Henriksen, Ranøyen, Indredavik & Stenseng, 2017; Leary, 1999; Rosenberg, Schooler, & Schoenbach, 1989; Silverstone & Salsali, 2003). According to Argyle (2008), the following four major factors influence self-esteem: the reactions of others, comparison with others, one's social roles, and one's identification with social roles. The current chapter focuses on the first two factors, which are most relevant for the effect of virtual likes on self-esteem.

One theoretical perspective that highlights the importance of others' evaluations for self-esteem is the sociometer theory (Leary & Baumeister, 2000). According to the sociometer theory, humans have a natural drive to maintain significant interpersonal relationships, which stems from the species survival being dependent on individuals belonging to groups. To facilitate knowledge of group belongingness, humans may have evolved to develop a psychological mechanism that would continuously monitor the social environment for cues regarding the degree to which they were valued and accepted by others. Thus, self-esteem is a psychological meter that monitors the quality of one's relationships with others. Individuals tend to feel good about themselves when experiencing acceptance and conversely feel negative about themselves when experiencing rejection. The sociometer is particularly sensitive to changes in the social environment so that individuals can react to improve situations in their favor. While state self-esteem captures the momentary fluctuations in perceived social inclusion based on others' evaluations, trait self-esteem is an overall appraisal of value, or the degree to which the individual views oneself as a sort of person who is accepted by others (Leary, 1999; Leary & Baumeister, 2000).

In addition to others' evaluations, individuals base judgements about themselves on how they compare to those deemed similar to themselves (Festinger, 1954). When there is no objective measure available, social comparison helps to establish one's standing, and reduce ambiguity about what is considered successful, acceptable, beautiful, and so on (Brown, Ferris, Heller, & Keeping, 2007; Verduyn, Ybarra, Résibois, Jonides, & Kross, 2017). Social comparison provides individuals with the ability to gather information to evaluate their own capacities and characteristics, so they can develop stable and accurate evaluations about the self. Self-evaluation depends on how an individual compares oneself with other people, with a distinction made between upward and downward comparisons (Suls, Martin, & Wheeler, 2002). Upward social comparison refers to instances where the target(s) of social comparison

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is perceived as doing better than oneself on some dimension. Upward comparisons may serve to enhance the self by eliciting behaviours to improve oneself, such that people are motivated to change the self to be more like the comparison standard (Higgins, 1987; Lockwood & Kunda, 1997). However, upward comparisons more often lead to feelings of inadequacy, jealousy, or negative affect, the development of a negative self-image, and decreases in well-being (Michalos, 1985; Pyszczynski, Greenberg, & LaPrelle, 1985). On the other hand, downward social comparison refers to the situation where the individual perceives the self as more fortunate than the target(s) of social comparison, which is typically associated with a more positive self-image, as well as enhanced well-being and feelings of self-worth (Suls et al., 2002).

Within the following sections, a discussion of the link between self-esteem and both social networking members' responses and social comparison in the context of virtual likes is presented.

AN INTRODUCTION TO VIRTUAL LIKES

Social networking sites offer opportunities for users to express to viewers who one is, including their likes and dislikes, values and opinions, and receive immediate feedback from friends, acquaintances, and strangers (Niera & Barber 2014; Spies Shapiro & Margolin, 2014). When viewing others' shared information on social media, such as images, status updates, or tweets, users can respond to the post through comments or can provide, with the push of a single button, a virtual like (symbolized by the thumbs up emoticon on Facebook or a heart on Instagram). As studies show, liking is popular on social networking sites with adolescents on average clicking the like button several times a week (Utz, 2015) or an average of 2.3 likes per day, a function used more than leaving comments (Wenninger, Krasnova, & Buxmann, 2014). Users are even more likely to receive than give likes (Hampton, Goulet, Marlow, & Rainie, 2012).

What does a virtual like convey? Virtual likes represent a "mixture of active participation and passive following" (Wenninger et al., 2014, p. 6). On the one hand, likes may simply provide the poster with an acknowledgement that someone has read or seen the post (Bosch, 2013 as cited in Wenninger et al., 2014). Users click the like button for entertaining posts just as often as they do for boring posts (Barash, Ducheneaut, Isaacs, & Bellotti, 2010). On the other hand, adolescents appear to place much value on likes (Sarita & Suleeman, 2017), and thus despite their effortless nature to give and get, likes can mean something to users (Wohn, Carr, & Hayes, 2016). Across 24 in-depth interviews with adolescent girls in Singapore, all participants counted their number of likes and believed that the number of likes

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acquired provided informative feedback from peers, regarding them as more important than the comments they received (Chua & Chang, 2016). Youth seem to actively seek this type of feedback (Valkenburg, Schouten, & Peter, 2005).

Researchers also argue that likes are a method of showcasing one's affirmation and support for one another (Metzler & Scheithauer, 2017; Scissors, Burke, & Wengrovitz, 2016; Zhang, 2017). Through likes, users acquire an understanding of the type of posts that are accepted by their social network (Jong & Drummond, 2013). There is strong evidence that the number of likes is perceived as an indicator of a person's popularity (Fox & Moreland, 2015; Marshall, Lefringhausen, & Ferenczi, 2015; Tajuddin, Hassan, Ahmad, 2013). For example, in a qualitative study of 28 middle school aged girls, there was consensus that likes represent an expression of personal approval for the shared information, and that the number of likes was a direct indicator of popularity (Jong & Drummond, 2016). One participant even claimed that over a hundred likes signifies that the poster is popular among his/her peers. In addition, getting likes or comments from social networking members can translate into perceived social support (Zhang, 2017). Cotten (2008) claimed that the positive feelings associated with receiving likes reinforce a positive relationship between the giver and receiver of the likes. In support of this claim, the earning of likes has been positively linked to building social capital and bonding (Lee, Kim, & Ahn, 2014).

Which social media posts elicit more virtual likes? Some of the factors that influence the number of likes received include image type, number of likes already received and valence of the post. First, images with faces are more attention-grabbing. A recent study demonstrated that individuals were more likely to like a post containing photos, whereas they were more likely to comment on posts containing text (Kim & Yang, 2017). Among photos, ones that contain faces were more popular. After controlling for amount of activity on social networking sites and number of followers, images with faces were 38% more likely to receive likes and 32% more likely to receive comments than photos depicting other types of content (Bakhshi, Shamma, & Gilbert, 2014). Second, people in general conform to their peers, and this is no different on social media. Adolescents were more likely to endorse a photo they believed was posted on a social media site if that photo already received a high number of likes in comparison to posts with a lower number of likes (Sherman, Payton, Hernandez, Greenfield, & Dapretto, 2016).

Finally, most social networking users share positive rather than negative information about themselves (Bazarova, Choi, Sosik, Cosley, & Whitlock, 2015; Utz, 2015). Positive information has been found to elicit likes rather than comments or getting shared on Facebook (Kim & Yang, 2017). While there is evidence that positive posts receive more likes than negative posts (Burke & Develin, 2016; Forest & Wood, 2012), the relationship between valence of posts and likes depends

on one's level of self-esteem. Specifically, for users with low self-esteem, greater positivity of status updates was associated with greater social reward (i.e., combined number of likes and comments from friends); however, users with high self-esteem received greater social reward for their more negative status updates than for their less negative posts (Forest & Wood, 2012). The researchers suggested that friends of participants with low self-esteem rewarded positive posts with more validation and attention to encourage this atypical behavior (Forest & Wood, 2012).

In sum, virtual likes may be associated with a variety of meanings, some more significant than the next. However, adolescents tend to agree that likes provide valuable information regarding social status and social support. Therefore, it is conceivable that a simple click could have important implications for self-esteem.

VIRTUAL LIKES AND SELF-ESTEEM

Taking into account the rate at which individuals are exposed to feedback online from friends and strangers, and that adolescents (who are the heaviest users of social media) are most susceptible to positive and negative feedback, the effect of adolescents' interactions on social networking sites on their self-esteem demands attention. The following synthesizes relevant literature pertaining to the effects on self-esteem as a function of (1) the number of likes received, and then (2) the number of likes others have received. The aforementioned theoretical perspectives regarding self-esteem will be applied in each context.

The Number of Likes Users Themselves Receive

As discussed earlier, sociometer theory indicates that one of the primary determinants of self-esteem involves the perceived reactions of other people. On social networking sites, the perceived reactions can be captured through the number of likes received on one's posts. As an indicator of peer attention and one's position in their peer group, there are standards regarding the number of likes adolescents should receive to demonstrate their above-average status (Chua & Chang, 2016). Therefore, the sociometer theory predicts that a large number likes (a situation involving positive feedback) would increase self-esteem, whereas little or no likes (considered as negative feedback) would decrease self-esteem.

A few studies have reported findings counter to the predictions based on sociometer theory. Null and negative relationships between the number of likes acquired and psychological outcomes were found (Burke & Kraut, 2016; Coulthard & Ogden, 2018; Metzler & Scheithauer, 2017). For example, in order to examine the effects of social media activity, number of likes received in relation to activity and the

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combination of these factors for changes in loneliness, Deters and Mehl (2013) asked some participants to post more status updates than they usually do for one week. Compared to the control group (who did not adjust their status update frequency), participants who increased posting behaviour reported significantly lower loneliness regardless of the number of likes and comments received. These findings suggest a lack of effect for the number of likes received for psychosocial outcomes over and above active participation online.

However, the majority of research does support the number of likes as having esteem-enhancing effects. Both correlational studies (Burrow & Rainone, 2017; Gallagher, 2017; Lup, Trub, & Rosenthal, 2015) and experimental studies (Burrow & Rainone, 2017) support a positive association between the number likes received and increases in self-esteem. People with high self-esteem get a momentary boost in esteem every time they receive likes for their posts (Rutledge, 2013). Narcissists also get self-verified from the likes and positive comments they receive when posting selfies to social media (Barry, Doucette, Loflin, Rivera-Hudson, & Herrington, 2017). Receiving likes for social networking site posts results in increases in feelings of social acceptance (e.g., having opinions respected by others, feeling understood, and feeling accepted), which in turn is related to increased levels of self-esteem (Wang, Nie, Li, & Zhou, 2018).

The esteem-enhancing effects are also recognized by users themselves. Radovic, Gmelin, Stein, and Miller (2017) interviewed 23 adolescents regarding their social media use and how this may influence psychological distress. One particularly evident theme was the use of social media for social approval and social comparison. Adolescents expressed how the number of likes provided information regarding level of popularity, such that getting more likes increases self-esteem and conversely not getting likes decreases self-esteem. This resulted in some adolescents posting images they were not comfortable with, but that typically get likes, in order to obtain recognition. Similar themes were evident in Jong and Drummond's (2016) interviews with middle school aged girls, with likes also regarded as an indicator of popularity and having esteem-enhancing potential.

Similar conclusions regarding the link between feedback and self-esteem have been formed among researchers who examined qualitative instead of quantitative feedback. Similar to likes, positive comments have an esteem-enhancing effect (Frison & Eggermont, 2015; Greitemeyer, Mügge, & Bollermann 2014; Thomaes et al., 2010; Valkenburg, Peter, & Schouten, 2006; Yang & Brown 2016). These effects stand for comments from both friends and acquaintances (Valkenburg, Koutamanis, & Vossen, 2017). Negative comments, in contrast, result in decreases in self-esteem (Thomaes et al., 2010; Valkenburg et al., 2006). According to Valkenburg and colleagues (2006), valence of comments was more important for self-esteem than the simple frequency of comments. Although about three-quarters of adolescent

participants reported always or predominantly receiving positive feedback on their profiles, a small percentage (7%) did predominately or always receive negative feedback (Valkenburg et al., 2006). Therefore, while most users may fair well from social media use, there appears to be a small group of users who may experience aversive effects on their self-esteem from posting on social networking sites.

Overall, the aforementioned literature indicates that feedback from peers on social media is influential to self-evaluations. However, receiving likes from peers may not be equally important across users. Findings from both a correlational and an experimental study indicated that the impact of the number of likes received for a post on self-esteem was dependent on one's sense of purpose (Burrow & Rainone, 2017). In their experiment, undergraduate students took a photograph of themselves and were told that the experimenter uploaded their image to a social networking site for other users to view and have a chance to like their image. Participants were given randomized feedback. They were told that compared to pilot testing, they received an average number of likes, above the average number or below the average number. For those low in purpose, receiving a greater number of likes was associated with enhanced self-esteem, but had no effect on self-esteem for those high in purpose. Results were identical for their correlational study, where participants self-reported the average number of likes received on their profile pictures. Burrow and Rainone (2017) suggested that having a high sense of purpose inhibits activation of neural regions involved in reward processing, and thus, sense of purpose lessens responsiveness to likes as social rewards.

While getting many likes may enhance self-esteem, conversely, failing to acquire likes may have aversive effects on self-esteem. Correlational research has supported the negative effects of not receiving any feedback. Failing to get responses such as likes and comments from Facebook friends increased feelings of stress among adolescents (Park et al., 2015), and slightly decreased feelings of connectedness (Utz, 2015). Self-esteem was also adversely affected when participants were bothered if they did not receive as many likes as they thought they were going to on their posts (Gallagher, 2017) and when they did not receive replies in a timely fashion (Taylor & Harper, 2003). Users themselves also acknowledge the negative effects of not accruing likes. It was evident among interviews with middle school aged girls that the lack of feedback from other social networking site users could have a negative impact on self-esteem (Jong & Drummond, 2016). Specifically, likes served as an indicator of popularity, and girls had a tendency to feel disheartened if they received no feedback at all. Some mentioned feeling, or potentially feeling, that they were not liked, upset, depressed, or insecure. Girls also expressed how the need for responses to their posts and validation through likes was relatively immediate, and that they would take down posts that did not receive any likes after a short period of time, as

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this was perceived as negative feedback. These results resemble findings regarding offline interactions, where the ostracism people experienced after not receiving any feedback led to a decrease in one's sense of belonging and self-esteem (Smith & Williams, 2004).

In sum, there is much empirical support for the esteem-enhancing and esteem-reducing effects of virtual likes on social media. While a high number of likes received on one's social media posts increases feelings of acceptance and self-esteem, esteem-decreasing effects result from a lack of peer feedback.

The Number of Likes Peers Receive

According to social comparison theory, comparing oneself with others provides individuals with information to evaluate their own capacities and characteristics in order to evaluate oneself. The outcomes of self-evaluation depend on whether individuals compare themselves with others who fair better (upward social comparison) or fair worse (downward social comparison). Social networking users share information with one another via pictures and text-based posts, which can make them an upward or downward comparison target to other users (Vogel, Rose, Roberts, & Eckles, 2014). This information is also paired with information about their social network, including comments, replies, likes, and approval of their shared content. Feedback on others' posts can provide viewers with information about what is accepted by the social group and act as a point of reference to evaluate oneself. In line with social comparison theory, seeing others obtain a large number of likes would likely result in upward social comparison and thus decreases in self-esteem. Whereas, others' posts that receive a small number of likes may result in downward social comparison and thus increases in self-esteem.

Within the literature, much attention has been devoted to examining the relationship between two broad categories of activities on social networking sites (passive and active usage) and subjective well-being (see Verduyn et al., 2017 for a critical review). Associated with enhanced self-esteem (Schimmack & Diener, 2003), subjective well-being involves an evaluation of one's life and is partially contingent on life circumstances and activities (Diener, 2009; Lyubomirsky, Sheldon, & Schkade, 2005). Passive usage refers to the browsing of social networking members' posts without direct engagement with the posters (Verduyn et al., 2017). During passive usage, individuals are exposed to both personal attributes conveyed within profiles, pictures, and status updates as well as the corresponding comments and virtual likes. Although research involving the broad category of passive usage does not tease apart the differential effects of social comparison for personal and social content, it does shed like on the prevalence of upward social comparison taking place in the virtual world and its effects. Several studies, including cross-sectional, longitudinal and

experimental, have linked passive usage of social networking sites with decreases in subjective well-being (Fardouly, Diedrichs, Vartanian, & Halliwell, 2015; Tandoc, Ferrucci, & Duffy, 2015), regardless of level of self-esteem (Verduyn et al., 2015). This relationship is explained by upward comparisons and increases in envy (Muise, Christofides, & Desmarais, 2009; Tandoc et al., 2015; Verduyn et al., 2015; Vogel et al., 2014). Surprisingly, downward comparisons on social media are not associated with any changes to self-esteem (Vogel et al., 2014).

Focusing on virtual likes, a person who has an active social network (receiving numerous likes and comments) may be an upward comparison target in terms of popularity (Kim & Lee, 2011; Vitak & Ellison, 2013). Peer competition regarding who has the most likes can ensue, which has the potential for important implications on self-esteem. In support of these claims, adolescents admit to feeling worse about themselves when seeing others getting many likes on their post or picture (Radovic et al., 2017). Furthermore, participants report lower self-esteem after viewing a target's profile that contains a larger number of likes, regardless of the content of the profiles (Vogel et al., 2014). Specifically, whether the target's profile showcased engagement in healthy behaviors (a potential upward comparison) or unhealthy behaviours (a potential downward comparison), a large number of likes on the profile was associated with lower self-esteem ratings among participants compared to those who saw the same profiles but with a small number of likes. Moreover, participants also reported a greater discrepancy between the target person and themselves on a variety of positive attributes when the target received a high number of likes for the posted content. In contrast, when the target person had few likes, participants viewed themselves and the target person relatively similar.

Not only does social endorsement lead to behavioral responses, but the number of likes also influences neural responses. Adolescents underwent fMRI while viewing photographs ostensibly submitted to Instagram, which depicted few or many likes. When high likes were presented with a photo, there was greater brain activity in areas that implicated attention, social cognition and social memories. Increased activation suggests that adolescents may have scanned images more attentively, with popular photos resulting in qualitatively different responses compared to less popular images (Sherman et al., 2016).

Collectively, empirical findings indicate that when people receive greater response from social media members, viewers perceive them as doing better on some domain, such as social acceptance, which typically leads to feelings of inferiority. The upward comparisons when attending to others' virtual likes on social media result in decreases in self-esteem, supporting the predictions based on social comparison theory. On the other hand, when others receive few likes, the viewers perceive the target as similar to themselves rather than inferior, and thus self-esteem is not affected.

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FUTURE RESEARCH DIRECTIONS

Social media has altered the way in which peers interact with one another. Although offline interactions provided opportunities for social comparison and feedback, social networking sites have increased these opportunities enormously. While attention has been devoted to understanding the link between social media and psychosocial outcomes, the research is still in its infancy. Some of the next steps required to advance knowledge include a consideration of more complex relationships between social media activity and self-esteem, as well as an exploration of the longitudinal implications of posting optimized or false information in order to receive likes.

First, when examining the link between number of likes and self-esteem, most researchers have explored whether the number of likes people receive in response to their social media posts influences self-esteem. All of research in this area has examined momentary fluctuations in state self-esteem, and thus is unknown whether these changes have more long-term effects. Furthermore, it is conceivable that the relationship between feedback and self-esteem is cyclical. Forest and Wood (2012) found that young adults with lower levels of self-esteem express less positively and more negativity in their social media posts compared to peers with higher levels of self-esteem. These negative posts received less social reward (number of likes and comments from social networks) compared to their positive posts. Furthermore, individuals with lower levels of self-esteem are more likely to think that likes are meaningful and consequently feel upset with they do not receive an appropriate number (Scissors et al., 2016). Taking these findings together, it is plausible that the posts from individuals with low levels of self-esteem may elicit fewer likes due to their negativity, which in turn may further decrease (or at least not improve) their self-esteem. As such, they may continue to post more negativity, and continue to receive a small number of likes. Additional research is necessary to examine the validity of this proposed cyclical relationship between self-esteem and the number of likes received.

Second, the anonymity of social media makes it particularly attractive for selective self-presentation (Valkenburg & Peter, 2011). On the Internet, adolescents have control over the information they wish to present - controlling what they want others to know about them and creating opportunities to present themselves in the best light possible. In order to elicit esteem-enhancing reactions, social networking users may attempt to manage the impressions others form and their evaluations by presenting oneself to others in a positive and socially desirable way online (Hart, 2017). Some users do engage in like-seeking behaviours, including using filters or hashtags, buying likes, changing one's appearance completely (Duman, Maxwell-Smith, Davis, & Giulietti, 2017), or posting semi-naked selfies (Mascheroni, Vincent, & Jimenez, 2015). In a qualitative study of social media use, adolescent

girls indicated that editing photographs and making oneself look good on social media has become a necessity (Chua & Chang, 2016). All girls admitted to using filters and editing photos with software to, for example, brighten the skin, conceal facial imperfections, and enhance colours. One-third of the girls went so far as to change their facial features, including modifying their face line, and altering the size of their eyes and noses. According to one teen, the purpose of putting so much effort into perfecting their image is so posters can share pictures that meet the standard and to impress their friends (Chua & Chang, 2016). On the one hand, researchers have argued that frequent likes may affirm the ideal self that one presented online and make an individual feel good about him/herself, thereby increasing self-esteem (Bazarova & Choi, 2014; Shin, Kim, Im, & Chong, 2017). In contrast, others have reported that it is the honest self-presentation that enhances perceived social support and thereby has positive implications for subjective well-being (Kim & Lee, 2011). Moreover, high levels of self-discrepancy have been linked to low self-esteem (Moretti & Higgins, 1990). The question that arises then is, how do the likes received for optimized or deceptive information and uncomfortable images impact self-esteem and identity development for adolescents? While receiving many likes signals popularity and social acceptance, the person who is deemed popular in the photo may not be an accurate depiction of the poster in real life. When the online self may not be attainable in real life the receipt of many likes may have detrimental rather than enhancing effects on self-esteem. Moreover, greater discrepancies between the real self and the well-liked virtual self may be especially detrimental to adolescents, who are amid exploring their identities and forming a self-concept - a hypothesis that warrants testing.

RECOMMENDATIONS

As social media users become younger and younger, it is important to provide youth with education about the potential consequences of social media. Policy makers, parents, educators, clinicians and social media providers themselves should educate the public on how to use social media to protect self-esteem. According to Bos, Muris, Mulkens, and Schaalma (2006), "self-esteem enhancement requires the formation and acceptance of realistic goals in domains that are personally relevant, and a supportive social environment" (p. 11). Based on this view and the literature discussed in the current chapter, the following should be considered in educational communication on adaptive social media usage:

1. A virtual like is not always a message about likeability. Although often interpreted as a sign of affirmation for the poster, a virtual like can stand for

an acknowledgement of viewed content and can be easily manipulated by valence or type of post, for instance. With the like button being pressed as often for boring as interesting posts, the credibility of a like should be questioned. Even if virtual likes provide some information regarding popularity, self-worth should never be defined by a single factor. Instead, users should consider more important domains, including their positive interpersonal relationships, and emphasize domains in which they are competent and skillful. It should be noted, however, that enhancing perceptions of one's competence comes with challenges, as those with low self-worth tend to focus on failures and attribute them to internal factors, and they tend to be resistant to feedback that goes against their self-concept (Harter, 1999).

2. A vast majority of American youths (88% of 18- to 29-years-old) surveyed in 2018 indicated that they use some form of social media (Smith & Anderson, 2018). Although taking a break from social media, even for just a week, is associated with enhanced well-being (Tromholt, 2016), given its prevalent use, it is impractical to suggest that adolescents quit social media entirely. Instead, a more practical solution would be to have children and adolescents filter particular content that make them feel particularly upset or threatened. Facebook currently offers users the option to "snooze posts for 30 days", which provides opportunities for youth to temporary hide content without breaking ties with social networking members completely. In addition, adolescents should monitor their social media usage in order to avoid excessive passive usage in general.

3. Social support is a key factor for improving self-esteem (Harter, 1999). If adolescents do interpret a low number likes for their social media content as an indication of low social support, loved ones can help the youth focus on contexts where social support is strong.

CONCLUSION

Despite being an effortless gesture from social networking members, likes are perceived as being meaningful, especially for adolescents. It is clear across the current social media literature that individuals' self-esteem is responsive to indicators of one's value to others as well as the value of others, supporting the sociometer and social comparison theories in virtual environments. With few exceptions, indications of liking online serve to enhance self-esteem, whereas rejection deflates it. In addition, seeing others get a large number of likes negatively impacts viewers' self-esteem, while little likes have no effect. Taking into account the potential rate

at which adolescents receive (or do not receive) such feedback from peers and the importance of high self-esteem to psychosocial outcomes, researchers, clinicians, educators, and parents should not regard likes as just a number.

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KEY TERMS AND DEFINITIONS

Downward Social Comparison: Instances where the target of social comparison is perceived as doing worse than oneself on some dimension.

Passive Social Networking Usage: consumption of social networking content without direct engagement with the information owner (e.g., browsing news feeds or looking at profiles, pictures, and status updates posted by other social network users).

Qualitative Feedback: Responses on social media from friends and followers consisting of written text (i.e., comments).

Quantitative Feedback: Responses on social media from friends and followers consisting of numbers (i.e., number of likes).

Self-Esteem: The extent to which individuals accept, approve of, or value themselves.

Social Media: Online platforms that permit users to create a profile, as well as connect and exchange information about oneself with other members. Examples include social networking sites, instant messaging services, blogging sites, and multiplayer online games.

Status Update: A feature on social networking sites which allows users to share their thoughts, feelings, experiences, whereabouts, and so on. A status is often short and posted on the user's profile page, as well as in the new feeds of friends and followers.

Upward Social Comparison: Instances where the target of social comparison is perceived as doing better than oneself on some dimension.

Virtual Like: Also referred to as a like, this is a symbol, such as thumbs up or heart, viewers on social media can select to provide feedback or acknowledgement to posts on social media.

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Chapter 13
Avatars for Clinical Assessment:
Digital Renditions of the Self as Innovative Tools for Assessment in Mental Health Treatment

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ABSTRACT

Avatars are an important feature of digital environments. Existing both in social networks and webchats (usually as static images) and in single-player and online video games (as dynamic characters, often humanoid), avatars are meant to represent users' action and communication within digital environments. Research has shown that, when they are customized by users, avatars are not created "randomly," rather they maintain some kind of relationship with users' actual self-representation and identity. However, more recent studies showed that users may have multiple digital representations: the same person could create multiple avatars depending on which facet of the self is primed by an experimental manipulation, or on which aims they have to pursue in the given virtual environments (e.g., to seduce, to play, to work). With this background, this contribution explores the possibility to use customized avatars within psychological assessment, as adjunctive assessment tools useful to get information on patients' self-representation(s) and communicative intentions.

INTRODUCTION

In the context of new technologies and social media, a number of interesting opportunities emerged for users to understand who they are and how to communicate themselves to others. Indeed, people spend a lot of time taking picture of themselves (selfies), and updating their profiles across a number of platforms (social networks), in order to achieve a positive and desirable impression management. Sometimes, people are allowed to create a completely new image of themselves, which can be totally different from who they really are. This relates to the concept of *avatar* or users' digital, often customized, representations of themselves in virtual environments. As the first part of this contribution will show, avatars generated attention in psychologists and social scientists to the point that a number of theoretical and experimental studies on this topic have been published (at the end of 2018, a search on popular science-focused search engines with keywords such as "avatar" and "psychology" yields more than fifty thousand results).

Indeed, avatars have been recognized as an interesting resource not only to study self-presentation online, but also self-representation and identity. According to projective identity theory (Gee, 2003), it exists an "interface" between a user and his/her avatar, which features those aspects of self-representation one wants to transmit in the avatar appearance. Such contents are different from the avatar, in that opportunities for customization offered by the virtual platforms usually do not permit a "perfect" representation of user's intent, so that the final digital figure should be understood as the result of a negotiation process involving user's self, intentions, other psychological factors such as culture and personality, the virtual world and customization platform's characteristics as well.

Secondarily, research has demonstrated that avatars can influence users' behavior by modifying their self-perception inside the virtual worlds and this phenomenon (the so-called "Proteus effect") became the foundation of innovative cyber-psychological interventions for the fields of healthcare and learning.

The purpose of the present contribution is to briefly review these areas of research, and then to extend the psychological discourse on avatars further, by advancing the idea that these peculiar tools of new technologies could offer unprecedented opportunities for psychological assessment and therapy.

BACKGROUND

An avatar is typically an image that represents the self in the virtual world. Generally used in the context of social networks and video games, it could be a static or dynamic figure that embodies actions/communications between users in a virtual

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world (Triberti, Durosini, Aschieri, Villani, & Riva, 2017). Actually, "avatar" is a word used to identify a number of heterogeneous entities in the digital world; Triberti and Argenton (2013) have proposed a general classification:

- When *relational*, avatars are used exclusively to identify the authorship of messages by a human user, and to communicate a simple meaning about oneself (e.g., what I like, who I am, which ideas or values I adhere to); for example, here the word avatar is used to refer to static pictures (faces, objects, symbols… even a written description, such as in first-generation MUDs) in forums, web chats, or social networks;
- When *agentive*, avatars are used to act and move within a two-dimensional or three-dimensional digital environment: for example, these (often) humanoid dynamic figures are used to walk, fight, or explore in video games;
- Finally, *hybrid* avatars perform both the functions; for example, avatars in Virtual Worlds and online video games (e.g., MMORPGs) are both used to communicate meaning and promote recognition by others, especially when personalized in their appearance, and to act and move (the examples reported in this contribution will be mainly referred to this kind of avatars, which appear to be the more rich in terms of customization options and communication possibilities).

The physical appearance of avatars can be simple or complex: users can indeed represent themselves through a very simple drawing (e.g., Mii characters for the Nintendo Wii) or three-dimensional figures rich with details (e.g., video games) (Fong & Mar, 2015). It is important to emphasize that avatars are not exclusive to virtual worlds and computer games, rather they exist (e.g., in their "relational" version) in old and basic social media as well, such as forums and webchats. Literature says that avatars can be a good representation of the actual self, strictly connected to user's identity. There are indeed some interesting questions: is an avatar only a large container of people's features? Are there differences if users act through different types of avatars? What are the consequences of avatars on human behavior in the real word?

The first observation is that there is a great difference if users create an avatar or if users must use an avatar already given by the system. In the first circumstance, this process is called "customization" (Mcarthur, 2018); this is the possibility of managing the avatar's appearance. Users indeed can potentially choose, buy, or make new clothes, hair and so on for their avatars to wear (Bailey, Wise, & Bolls, 2009). It is a complex phenomenon because people are not always capable to produce their identity (McArthur, Teather, & Stuerzlinger, 2010) and the relationship between users and their avatars isn't simple. The high fidelity and quality of self-representation

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depends also on users' motivation to create a duplicate of themselves in a virtual world. Referring to this, McArthur (2018) says that customization is influenced by the reason an avatar is created for. Users indeed may want to create a realistic, ideal, or fantasy avatar, for example. Ideal avatar is in line with an idealized self-description that's rich with desired modifications and specific features. People can make avatars with peculiar and unusual features and/or very different from their real self, sometimes to reflect a popular trend, resemble a celebrity (Ducheneaut, Wen, Yee, & Wadley, 2009) or to express fantasies and imagination (Belisle & Bodur, 2010); a fantastic avatar is generally created with escapism motivations because people generally have the desire of living as someone else; lastly role player avatars represent users and their fantasies but, in this case, users don't maintain this identity all the time. Especially teenagers are usually involved in new identities in the virtual world as well as in the real life (Kafai, Fields, & Cook, 2010). In this occasion, their expression of offline identity could become a helpful and formative step into the process of their identity development, not only entertainment.

Another interesting motivation could be the influence of the context on customization. Many users learn to customize avatars in order to belong to the community, by observing other users or, in some cases, the editor of a virtual game. In this sense, according to a psychoanalytic perspective, avatars can be defined as "ambassadors of agency" (Rehak, 2003). Indeed, on the one hand, avatars recall the toys everyone used as children to represent their own action within game environments (Klevjer, 2003), so it is possible that they embody a very "ancient" process of identity play; on the other hand, today, avatars tend to be graphic, digital objects that human users create or select among available materials such as pictures (Banks & Bowman, 2016), or anthropomorphic properties (Nass, & Moon, 2000). Mediated by avatars, individuals respond to each other starting from the first impression, in the same manner as the real world (Naumann, Vazire, Rentfrow, & Gosling, 2009). Some people believe that avatars do not represent the user's identity; on the contrary, literature explains that avatars can more or less embody their creators. Furthermore, referring to a parasocial interaction perspective, users actually think, act, and feel through avatars (Banks & Bowman, 2016); this will become clearer when the *Proteus Effect* or the effects of avatars on their users is explored later in this chapter.

Consequently, the representation of oneself through a graphic and/or anthropomorphized avatar influences the level of interaction in the virtual world too: sometimes, users utilize avatars just as virtual objects to move and act within virtual environments. In this case, they can have low emotional involvement with them and possibly they employed less identity material during the customization process. On the contrary, literature shows that avatars can be complex social agents which express users' self-representation or intentions (Banks & Bowman, 2016).

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In other words, avatars are primarily defined on the basis of their interactive and social properties, as representations of users in digital space (Lee, 2014). Representation should be understood in complex terms: for example, some assume that avatars should look like the actual physical appearance of the human creators (Hooi & Cho, 2014), while others expect avatars to reflect the personality/internal processes of the users, independently of what and how they actually look like (Behm-Morawitz, 2013). In general, avatars allow for both kinds of identity-based customization. This is an interesting consideration in the fields of psychology and life sciences: users' identity indeed can be studied through avatars because users express or suppress various physical and psychological traits through them (Williams, Kennedy, & Moore, 2016). Belisle and Bodur (2010) emphasize that avatars can convey accurate personality information about their creators because individuals choose and prefer avatars perceived to be similar to themselves. For example, introverted people and neurotic women tend to select more attractive avatars, while participants with low self-esteem picked avatars with lighter skin tones (Dunn & Guadagno, 2012). One study demonstrated that participants were able to guess other participants' personality traits just by observing their avatars (Fong & Mar, 2015) and this shows that the connection between players and avatars is strong and meaningful; however, there are situations in which avatars are very different from their users (Sibilla & Mancini, 2018). For example, the research showed that users may (or may be primed to) create avatars resembling an ideal representation of themselves (Jin, 2009, 2012; 2010), and that a noticeable discrepancy between an ideal and an actual self-virtual representation could be a sign of psychological and health issues (Kim & Sundar, 2012; Leménager et al., 2013). It could depend on the possible correlation with low self-esteem and negative symptoms of users (theory of self-discrepancy) (Higgins, 1987; Park, 2018). For this reason, it is also necessary to consider the virtual environment in which avatars are involved and the platform used to create them: specifically, users have to deal with opportunities/obstacles present in the technology (e.g., they may be allowed to choose a limited amount of customizable options, such as limited clothes or skin and hair colors).

Secondarily, the research has shown that a number of users' characteristics influence avatar creation, even acting outside of conscious awareness, such as age and gender. Adolescents, for example, are extremely influenced by their perception of self-esteem and body-esteem: boys create avatars rich with many sexual features, while girls prefer to detail clothing and make-up, in reference to gendered self-expression practices typical of western culture (Villani, Gatti, Triberti, Confalonieri, & Riva, 2016). Even activities performed by avatars in the virtual worlds often reflect gender differences embedded in real-world culture (Guadagno, Muscanell, Okdie, Burk, & Ward, 2011).

A compensation effect has also been observed. Older people tend to create younger avatars and people with a higher body mass index – likely overweight or obese – create more physically idealized avatars, which are taller or thinner (Bessiere et al., 2007; Carrasco et al., 2017; Stavropoulos, et al., 2018). The compensation effect also regards the psychological feature, bringing people who are depressed or have low self-esteem create avatars with more idealized traits, such as being more gregarious and conscientious (Yee & Bailenson, 2007).

Moreover, several studies have begun to investigate the identity-related outcomes of their use. Yoon and Vargas (2014) highlight that virtual environments enable people to experience extraordinary identities and circumstances; an individual in fact could be a superhero, a fantasy creature, or simply the person he/she dreams to be using avatars in virtual space. This gives to users the possibility of learning new behaviors by acting as their avatars.

Another important phenomenon regards the possibility that users change their behaviors influenced by avatars. In this case, the users' identification with specific avatars can explain their behaviors in the virtual world and also in the real life subsequently. Cohen suggests that identification is ''a response to communication by others that is marked by internalizing a point of view rather than a process of projecting one's own identity onto someone or something else'' (Cohen, 2001, p. 252). Three kinds of identifications are possible: avatar identification, group identification, and game identification (Ash, 2015). The embodiment of a specific avatar is an unconscious process by which users make inferences about expected behaviors, using visual cues (Bessière, Seay, & Kiesler, 2007) and stereotypes activated by social identity. This is very interesting for psychology also because literature affirms that changes in aspects of virtual world can lead modifications also in a real one (Baylor, 2009). For example, people that use healthy avatars tend to have healthier behaviors also in the real world (Fox & Bailenson, 2009). In view of the above, interactivity (Wu, 2014) and the experience of embodiment are two essential conditions that can influence users' attitude and their behaviors (Fox, Bailenson, & Tricase, 2013). Yee, Bailenson, and Ducheneaut (2009) labeled this phenomenon the "Proteus Effect", which is the modification of user's self-representation in order to influence attitudes and internal beliefs, modifying individual behaviors (Williams et al., 2016), that will be better explained in the following section.

This first glimpse within psychological research on avatars show the complexity of the topic. On the one hand, avatars are able to influence internal processes and behaviors of their users, so that they already demonstrated to be a valuable tool for psychological and health interventions. On the other hand, regarding the phenomena related to customization processes and practices, while avatars could resemble their users, it appears that people may create avatars for different purposes ranging from "just using the virtual world" to trying to put themselves within new identities and

experiences. Such richness will become clearer when considering that self and identity are not actually "fixed" nor "stable", rather, according to classic theories, they are dynamic and malleable.

Proteus Effect

As previously anticipated, beliefs and attitudes of users are influenced by their self-representation; when the representation of the self is a digital persona (e.g., an avatar), it could directly influence behavior. This phenomenon is called the "Proteus effect". Indeed, the Proteus effect allows people to embody others' perceptual experiences (Ahn, Le, & Bailenson, 2013), even if they are very different from how one usually sees him or herself. In this sense, individuals tend to conform to the identity of their avatars (Van Der Heide, Schumaker, Peterson, & Jones, 2013). For example, literature highlights that the embodiment of an attractive avatar makes users closer and more confident with others (Messinger et al., 2008; Nick Yee et al., 2009); overweight children who were assigned avatar with normal body size had better performance in a virtual game of running (Li, Lwin, & Jung, 2014); people can have more aggressive thoughts if their avatars are dressed with Ku Klux Klan outfit or in black (Peña & Kim, 2014) or less aggressive behaviors if the avatar of the person they are interacting with has female characteristics (Sherrick, Hoewe, & Waddell, 2014). Due to the fact that avatar embodiment causes changes in self-image and one's own body-schema, both social communication and relationships are influenced. Users, for example, have the perception to be more able in social relationships when communication is mediated by avatars (Kang, Watt, & Ala, 2008). This is possible because the process of embodiment brings people to have another idea of their own self, modifying individual and social identity (Achenbach et al., 2017). Moreover, offline and online identities are linked to each other and to emotions. This bond is so strong that the virtual environment experience might help the user to experience a transformation; people have the possibility of exploring other self-representations' properties (Poole, 2017) by recognizing, for example, new desirable characteristics associated to the self (Buisine, Guegan, Barré, Segonds, & Aoussat, 2016).

Even if this kind of change could be further enhanced over time, which remains unclear, it is evident that people change the self-representation starting from the avatar's properties (Scott & Ghinea, 2013). Some studies affirm that the Proteus effect is only a form of priming. Priming is an incidental activation of memory and related knowledge according to the self-perception theory of Bem (Buisine et al., 2016); anyways, others suggest that this is not an automatic cognitive process but there are individual differences. In conclusion, future studies need to explore carefully the relationship between users in order to study human behaviors and their

modifications over time; avatars indeed could become an essential instrument in the field of psychology and cognitive sciences for studying changes of human self-representations and related behaviors.

Social Identity Theory

This is in accordance with seminal theories in psychology, such as Social Identity Theory by Tajfel (1974). This theory is born from the idea that social groups have an impact on the way people see themselves and the other, and this is related to the various social contexts in which everyone is inserted (Tajfel & Turner, 1979). People tend to identify themselves in social groups which have different characteristics (the permeability of group boundaries, the stability of group statuses and the legitimacy of current status relations) that determine likelihood that people self-define either at the individual or at the group level.

Social Identity Theory has the aim of understanding and explaining how people come to adopt a social identity (or more social identities) and to behave in terms of these social identities rather than in terms of their personal identity and how they influence interpersonal relationships and intergroups (Tajfel, 1974; Tajfel & Turner, 1979). This consideration leads to the definition of the concept of *stereotyping* which is an idea pre-conceived in respect to experience, not based on direct contact and difficult to modify. The concept of stereotypy is inherent to the idea that there is a differentiation between "in-group" and "out-group" and people tend to have a positive bias towards their own group compared to out-group (Islam, 2014). Different studies have shown that people were more inclined to identify as a member of a group when group status was unstable (this promotes intergroup competition and social change), but the level of self-definition was more relevant when group boundaries were permeable or inclusion in the group seemed illegitimate (Ellemers, Spears, & Doosje, 2002).

Generally, people prefer to maintain a positive image of the group to which they belong. The social identity process brings people to seek out positively valued behaviors, attitudes and traits that can be seen as characteristics of their in-group. On the contrary, this inclination brings them to downplay the importance of positive out-group characteristics and to focus on less favorable characteristics of out-group. This tendency between in-group and out-group processes can affect the evaluation, the assessment of performance and achievement and the distribution of resources between different groups (Tajfel, 1970). Tajfel defined social identity as "the individual's knowledge that he belongs to certain social groups together with some emotional and value significance to him of this group membership" (Tajfel, 1972, p.292).

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He distinguished between *interpersonal* (e.g., the relationships between wife and husband) and *intergroup* (e.g., relationships between soldiers from opposing armies) behavior as extremes of a continuum: the first one defined the interaction between two or more subjects that is fully determined by their individual characteristics and interpersonal relationships, and it is not affected by different social groups to which they belonged; the second one refers to the interactions between two or more subjects (or groups of subjects) that are fully determined by their specific belonging to different social groups and not influenced by the interindividual personal relationships between the people involved (Tajfel & Turner, 1986). Tajfel and Turner (1979) proposed that there are three mental processes involved in evaluating "in-group" and "out-group":

- Social categorization: people are used to categorize the others to identify them; for example, we discriminated between black and white, professor and student, Right or Left winged. By this process we know what categories we belong to, we can understand things about us and things about others, defining the appropriate behavior according to the groups that we and others belong to. People can belong to several social-groups at the same time. Social categorization allows the creation of different social groups which lead to highlighting similarities within the category (social group) and of differences when two categories (social groups) are compared;
- Social identification: the individual's identity is lead to his knowledge of belonging to some social groups and from the emotional meaning derived from this membership. People adopt the identity of the group that they belong to and act in ways that they perceive members of that group usually act;
- Social comparison: it is the process by which people determine the value or social standing of a specific group and its members. After the categorization of themselves within a social group and identify themselves as part of that group, people tend to compare their group (in-group) against another group (out-group). People prefer to have a positive concept of self rather than a negative one, so they have the need to enhance the group of belonging to the detriment of others, even if it involves bad feelings and behavior towards the members of out-group.

These intrapersonal processes promote the formation of social identity, which emerges as accompanied by emotional and evaluative significance of group membership. Thus, while one's personal identity refers to self-knowledge associated with unique individual attributes, people's social identity indicates who they are in terms of the groups they belong to (or not).

Multiple Selves and Self-Discrepancy

Already William James (1890) pointed out that the concept of self was based on the interactions that the individual has with others, in a context-specific manner. With this declination comes the concept of "multiple selves" according to which the conception of self derives from the different social domains in which the individual is inserted (Cross & Markus, 1990; Stryker & Statham, 1985).

A study by Funder and Colvin (1991) has highlighted the fact that behavior can be both situation-specific and coherent between different situations. This indicates how "even though situations profoundly affect what people do, people can still manage to preserve their distinctive behavioral styles through situations" (p. 791). Role identities are the descriptions that the individual makes of himself specifically to a particular social role (Burke & Tully, 1977) and are organized according to a "hierarchy of salience of identity" (Stryker & Serpe, 1982). This hierarchy is defined by the "probability that a given role identity is invoked in a given situation, or through a number of situations" (Serpe, 1987, p. 50). The importance given by an individual for that particular role identity depends on the social and emotional commitment that the individual has towards that specific role (Stryker, 1987) and on the satisfaction of the individual in carrying out activities related to that role (Hoelter, 1983).

The behaviors implemented by the individual derive therefore from the social contexts in which he or she is inserted and from the role that the individual assumes in that specific context: I can be a researcher, a boyfriend, a sports enthusiast, etc. and I can be activated by circumstances and proceed to direct social behavior in very different ways.

Over the years, with the increase in the study of identity theory, a variety of potentials have been identified. In particular, the studies focused on the distinction between two "actual" selves: the type of person the individual believes to be or not to be and the type of person that an individual believes that others think he/she is. James (1890), for example, distinguished between the "spiritual" self, which included its own moral sensitivity and consciousness, and the "social" self, which included the self that is worthy of being approved by the highest social judge. Rogers (1961) distinguished between what others believe that a person should be (the normative standard) and the conviction of a person about what he would "ideally" be / would like to be.

According to the self-discrepancy theory there are two cognitive dimensions at the base of the various representations of the state of self: domains of the self and points of view on the self.

There are three fundamental domains of the self (Higgins, 1987):

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1. the real self, which is one's representation of the attributes that someone (him/herself or another) really believes to possess;
2. the ideal self, which is your representation of the attributes that someone (yourself or another) would ideally possess (i.e., a representation of the hopes, aspirations or desires of someone for you);
3. the ought self, which is your representation of the attributes that someone (yourself or another) believes that you should or should possess (that is, a representation of someone's sense of your duty, obligations, or responsibilities).

However, the only distinction between the different domains of the self is not sufficient, but it is also necessary to distinguish between the representation of the state of self by considering the perspective of oneself on the self.

Turner (1956) identifies two basic stand-points on the self (a point of view from which you can be judged that reflects a set of attitudes or values):

1. one's own personal point of view;
2. the point of view of some significant others (e.g., mother, father, brother, spouse, and closest friend).

A person can have self-state representations for each of a number of significant others.

The non-consideration, by previous research, of the different domains of self in terms of the different stand-points on those domains, gives rise to confusions in the literature. For example, some literature has measured "low self-esteem" by the comparison between actual self and his or her beliefs about others' ideals for him or her (Wylie, 1979).

From the combination of the dominion of the self and all the points of view of the self, there are six representations of the state of self:

- real/proper
- real/other
- ideal/ideal
- ideal/other
- due/proper
- should/other

The first two representations constitute the concept, defined by Wylie (1979) self-concept. The remaining representations constitute the self-guides (Higgins, 1987). According to the self-discrepancy theory not all individuals possess the

same self-guided: some may possess self-guided self-training, others that of ideal self. Each individual is therefore motivated to reach the condition in which his/her concept of self coincides with the most relevant self-guided tours for him/herself.

Therefore, the motivational or emotional effects of an individual's current / proper attributes, or self-concept, are determined by the significance of possessing such attributes to the individual. The meaning depends on the relationship between the concept of self and the self-guides of the individual, with different types of relationships representing different types of negative psychological situations (Higgins, 1987).

RECENT RESEARCH ON AVATARS

Classic theories on identity and the self are useful to introduce recent research on avatar customization, that discovered other factors involved in avatar creation and customization, all of them pointing out the importance of taking into consideration the meaning richness of this digital technology, but also the malleability and complexity of users' self-representation as embedded in digital figures.

In the last years, the psychological research on avatars has developed interest towards two main areas: one, coming from the Proteus effect field, has explored the usage of avatars to influence participants' behavior, in order to further explore the possibility to use avatars as a tool for promoting health or learning (Gamage & Ennis, 2018; Sah, Ratan, Tsai, Peng, & Sarinopoulos, 2017; Slater, 2017; Triberti & Chirico, 2016); the second one, instead, studied avatar customization and the multiple factors which can influence one's digital self-representation. This last field of research is of particular interest here.

As a recent development in avatar research, and in accordance with the Social Identity Theory, *context* has been recognized as an important factor, referring mainly to users' expectations about the virtual environment they are in (or they have to enter) with their avatar. The research has shown that users could create multiple avatars depending on contextual information: for example, avatars are made more attractive if the users expect to enter a dating-oriented context (Vasalou & Joinson, 2009), or dressed with more professional clothes if participants are primed with a work-related context to enter (Triberti, Durosini, Aschieri, Villani, & Riva, 2017). The same study identified the role of "online audience" too, with females modifying their bodies more when expecting to meet friends instead of strangers in the virtual world, which has been interpreted as related both to females cultural habit of modifying their own bodies for self and gender expression (e.g., make-up), and to be more private and less self-disclosing online. Such a behavior shows that avatars are really used with the same criteria people utilize their own appearance to communicate and express themselves offline. This behavior is in agreement with theories of multiple selves,

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according to which, people may activate different self-representations depending on the context. As avatars constitute self-representations, their creation is also influenced by expectations and perception about the context, so that their final appearance may highlight one aspect of the self-representation or the other.

Indeed, context may influence avatar creation in other complex ways; for example, when gamers enter Massive Multiplayer Online Games, they have to choose among fantasy races and/or professions that limit but also orient their own self-expression and communication (Sibilla & Mancini, 2018). Trepte and Reinecke (2010) found that avatars were created less similar to the self by users in a competitive game scenario, which is consistent with studies showing multiple motivations for avatar customization, such as contextual adaptation (e.g., creating a strong/muscular avatar because it will be more performant in combat activities) (Lin & Wang, 2014).

This research is consistent with the idea of avatars "maintaining something" of their creators which has been explained in the introduction, which can be traced back to projective identity theory (Gee, 2003). However, they show that such material is not necessarily identity/self-properties. On the one hand, as seen in the section on classic theories on self and identity, the self is multiple and malleable (Markus, 1977; Roberts & Donahue, 1994) and, according to social identity theory, one's self-representations could activate to guide behavior (e.g., social categorization) in different contexts, depending on group memberships that are made salient (Tajfel & Turner, 1986). In this sense, digital avatars appear to behave consistently with multiple self-representations, by modifying or adapting depending on external stimuli.

Secondarily, it is possible that not all the psychological processes personified by customized avatars should be associated to identity or the self: communicative intention is a construct that could be useful to explain the origins of some customization choices. According to communication theory, people may have objectives to be achieved through social interactions that are different from what is transmitted literally through verbal communication: miscommunication phenomena such as lie and irony are eminent examples (Brewer & Holmes, 2009; Keysar, 2007). In the field of avatar creation, one could select avatar features not to represent aspects of how he/she sees him or herself, but to obtain objectives in the context of mediated interaction. For example, a user may choose a sad emotional expression for his avatar not because he is actually sad, but because he is trying to obtain others' care and attention. Similarly, a male video game user chooses a female avatar ("gender swapping") not because he would like to express gender dysphoria in real life, but just because the female avatar is a pleasant virtual object to watch; or, because he wants to be treated with fairness by other players; or again, because he just wants to have access to game resources/materials available to female characters only (Hussain & Griffiths, 2009).

These studies do not reduce the importance of identity for avatars, rather they highlight the difficulty of understanding the multiplicity of factors underlying digital self-representation. Future studies should explore the possibility to distinguish identity material, intentions and other possible sources of personalized avatars' characteristics.

In the last decade, avatars became even more complex, if possible. After Virtual Reality became a commercial product, immersive Virtual Worlds emerged; for example LindenLab, which in 2003 launched *Second Life* (the most famous Virtual World for years), has recently launched *Sansar* which integrates immersive virtual reality in the experience of a shared world. Of course, this opened up the possibility not only to create customized avatars to express oneself, but also to enter in interactions with others in a way very similar to interactions in real life.

In the authors' opinion, other opportunities are offered by avatars, basing on the information psychological research is discovering on their possible relationship with users' identity, intentions and other psychological processes. In the next section this chapter will explore some of these possibilities.

AVATARS FOR PSYCHOLOGICAL ASSESSMENT

The literature review above showed that customized avatars could maintain a number of complex relationships not only with users' identity, but also with other internal processes. In this sense, customized avatars represent an opportunity for psychological assessment, or the process of testing which uses different techniques to arrive at hypotheses on individuals' mental state and behavior, possibly with the intention to change them in the future (Cates, 1999; Fletcher, 2005). Historically, psychological assessment used a number of techniques to asses individuals' identity; ranging, for example, from projective techniques to self-drawing (Gatti, Ionio, Traficante, & Confalonieri, 2014) in which an individual is instructed to draw a person, an object, or a situation that are analyzed to assess his/her cognitive, interpersonal, or psychological functioning.

Differently from other projective tests based on the interpretation of existing pictures (i.e., the Rorschach Technique or the Thematic Apperception Test), figure drawings tests require the test taker to create the pictures themselves. In most cases, figure-drawing tests are given to children, but can be also applied to adults. Both in children and adults, such tests are used to measure cognitive abilities and cognitive development, but also personality and social abilities. Moreover, in some cases, they are also used as part of the diagnostic procedure to assess specific types of psychological or neuropsychological disorders. This is the case, for example, of the Draw-A-Person test (DAP), developed by (Machover, 1949), which is based on the

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individual's self-image representation or on the representation of other persons, including, but not limited to, family members or friends of the test tacker. The DAP test focuses on how the drawings reflect psychological, neuropsychological, or emotional dysfunction of the test taker, including, among the others, anxieties, impulses, self-esteem, and personality characteristics. For example, people suffering of image disorders may reflect these concerns in their drawings omitting or distorting body parts (Sandyk, 1998). Similarly, victims of sexual abuse may stress sexual characteristics including excessive detail with regard to the sexual nature of the drawing (Sidun & Rosenthal, 1987).

Another example is the house-tree person test (Buck, 1948) which have the aim to obtain information concerning maturity, sensitivity and integration of a subject's personality and the interaction between that and environment. For what regards its application in assessment, this tool showed to be able to discriminate between abused and well-adjusted children (Blain, Bergner, Lewis, & Goldstein, 1981).

Actual data about reliability and validity of traditional figure drawing tests are inconsistent. In particular, when appropriate scoring systems are used, such tests have been found reliable measures for cognitive development in children, but not for specific personality characteristics, self-image issues, or personality dysfunctions, where data are not clear. Moreover, it is possible that, especially in adults, scarce drawing abilities represent a significant limitation in drawing figures that really exemplify what the test taker has in mind. The authors argue that these limitations may be overcome using an avatar-based approach to create self-representation.

As mentioned earlier, Fong and Mar (2015) conducted an experimental study to investigate whether people generally try to create avatars that represent themselves accurately, or whether they aim to display themselves differently than they appear in real life. Fifty subjects were asked to create an avatar, while the other 50 were specifically asked to create an avatar that would represent their personality accurately. As expected, no significant difference were found between the two groups indicating that most of them naturally try to represent themselves accurately.

If confirmed by future studies, these data suggest that self-avatar drawing could represent the modern version of the traditional self-drawing tests. This new approach to the self-representation may have, at least, the two following advantages:

* a software for avatars creation that allows an high level of customization may allow people to express their self-representation even without having specific drawing abilities;
* compared to the traditional drawing approach, the created avatars could be analyzed in a more objective way by the software itself and/or by an integrated IA based system allowing a deeper and more accurate between or within-subjects comparison.

Avatars, as guided self-representations supported by dedicated digital platforms featuring various customization affordances, could represent an interesting alternative for psychological assessment in this regard. In this section, three possible usages of avatars in future cyber-therapy and assessment will be described.

Assisted Avatar Customization

Customization is an important theme for the psychotherapy context. Patients in fact can use avatars for expressing their own identity(ies) and therapist can observe susceptible changes over time. In a clinical case discussion, Quackenbush and Krasner (2012) describe the avatar as an instrument for psychotherapy sessions, because people are free to show different characteristics, desires and intentions through the embodiment in avatars different from usual self-representation.

Therapists can assist patients' avatar creation, while taking note of relevant processes of self-reasoning and self-representation choices. Indeed, not only the final form of avatars could be interesting for clinicians, but also the *process* for taking some customization routes. Research has shown, for instance, that adolescents tend to express their experienced puberty changes during avatar customization, choosing more and more detailed body features depending on their self-representation (Villani et al., 2016; Villani, Gatti, Confalonieri, & Riva, 2012): for example, male adolescents may create avatars with beard and muscles, exaggerating their own physical characteristics and, at the same time, giving important clues about their own experience of such changes.

Similarly, depressed and/or low self-esteem patients may be asked to create actual self and ideal self avatars: measuring the difference between the two, as well as monitoring the process of customization, could give to the therapist important information about patients' identity and self-perception, and possibly about the extent of their psychological distress. This would be in accordance with the literature which, consistent with self-discrepancy theory (Higgins, 1987), identified the discrepancy between actual and ideal self avatars as a marker for low well-being (Bessière et al., 2007; Dunn & Guadagno, 2012).

In a clinical condition, subject's healthy and problematic identities can indeed emerge from avatar customization and the use of specific computer-generated virtual environments. If complex enough, these avatars and their relationships with other real or virtual characters or worlds may also include the complex patterns of memories, expectations, fears, and wishes that embrace the subject's sense of self. In a clinical-based approach, such information may be useful to explore the subject's self and eventually intervene to modify its dysfunctional or pathological aspects, while in a research-based approach the various self-representations may be analyzed and correlated with other individual characteristics or life variables and events. Perhaps,

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at the moment, there are no available data about the effects of illness (especially of those illnesses that cause physical changes) on the individual self-representation. These, and other related-issues, deserve attention being particularly important for the understanding and treatment of associated psychological consequences on the subject's well-being.

Context-Specific Multiple Avatars

A number of studies asked participants to create multiple avatars with different aims, such as showing actual and ideal self, or expectation towards entering a given virtual context or another (Triberti et al., 2017b; Triberti, Durosini, Aschieri, Villani, & Riva, 2017a; Vasalou & Joinson, 2009). In accordance with multiple selves and social identity theories (Higgins, 1987; Tajfel, 1974), people can have multiple self-representations depending on the context they are in, and/or the primed group belonging. Asking patients to create avatars to enter virtual or potential relevant context (e.g., school, work, family home) could give important information about how they seem themselves in those specific areas, for example, their self-confidence or body perception. The possibilities are endless: imagine asking a PTSD soldier to create an avatar to enter a first-person shooting video game that resembles his or her own combat experience; or, asking an anorexic patient to create an avatar to enter a restaurant; or again, asking a bullying victim to create an avatar to enter a virtual school. During psychotherapy sessions, avatars make it possible to live other experiences. Patients can try to move away from feelings and issues of their disease, using avatars with different properties. This gives them the possibility of hypothesizing and elaborating other opinions about the self, perceiving what does it mean to have other characteristics, conditions and life goals. Therapist can use this hypothetical context for bringing changes, starting from feeling and opinions about avatars with these different properties and emotions. People indeed can meet their personal preferences and fit suitable role expectations. Hypothetical thinking is indeed a kind of question used as instrument in psychotherapy, that could be improved by avatars usage (Mantovani, Riva, Castelnuovo, & Gaggioli, 2003; Pinto, Hickman, Clochesy, & Buchner, 2013).

On the one hand, it is difficult to prefigure now how such examples could actually be carried on in a psychotherapy session. However, it is easy to see that virtual contexts and the opportunities offered by avatar customization could be an unprecedented vehicle to let inner processes emerge besides what it is typically transmitted through verbal description.

In this regard, we have seen how avatars do not only give information about users' identity and self-representation, but also intentions (Triberti & Argenton, 2013): users could create an avatar with certain characteristics not to express themselves,

but to achieve some objective within the virtual environment they have to enter (e.g., creating a female avatar to be treated fairly; making a muscular avatar to be strong; etc.). In psychotherapy, it is often difficult to lead patients to admit their true objectives and desires, especially if this comes with an emotional cost or they think it could give a negative impression of themselves. However, creating virtual contexts in which patients could possibly obtain their objectives (e.g., hurt or manipulate others; express who they want to be; being admired or loved) could help psychotherapists to understand important information about patients' hidden intentions.

Developing an Avatar-Creation Platform for Psychology

The ideas described above point to developing avatars as an innovative tool for psychological assessment. Of course, it is currently difficult to prefigure some of the examples outlined previously, because psychologists would have to adapt their interventions to available avatar customization platform. However, it is possible that future research would build platforms *specifically designed* for psychology and psychotherapy practice. Building on present and future literature, such technology would feature a library of customization acts and choices which would possibly be associated to specific identity features, development steps of behavioral change, and even diagnostic criteria. Are there avatar customization choices typical of depression, eating disorders, or other types of psychological and health issues? Future research should explore avatars' potential for psychotherapy, and the possibility to create *ad hoc* avatar customization tools for assessment contexts.

FUTURE RESEARCH DIRECTIONS

This contribution explored possible uses of avatars in psychological assessment. Certainly most of these uses are futuristic and currently non-existing in psychotherapeutic practices, so their actual utility is not supported by evidence. While the contribution of the present chapter should be taken into consideration as theoretical and creative, the main objective for future studies should be to produce evidence about the feasibility and efficacy of avatar tools in psychological assessment contexts.

- Controlled studies comparing avatars with other already established tools for self-representation (e.g., self-drawing techniques) could be conducted in order to account for avatars' ability to represent users' inner processes;
- "Real world" data could be collected to find associations between avatars' appearance and users' identity and intentions within big samples; this could

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be done by analyzing, with users' authorization, the creation of avatars in common-use online contexts such as video games and social media;

- Reporting single instances of avatar use could be encouraged by psychotherapy professionals to provide information about their possible usages for specific cases, diagnoses, or clinical situations. In the bibliographical search for this chapter, only one example of avatar customization used for getting information on a psychotherapy patient emerged (Quackenbush & Krasner, 2012), but this aspect was not deepened as a main tool for assessment or therapy. Anyway, single cases could be particularly interesting for orienting innovative applications in clinical practice, and also to highlight creative implementations of innovative technologies.

CONCLUSION

The present contribution examined avatars and their role in psychology and clinical assessment. As previously explained, avatars are heterogeneous entities (e.g., relational, agentive, and hybrid) in digital environments meant to represent user's action and communication. In the first part of the contribution, two processes for involving avatars have been introduced: customization as a result of users' negotiation process of itself, the role of intentions and other psychological factors, and the Proteus Effect in digital world that's the modification of users' self-representation and behaviors influenced by avatars' appearance. This is in line with seminal theories in psychology such as social identity theory (e.g. stereotypes and the differentiation between "in-group" and "out-group") and the concepts of multiple selves. It is possible to highlight the possibility to create and/or use multiple avatars with different aims or expectations evidently. Psychology and psychotherapy should explore the study of avatars and their virtual environments (or contexts, or situations) not only to advance knowledge but also to exploit innovative opportunities for practice. Moreover, the knowledge offered by this contribution could be interesting for practitioners other than psychologists and psychotherapists: for example, social media and video games designers can take into consideration the multiple psychological functions of avatars, which are not only digital figures but maintain relationships with users' identity and intentions. Selecting which customization options to include in a Virtual World or video game avatar creation platform could consider which intentions are more likely to be implemented in that specific context (e.g., to find love, to make friends, to work, etc.), so to meet users' objectives and improving final satisfaction. Also marketing specialists could employ different strategies to communicate with customers when they are using different avatars, in that these influence their behaviors and attitudes independently of identity and self-representation in the physical reality.

In conclusion, avatar research is still in its infancy regarding implementation in context such as psychotherapy and psychological assessment; however, it is possible to identify interesting opportunities for future usages of these digital entities, especially in order to make people experiment with their own self-representation to achieve profound self-knowledge and management.

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KEY TERMS AND DEFINITIONS

Avatar: Digital entity meant to represent users' action and/or communication within digital environments.

Proteus Effect: Tendency for people to be affected in their behavior by their digital representations, such as avatars, dating site profiles and social networking personas.

Psychological Assessment: The process of testing which uses different techniques to arrive at hypotheses on individuals' mental state and behavior, possibly with the intention to change them in the future.

Self-Presentation: Parts of the individual's identity (personality traits, aims and objectives, etc.) that the individual may use to induce a positive image of themselves within their interlocutors' mind, in a process called impression management. Self-presentation efforts can be accepted or rebuffed by others, thanks to the dialogical feedback loop that characterize every communicative exchange.

Social Identity: The individual's sense of who they are basing on social group memberships.

Virtual Worlds: Permanent virtual environments where multiple users can interact with each other thanks to the use of avatars.

Section 4

Cultural Considerations of Social Media Use

Despite social media being a worldwide phenomenon, some countries are underrepresented within the social media literature. The chapters in this section attempt to fill that gap in the literature by examining social media issues among populations in Russia and Ghana.

Chapter 14
Education via Social Net Sites:
Challenges and Perspectives

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ABSTRACT

Incorporation of blended learning into educational process is complex and challenging. The chapter aims to elucidate educators' and students' engagement and attitude towards the use of computer-mediated communication and social net sites in general, and for educational purposes in particular, in order to single out the issues that are controversial and slow down the use of ICT in teaching practice. It presents university teachers' and students' opinions collected by observation and interviewing. The results of the study, based on the fourth-generation method of assessment, reveal that both students and educators are active users of SNS and are optimistic about their integration into educational process. However, despite all the advantages of SNS disclosed in the study, still there are some issues to overcome before SNS can become an integral part of educational process. At present, its use should be supported by other means like LMS or MOOCs as well as traditional on-campus activities.

INTRODUCTION

Over the past decade, breakthroughs and innovations in technology have been implemented with acceleration. The invention of the radio and television were revolutionary achievements of the past, but the Internet, which appeared in the 80s of the XX century, has incomparable value. The Internet makes it possible for people of different nations and countries to communicate, regardless of geographic location or language, and socio-cultural features. The process of interaction from a predominantly verbal, including the extra-linguistic factors (gestures, facial expressions), shifts the emphasis on non-verbal communication (Romiszowski & Mason, 2007). Moreover, on-line contacts are distant and do not require the presence of the interlocutor.

Contemporary communication is preferably arranged by means of new information technologies, which speed up the process of collection, accumulation, storage, processing and transmission of various data. Taking advantage of this opportunity, new technologies were incorporated into the teaching process (Bulman & Fairlie, 2016; Ng, 2015). Along with technology enhanced learning, colleges and universities support faculty, and administration, as well as effectively market, recruit, enroll etc. via innovative web tools. Once the educational information is transferred by means of information and communication technologies (ICT), we may come across electronic learning. E-learning makes use of various electronic technologies, forms and components as its primary means of learning and teaching (Aparicio, Bacao, & Oliveira, 2017; Fryer & Bovee, 2016; Rosenberg, 2001; Snyder, 1998; Swan, Bowman & Holmes, 2003). Information and communication technology (ICT) provides several advantages from the point of view of both a teacher and a student. For instance, it helps educators deliver information and flip the class. Students and teachers can easily access materials and store them. There is also the opportunity for teachers to share their plans, slides, e-versions of elaborations, and so on (Baş, Kubiatko & Sünbülc, 2016; Fryer & Bovee,H, 2016; Scherer, Siddiq & Teoc, 2015). In other words, ICT encourages socialization, sharing, creativity, authenticity and collaboration (Comi et al., 2017; Peachey, 2014; Thakur, 2015,). Arranging teacher-student collaboration by various means of ICT is fruitful and is gaining popularity with both learners and the teaching staff.

The aforementioned significance of ICT in modern educational process as well as the lack of relevant research conducted in Russia constitutes the main reasons that have motivated the current study. Currently, one of the most popular types of ICT used are social networking sites (SNS). Thus, this investigation of SNS use for educational purposes provides useful insights about the current status of SNS in higher education from a literature review triangulated with the opinion of faculty members and undergraduate students, using interviews and questionnaires. In

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addition, the long-lasting research of the issue, from 2000 up to the present days, allows to check the dynamic of extracurricular collaboration demand among both teachers and students.

The main purpose of the current chapter is to elucidate educators' and students' engagement and demand for various types of ICT in higher education at different stages of information technology development. Thus, the main focus of the study carried out in 2000 was the attitude of students and educators towards the prospective use of ICT and its benefits for educational process, as SNS were not yet in use. At that period even a personal computer was owned by a limited number of students and it took more than 20 years for laptops, tablets and smart phones to emerge and be followed by appearance of wiki technologies, learning managements system and social net sites. Thus, the surveys analyzed the corresponding hot technologies for the time being. Consequently, the study conducted eighteen years later enabled us to concentrate on the use of SNS in general and for educational purposes in particular, which will allow to enhance the process of voluntary SNS use in higher education, namely teacher-to-student teaching and peer-to-peer learning. A cohort analysis was aimed to state the differences between the opinion of students and educators about the use of ICT in education in 2000 and 2018 and to find out whether the expectations concerning ICT articulated in 2000 were met in 2018.

The authors posed the following research questions:

1. Has the attitude towards ICT in education changed over the years?
2. How popular is SNS among faculty members and students in 2018? How much time do students and educators spend on SNS?
3. Do students and educators use SNS for educational purposes?
4. Is collaboration among peers and teachers via SNS more efficient than by other web tools (Learning management system (LMS))?

In order to provide context for the current study, this chapter provides an overview of SNS and their advantages and challenges for users in general and specific to educational purposes. Also, the history of ICT in Russian higher education is provided to highlight the importance of research in Russian education. Based on the results of the theoretical and empirical analysis of the study the authors plan to create a group in SNS for both educational purposes and teacher students' collaboration focusing on its benefits and stepping-stones and readiness of the participants for incorporation of the project.

SOCIAL NETWORKING SITES

The phrase "social network" is used to denote a web of relationships or social interaction in small groups by social philosophers of XIX-XX centuries (Moreno, 1932; Radcliffe-Browne, 1952). After many decades, a new understanding of social networks appeared. Nowadays it is perceived as a communication via social networking sites (SNS) (Lan, Gou & Xi, 2011).

Social networks ("Facebook", "Linkedin" and others) are so popular among teenagers and youngsters that they are threatening to replace real communication for many children and adults because of the enormous user friendliness and availability (Ibáñez-Cubillas, Díaz-Martín & Pérez-Torregrosa, 2017; Osorio & Papagiannidis, 2014). Moreover, it provides a number of advantages over personal contact. Firstly, the act of distant communication is possible with several people simultaneously. Keeping in mind the fact that the target audience is wide, SNS can be called a mass communication. In addition, it has vast geographical coverage as people get the message across the borders and time zones. Secondly, virtual communication allows users to take into account neither the status, age, nor emotional state of any parties involved into the communication. Thus, a psychological barrier which prevented free flow of information due to subordination to the superiors or political leaders is removed. Consequently, it cuts down on status symbols. Thirdly, on-line communication is interactive, provides instant response, with necessary comment. It is a two-way process as one person broadcasts the information and the others receive it. It can be both asynchronous and synchronous (Osipov, Prasikova & Volinsky, 2015). Fourthly, it accelerates the process of exchange of information. For example, within Instagram visual information is commuted, while within Twitter posts are exchanged. Facebook is more about connecting with friends and family members whereas Twitter is associated with following important people, topics and conversations.

SNS allows users to discuss various topics, load photographs, provide comments and likes, view friends' profile pages and leave comments, share ideas, create, join and leave groups. Along with these features SNS provide the following advantages.

- *Connectivity*. SNS keep ahead of other distant forms of communication such as e-mail, short messages, and telephone calls for the reason of being user-friendly and easy to use. Moreover, SNS can be described not only using the formula *one writes to one* but also *one writes for many*. In the process of communication a single interlocutor has an innumerable number of readers, some of them taking an active part in the process of communication, giving feedback in the form of comments.

- *Availability*. Any person whether he/she is from a metropolis or from a remote area can be registered in SNS. It is available to any person regardless of age, ethnicity, social status or income or the choice of device. Technical characteristics and requirements of Wi-Fi or Internet connection are affordable for all PC, tablet or even mobile phone (Bouarab-Dahmani & Tahi, 2015; Sedivy & Chromy, 2015;).

- *Attractiveness.* Some people enroll in SNS out of curiosity, some for virtual interaction and others do it due to the set trend following a kind of herd instinct and it creates the sense of togetherness and common spirit (Akçayır, 2017). Moreover, users get involved in various groups in accordance to their preferences and common interests.

- *Publicity*. SNS can also be a tool to promote one's business, services, products, or websites (Constantinides, Lorenzo-Romero & Alarcón-del-Amo, 2013). Due to the huge number of people who regularly use them, SNS have found huge favors among advertisers.

- *Efficiency*. The rhythm of contemporary life is so speedy. In a rush, people see each other less regularly and prefer to communicate distantly. It saves time and money (Waycott et al., 2010). Instead of face to face communication more and more people tend to socialize in SNS (Akçayır, 2017; Sedivy & Chromy, 2015) and instead of real business meetings people held video conferences or webinars.

- *Motivation.* According to some recent research (Wok & Misman, 2015), young people use SNS for various reasons but they are highly inspired to meet their inner needs and follow the religion, education, business, social interaction, communication, politics and entertainment motives. It basically depends on the age, occupation and preferences and interests of the person. Thus, social networking proves to be efficient, available, inspirational, prestigious and popular.

On the other hand, the use of SNS can be challenging for users. The issues to overcome are listed below.

- *Health damage*. One of the issues related to SNS use marked by researchers is that excessive amount of time spent in front of digital material can cause health problems (Bouarab-Dahmani & Tahi, 2015).

- *Time-consumption*. Many scientists and teachers say that spending time in SNS does not pay off. The students waste their time on insignificant comments and chats (Akçayır, 2017). Once the link among the users is established it should be supported regularly which means communication 24 hours without

breaks for personal matters. Otherwise one's account will be out of date or out of interest for your subscribers and other users (Akçayır, 2017).

- *Virtualization*. Over time virtual friends may replace real ones and symbols of communication (likes, comments etc.) may substitute hugs, kisses and etc. (Sedivy & Chromy, 2015).

- *Addiction*. The research (Sedivy & Chromy, 2015) and also the findings in the current study show that the majority of the interviewed students spend more than 4 hours a day in SNS. Some of them even 10 hours. If we assume that they have to sleep for 8 hours at average that will terrify us with the verdict that half of one's life is spent in SNS. The SNS can be so attention-grabbing that ordinary people become "the Networking-holics who cannot live without their daily dose of the writing on the wall, poking, uploading pictures, playing various games or answering one of the various quizzes" ("How not to get addicted to social networking", 2017).

- *Grammar illiteracy.* The language of the Internet tends to simplicity as typing means saving time. For the reason of shortening word forms or using abbreviations in typing young people are getting less formal language oriented. Some use professionalisms and jargon, others prefer colloquial style, which leads to ignorance of grammar, spelling and punctuation rules (Balakina, 2011).

- *Bullying and trolling.* There is no special Internet etiquette, or it is widely neglected. Some users are humiliated or pressed. The jokes that are played on virtual friends can insult people if they don't realize that senders were kidding. Lack of personalization of contact and no emotions or facial expressions can be possible reasons for cyber-bulling (Castellacci & Tveito, 2011). .

- *Unreliable and false information.* No one will guarantee that you can trust everything that you read or hear on the Internet (Akçayır, 2017). And vice versa, if your account has been hacked and there is a leak of personal information nobody will carry responsibility.

SOCIAL NETWORKING FOR EDUCATIONAL PURPOSES

In teaching practice, social networks can be used in order to establish a community for studying certain discipline or keeping in contact. The teacher, as an administrator of the community, is able to keep records of the statistics of his/her group, which areas are popular among students and which require further development judging by students' participation in discussions or polls. Numerous studies have been published investigating the use of SNS in Higher Education. Among the most recent ones is the research of Darshan and Sai (2016) investigating the extent to which the undergraduate

students use SNS as well as their attitudes to this form of communication conducted in Amrita School of Arts and Sciences. The results suggest positive attitude of students towards SNS, they use social networks for studies and for social interaction with friends. The vast majority of respondents prefer Facebook spending 1-4 hours on it on a daily basis. Lim and Richardson (2016) explored the effects of students' social networking experience on social presence and perception of using SNSs for educational purposes revealing that the more intensively the students use SNS, the more positive perception they have of using SNS for educational purposes. Akçayır (2017) in her research addressed the question why faculty members use or do not use SNS for education. According to the research results the main factor that motivates teachers to use SNS is fast and effective means of communication provided by SNS. However, lack of privacy serves as the greatest demotivator.

It is also essential to consider how SNS may be used to enhance education and engage all the students (Manca & Raniery, 2016; Seaman & Tinti-Kane, 2013). These considerations are presented below.

- *Learning tool.* SNS can facilitate learning and skill development outside formal learning environments by supporting peer-to-peer learning of knowledge and skills, collaboration, diverse cultural expression, the development of skills valued in the modern workplace, and a more empowered conception of citizenship (Ito, Okabe, & Matsuda, 2006; Jenkins, 2007).
- *Educational Cooperation.* Nowadays most youngsters are native in Web technologies and SNS. Teachers and students can use SNS for collaboration and boosting motivation. Social media can be an effective way to increase understanding and mutual trust of teachers and students. SNS allow teachers to share content material with students and to experiment with new tools (Akçayır, 2017; Chen, Cannon, Gabrio, Leifer, Toye, & Bailey, 2005; Manca & Raniery, 2016).
- *Fostering self-confidence.* Psychological adjustment to university life does not always go smoothly for undergraduate students. Numerous studies suggest that SNS could serve as the key mediator to social and psychological well-being (Ling, Chao & Ha, 2017). The fact that shy students feel more comfortable expressing themselves distantly is supported by the study of Valkenburg and Peter (2009), reporting that online-communication enhances self-disclosure. SNS may be used by teachers in order to collect feedback that fosters an open discussion (Lim & Richardson, 2013).
- *Improving communication among students and teachers.* Facebook and Twitter can help keep the students better informed about current events, homework assignments and schedules. Students can use SNS to get help from instructors or other students. Other communication benefits include being

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able to ask questions on public discussion forums, involving other students and lecturers in the conversation (Waycott et al., 2010). In general, students are eager to use SNS as an additional communication tool (Aydin, 2014; Sobaih et al., 2016).

- *Flipping the classroom in another way.* Teachers can send materials videos, films, and articles to give an idea about them beforehand. The students have the possibility to read or watch the materials at home to be discussed and analyzed in the class that saves time and effort (Miloševič et al., 2015; Sanchez, Cortijo, & Javed, 2014).

- *Preparing Students for successful employment.* SNS can help graduates to find employment. With LinkedIn, students can send a resume or get in touch with other job seekers and employers. Facebook can also be used for making business contacts (Miloševič et al., 2015). Students can follow professional organizations on Facebook and Twitter to stay updated on new opportunities, share information concerning their business undertakings (Sanchez et al., 2014).

The aforementioned significance of ICT in modern educational process as well as the lack of relevant research conducted in Russia constitutes the main reasons that have motivated the current study. The following section presents a historical account of ICT in Russian higher education to highlight the need for such research within this culture.

ICT IN RUSSIAN HIGHER EDUCATION

According to official data, the history of ICT in Russian education system began in March 1996 when The Soros Foundation, in collaboration with the Russian government, launched the program "University Centers of Russia" aimed at connecting higher education institutions in the Russian regions to the Internet.

The innovative curricular of Mathematics and Information technologies with the mandatory integration of computers in teaching was launched in 1998 meaning the beginning of the process of ICT incorporation into the educational process. This was impactful as the schools and universities were not equipped with personal computers at that time. For this reason, in 2001 the project under the title "Village schools computerization" was initiated by Russian government. It was a critical decision as according to statistics only 70% of secondary schools and 40% of pre-schools had any computer classes which were equipped with IBM matching facilities apparently by 25% and by 1% with Machintosh.

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Then on January 28, 2002 the Federal Targeted Program "Electronic Russia" was launched, which was aimed at the development of information technologies in the country, including the field of public administration. In December 26, 2002 the State Duma of the Russian Federation adopted the amendments to the "Law on Education", proclaiming equal rights for full-time and distance education programs. Educational institutions were allowed to use remote technologies in the educational process. In October 2007, First Deputy Prime Minister Dmitry Medvedev announced the completion of the project aimed at connecting all Russian schools to the Internet (59 thousand educational institutions). In 2008 National standard GOST "ICT in Education and Training. Terms and Definitions" appeared, being the first document officially introducing the term ICT in Russian education. Finally, in 2012 the Federal Law on Education in the Russian Federation No. 273 was passed, which is considered to be the point of transition of educational process to new modern web technologies and online learning systems. This document introduced the category of e-learning for the first time.

In the academic community, the first articles related to the use of SNS in education appeared in 2000, including for example, the paper of V.I. Chepegin "Computer-Aided Training – the Issues of Classification" or O. Tyschenko "A Student-Computer Dialogue". In 2001 Lobachev in his publication "Internet Technologies in Distance and Open Education" dwells on the immediate objectives to be reached such as the development of hypertext educational manuals, remote access workshops, a technological environment for a distance or open education system (Lobachev, 2001). G.I. Kirilova in her research paper "Information Technology and Computer Environment in Education" (2001) emphasizes various stages of development of information technology that Russian education should pass through in the coming years, including:

1. The level of isolated tools aimed at solving specific learning tasks and not involving the exchange of data on learning outcomes achieved with other tools;
2. The level of interrelated means with feedback: the creation of a specific learning environment based on local computer systems;
3. The level of systematic use of computer educational means; and
4. The use of specific sets of computer tools designed to develop and support the educational process.

But it was not until 2005 that the term ICT was introduced, when V.Gorovaja (2005) did so in her research paper. She enumerated the following advantages of its use in Russian higher education: stepping up of students learning activities, improving

the efficiency and quality of educational activities, developing students' individual work culture, and expanding the sphere of individual activity. The main types of ICT mentioned in the paper were databases and information sent and received by e-mail.

Before long, despite official statistics reporting the active use of ICT in higher education, Malysheva (2008) provides data that reveal insufficient preparation of the educational environment for the active mass introduction of ICT. Although between 2004 and 2007 the expenses on computer equipment doubled, the researcher claims that at that time only one computer was available for five students. In 2004, there were only 30 computers for a hundred university workers, while in 2007 the number increased significantly reaching 50 computers per 100 educators.

At the same time, Andreev (2009) in his article "The Internet in Higher Education" stated that in the short term, the ratio of in class online and blended learning would be 54 (7%), 13 (7%) to 31 (6%), respectively. He also emphasized the challenges on the way of successful integration of ICT, such as the problem of motivation (as e-learning requires considerable physical and mental effort from the teacher) and the problems related to the document flow (classes are held online while the reports are submitted in paper form).

As for the use of SNS in higher education, research papers devoted to this issue first appeared in 2014. D. Slatov (2014) in his paper "To the Question of Using Social Networks in Teaching at Higher Education Institution.Evolution of Users' Preferences" as the objective of SNS in higher education named its ability to fill the information space of students with information resources that meet the following requirements: the resource must be - electronic, integrated into the communication system (i.e. it must be fashionable to use it), and contain information suitable for the study of the relevant university course. Among the main functions of SNS he pointed out the following: a social network as an instant messenger (ideal for online consultations), as a bulletin board, as a library resource manager and as a substitute for paper periodicals.

Given the push toward the inclusion of ICT in higher education by Russia and the lack of SNS as an object of research being fairly novice for Russian academic community, it is important to assess attitudes of students and teachers as well as the actual incorporation of ICT into Russian higher education. The current study attempts to fill this gap in the literature.

METHOD

While caring out the project, fourth generation evaluation principles were used (Mason, 2002). The semi-structured techniques and methods including focus groups (groups of students of various ages and teaching staff discussions) and individual interviews

were held and opinion polls were carried out to assess the common trends and views on the use of web tools in teaching practice. The target population consisted of students and educators of Higher School of Economics – Nizhny Novgorod campus (HSE). The survey was anonymous and respondent confidentiality was maintained.

The study conducted in 2000 was aimed at defining the attitudes of students and educators towards the prospective use of ICT, its development and benefits for educational process, as SNS were not yet in use. The study conducted in 2018 enabled the authors to concentrate on the use of SNS in general and for educational purposes in particular.

In 2000 the student sample consisted of 145 bachelor students from the Faculties of Economics, Law and IT. The demography was as follows: 34% of them were men, 66% were women, aged 18 to 20 years old. The educator sample consisted of 30 lecturers and professors from the Faculties of Economics, Law and IT. The educators' demography was as follows: 40% of them were men, 60% were women within various age groups from 24 to 68 years old. The procedure was as follows: The students were approached during the breaks and asked to participate in an interview to assist the improvement of educational process. All the students approached agreed to participate in the survey. The educators were approached in a staff room and voluntarily contributed to the research. Both sample groups were asked the same open and close questions. The purpose was to get information about teachers' and students' perceptions and attitudes and their willingness to introduce IT into learning and teaching process.

In 2018 the student sample consisted of 200 bachelor students from the Faculties of Economics, Law and IT. The demography was as follows: 30% of them were men, 70% were women. The age of students was 18-20 years old. The educator sample consisted of 30 lecturers and professors from the Faculties of Economics, Law and IT. The demography was as follows: 40% of them were men, 60% were women and the age of educators ranged from 28 to 65. The procedure was as follows: the questionnaires in a paper format were administered at random to students in classes at the end of a lesson and then collected by a coordinator. All the students present agreed to participate in the survey. The educators were kindly asked to fill in the questionnaire to assist in the current research. All the educators approached agreed to complete the questionnaire. The data were entered in computer programmes (MS Excel, MS Word) and then processed.

The questionnaires were identical for both students and educators. The questionnaire contained closed and open questions. Its purpose was to obtain information about teachers' and student' engagement and attitudes towards the use of SNS in general and for educational purposes in particular.

The sample questionnaire, interview questions and feedback can be seen in the Appendix.

RESULTS

RQ 1: Has the attitude towards ICT in education changed over the years?

In the interviews carried out in 2000 the majority of students aged from 18 to 20 were sure that the use of ICT in education was promising despite the fact that at that time, not every family had personal computers with Internet access. The use of ICT at the university depended primarily on the following factors: availability of computers and other tools and the skills of educators and students. Both groups lacked computer literacy but students were still more enthusiastic about forthcoming integration of ICT. Eighteen years later both learners and educators are keen on technologies but only 47% view them as better than campus-based education.

RQ 2: How popular is SNS among faculty members and students in 2018?

The obtained research data showed that all the students and educators use SNS. The most popular SNS among the students of the observed group are VKontakte[1] (VK; 75%), Facebook (15%), and Instagram. Less popular SNS among the students included reddit.com (5%), Twitter (1%), Googlet (1%), Prinstagram (1%), Imessage (1%), and Researchgate (1%).

The educators tend to actively use various SNS at the same time, where 75% prefer Facebook and LinkedIn, 21% are registered in Facebook and VK and the rest turn to Instagram and Twitter. It can be clearly seen that students and teachers choose different SNS. For instance, Russian "VK", which is topping the list of students' priority, is considered an SNS for youngsters, that is why few mature educators have accounts in it. Moreover, interface and prestige play a certain role in the choice of SNS.

RQ 3: How much time do students and educators spend on SNS?

In the course of the 2018 survey, the students and educators were also asked to evaluate the time spent on SNS. The majority of the respondents (75%) spend up to 4 hours on SNS daily. The second largest timeframe (20%) is up to 10 hours. And only several students (5%) spend more than 10 hours on SNS. Thus, they are not fully dependent on SNS though they devote much time to them. As for teachers, all the respondents claimed to spend less than an hour on SNS daily.

RQ 4: Do students and educators use SNS for educational purposes?

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As the 2018 survey results indicate, all the respondents are dedicated users of social networking services. To establish whether the respondents consider SNS as a potential means of distant learning, they were offered the following questions:

1. Do you use SNS for educational purposes?
2. Would you consider an opportunity to be educated via SNS (along with traditional campus-based education)?

The following results have been obtained: 98% of students already use SNS for educational purposes. Consequently, they claim to create communities that allow them to communicate information on certain off-line courses. Almost the same number of respondents (94%) are eager to see SNS as part of the educational process. While the educators are not so optimistic, as only 10% of the respondents already use SNS for educational purposes and 25% might possibly consider communication with students via SNS.

RQ 5: Is collaboration among peers and teachers via SNS more efficient than by other web tools (LMS)?

Various information communication technologies are used in the educational process in the National Research University Higher School of Economics (HSE). Learning management system (LMS) is widely used in teaching practices in HSE. It is beneficial from the point of view of ICT enhancing and asynchronous communication while learning. Feedback and guidance are given through the system of forums and blogs. It enables to use a variety of e-forms from texts with hyperlinks, interactive glossaries, online tests, presentations, and projects. Teachers can create a variety of products from virtual libraries and language laboratories to simple testing in LMS, which is believed to offer a flexible pattern of interaction. The advantage of such flexibility allows eliminating any external and internal challenges (age factor, cultural diversity, psychological reluctance, etc.). In addition, Platform LMS e-front offers various options for cooperation in the framework of dialogues of "student-to-student", "teacher-to-student" including intergenerational education (Lyashenko & Frolova, 2014). LMS combines several of the aforementioned models of extracurricular cooperation by means of forums or chats, and allows anyone to place ads and communicate with students in the framework of questions and answers of FAQ "Frequently Asked Questions".

The results of the 2018 study show that the respondents were mostly positive while answering the question concerning LMS efficiency. Specifically, 87% of students confirm that the system improves tutor-student communication. But not all the teachers were so optimistic (57%). The comment "What is the use of these

informational technologies?! I can do without them in my teaching practice without losing the quality" was not rare. However, despite all the advantages of LMS stated above, neither students nor educators are optimistic about the system. When answering the question "Would you prefer to interact with your group mates and teachers via SNS or LMS?", 75% of students and 63% of educators chose SNS as a preferable means of communication. The most popular reasons mentioned are SNS is more user-friendly; it is easier to share content on SNS; it is possible to use applications to access SNS via mobile phones.

According to the results of the given research it can be concluded that though LMS is worth trying from the point of view of education and communication social nets are still topping the list of the ways of both formal and informal communications in environment under consideration.

SOLUTIONS AND RECOMMENDATIONS

The authority of HSE motivates scholars to use innovative educational programs and ICT enhanced courses in teaching practice. Blended learning is becoming more and more popular nowadays. The number of the on-line courses outstripped the off-line ones and some massive open on-line courses (MOOCs) are becoming inseparable part of the education. The literature and practice analysis supports the fact that the use of information technology as an educational and collaborative tool allows one to provide better control, faster exchange of information, instant feedback collecting along with arranging the flexibility of educational process (Motteram, 2013). New forms of communication, in turn, contribute to the perfectionism of the communicative competence of its members.

Practice shows that SNS let people interact distantly by provoking new communicative situations and uniting groups due to professional or personal interests. Bearing in mind the number of innovations the Information Age supplies are more and more sophisticated and elaborate means of interaction are developed daily. Therefore, the success of the application of definite information technology as a tool of communication depends on the purpose of communication, the methods and the quality of applied technology.

In 2000 there were no SNS that are so popular nowadays. Facebook was launched in 2004 and VKontakte only in 2006. Not every family in Russia had a computer at home and Internet access was rare. Nevertheless, even then, the majority of interviewees were enthusiastic about the future of ICT in education and computer-mediated educational process. The survey conducted in 2018 has also shown that both students and educators are active users of SNS. The study revealed no negative

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effects of SNS claimed previously such as addiction, private time infringement, etc. Although, it does not deny other drawbacks of SNS which can be experienced independent of the amount of time spent on-line.

Moreover, the students, as digital natives, have already made SNS an integral part of educational process. The results of the study suggest that the time spent in SNS does not influence motivation to use SNS for educational purposes. Every student having an account is using it to benefit educational process. While socializing with a teacher on SNS students are more open-minded and relaxed. SNS creates positive educational environment and inspires more than traditional command and control link with a teacher in the classroom. Still it seems a challenge to make teachers spend more time on SNS and turn to those SNS that are popular among students and make them integrate SNS into educational process. Moreover, in order to eliminate or minimize threats and risks both teachers and students have much to discuss before implementing SNS into "full time" teaching practice.

The results of the study also imply that at present we cannot rely solely on SNS in education. Their use should be supported by other means like LMS or MOOCs as well as traditional on – campus activities. However, taking into account the amount of time students spend on SNS and the optimism of both educators and learners about making SNS part of the educational process, it can be anticipated that in near future SNS stand a good chance to be integrated into distant education and become the leading means of e-learning.

FUTURE RESEARCH DIRECTIONS

There are some limitations of the study to be kept in mind when interpreting the results and planning future research. The ratio between the number of educators and students in HSE in 2017 and 2018 is 240 to 1657 (https://nnov.hse.ru/docs), so the authors have tried to maintain the equilibrium in the given study involving 30 educators and 200 students respectively. Still the teachers' sample could be expanded in future to obtain stronger evidence. Besides, the results obtained from interviews in 2000 cannot be compared by the same statistical schemes with the results of the survey conducted in 2018 as they vary in structure and the ways of information collected, letting the authors only make some assumptions based on the evidence in real educational process on the daily basis. The researchers are planning to continue their study by increasing the size of the sample, by conducting regular surveys to observe the progress of SNS implementation into educational process and the main tendencies concerning e-learning in HSE Nizhny Novgorod and other Russian universities.

All in all, the last few years have obviously seen a rapid development in e-learning strategies applied in higher education. Along with online courses provided by such platforms as Coursera, Moodle, Udemy and many others, each university is making steps towards creation of their own unique products. There is no doubt about the fact that modern higher education cannot do without e-learning in any of its forms. Thus, university staff is facing a dilemma regarding what products to rely on in an educational process: International online-platforms, specific domestic products, SNS, wiki - sites or something else? However, the bulk of research conducted recently has the tendency to investigate each of the aforementioned tools separately, lacking an integrated approach to the issue.

CONCLUSION

Above mentioned challenges and prospects for SNS implementation in the system of higher education singled out by both theoretical analysis and experimental part were based on many years of research on the given topic. The SNS use has turned out to be popular, trendy, available, motivating and efficient from the point of view of educational impact. Moreover, it has been proven that SNS are popular among faculty members and students where they spend considerable amount of time. The fact is that once teachers and professors address global audience via internationally use SNS such as Facebook, the majority of students prefer domestic VK site for interaction and education. If the beginning of the millennium was full of skepticisms and only limited number of students had computers and Internet, the technophobia has passed once the computers stop being a smart tool and become the inseparable part of everyday life. The move from the classrooms to the web platforms has undergone many transformations be it LMS, WIKI, SNS, and is turning into collaborative education. The given project unintentionally has proven that as a side effect.

Thus, the ongoing complex study of e-learning tools available nowadays is critical for enhancement of educational process. As the chapter has shown there are still some difficulties to overcome on the way to successful integration of e-learning into higher education and future research should aim at identifying the e-learning tool (or a combination of various means) that will satisfy both educators and students.

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KEY TERMS AND DEFINITIONS

E-Learning: A web-enhanced earning technique includes e-learning that implies 100% of practice made on-line, hybrid constituting 80%, blended 50% on-line and 50% off-line.

Information Communication Technologies (ICT): Is the combination of various computer- mediated ways of collecting, storing and processing information.

Learning Management System (LMS): A Moodle-based platform to be used for creation of virtual classes and local learning environment within the university or campus.

Social Net Sites: Web-based sites for distant communication, interaction and socializing of people grouped in communities with regards to their interests.

Students' Feedback on Rating of Teacher-Student Extracurricular Collaboration and Personal Relations: A part of compulsory students' assessment of a teacher's teaching and instructional activity run anonymously.

V Kontakte (VK): A social networking site originated by P.Durov SNS for Russian and international users.

ENDNOTE

[1]   VK (VKontakte; Russian: ВКонтáкте, meaning *InContact*) is the largest European online social media and social networking service. It is available in several languages and is especially popular among Russian-speaking users (Wikipedia)

APPENDIX

The Questionnaire (2018)

1. Your sex
2. Your age
3. Do you have an account in any SNS?
4. What SNS do you have account(s) in?
5. How much time do you spend on SNS daily?
   a. Less than an hour
   b. Up to 4 hours
   c. 4-10 hours
   d. More than 10 hours
6. Do you use SNS for educational purposes?
7. Would you consider an opportunity to be educated via SNS (along with traditional campus-based education)?
8. Do you use LMS?
9. Do you consider the opportunities offered by LMS efficient for educational purposes?
10. Does LMS help to improve tutor-student communication?
11. Would you prefer to interact with your groupmates and teachers via SNS or LMS? Give reasons for your answer.

Interview Questions (2000)

1. Your sex
2. Your age
3. Do you have a PC at home? What do you use it for mainly?
4. Do you have Internet access at home? If not, would you like to have one? Why is it important to stay connected? What opportunities does PC and Internet access offer you if you think about educational process?
5. What is your opinion about ICT in education?
6. How will educational process change in 10 years? Will it be computer-mediated?
7. Is it worth trying to implement ICT in educational process right now? Why? Why not?

Interview Questions (2018)

1. What social nets do you prefer?
2. How much time do you spend in the Internet daily?

3. What informal means of communication with teacher would you prefer?
4. To what extent are you for extra-curricular communication with the teacher? (Answer from 1 to 5)
5. Advantages of social nets?
6. Disadvantages of social nets?

Students' Feedback (2018)

Advantages of social nets:

- Instant, Rapid, Comfortable to use, Available
- Time saviour
- Easy and fast communication
- Communication, easy way to find someone
- It is the quickest way of communication
- Fast communication
- Fast respond, quick way to communicate
- Quick access
- Instant communication, lack of barriers and lots of opportunities to get acquaint with different people and Learn smth new
- Easier and fast communication, have a lot of possibilities in different aspects of life
- Instance, can chat with any person no matter where he is, compactness of the chatting device
- Really fast, available
- Different types of information in various spheres, ability to communicate with your friends via only one source
- High speed of communication; You don't need to stay close to communicate with people.

Disadvantages of social nets:

- Time-wasting, Requires stable Internet
- Time devourer
- Addiction
- Wasted time
- Lack of face-to-face communication
- Distract a lot
- Wasting a lot of time
- Loss of desire or ability to communicate face- to-face

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- Progressive procrastination, a kind of permissiveness and loss of the real communication skill
- They usually take a lot of time and claim from real life
- Takes too much time, many useless information, spoil eyes while long using
- There is more information in PtoP communication
- Time wasting
- It is not implies "live communication". It is not safety in some cases.

Teachers' Feedback (2000)

The authors express their gratitude to the students and teaching staff of NRU HSE Nizhny Novgorod and VGIPA who volunteered to take part in the surveys.

Table 1. Teachers' feedback on ICT in educational process

«Я считаю, что и без ИКТ можно эффективно учить английскому языку. Мел и доска-вот орудие талантливого учителя» (Ирина 57 лет)	"I think, that it is possible to teach English effectively without ICT. Chalk and a board – that's the tool of a talented teacher". (Irina,57)
«Мне неловко, что я слаба в компьютерах. А рядом совсем молодые девчонки быстро справляются со всем!» (Светлана 50 лет)	"It is embarrassing to be weak in computers. And nearby young girls quickly cope with everything!" (Svetlana,50)
«Здорово, что наконец-то университет занялся этой проблемой. Мне нравится работать с молодежью» (Эдита 49 лет)	"It is great that finally University tackled this problem. I enjoy working with young people". (Edita,49)
«Я вынуждена записывать все действия пошагово. Хотя я уже имею опыт работы с интерактивной доской, но это LMS совсем иное.» (Ольга 45 лет)	"I have to write down all my actions step by step. Though I already have experience with an interactive board, LMS is different." (Olga, 45).
«Я имею активную жизненную позицию и не имею ничего против работы в разновозрастной группе. Я готова помогать старшим коллегам, если понадобится» (Вера 37 лет)	"I am self-motivated and I don't mind working in a mixed-age group. I am ready to help senior colleagues if necessary" (Vera,37)
«В моем возрасте поздно учиться этим премудростям, мне не угнаться за молодыми!» (Светлана 50 лет)	"It is too late to acquire such knowledge; I cannot keep up with young people". (Svetlana, 50).
«Хотя ИКТ для меня ново, но при помощи молодежи я молодею сама и учусь у них. Я не испытываю комплексов. Я учу их методике, они меня компьютерной грамотности.» (Вера 53 года)	"Although ICT is new for me, but with the help of young people I feel younger and learn from them with enthusiasm. I have no complexes. I teach them the procedure; they share computer literacy with me." (Vera, 53)

Chapter 15
Examining the Psychosocial Dimensions of Young People's Emergent Social Media Behavior

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ABSTRACT

Social media usage among young people has grown astronomically, generating interest among a number of interest groups. This chapter fills a gap on social media psychosocial antecedents propelling high-usage behavior and the subsequent psychosocial outcomes showing in attachment to the social media. The chapter explored the emergent psychosocial needs driving young people's level of usage in social media and the consequences, among a population in Ghana. The findings revealed that young consumers' social media behavior could be greatly influenced by their social psychological needs, but individual psychological variables did not significantly predict usage behavior in social media. The findings also suggest that young people are more emotionally attached to social media, slightly attached cognitively and not attached behaviorally. This implies young people have developed some level of emotional involvement for the use of social media which could affect their well-being positively or negatively.

INTRODUCTION

Social media comprises of various forms of internet based or web 2.0 platforms that allow users or the public to generate and share ideas, pictures, videos, information, interests, and other expressions. It is one of the most dynamic, interdisciplinary socially facilitated media of contemporary society (Hjorth & Hendry, 2015; Kaplan & Haenlein, 2010). Made up of five distinct types, including social networking sites, social news, media sharing, blogs and micro blogging, social media is transforming young consumers' behaviour as it has created a shift in how consumers use technology, connect with others, engage with brands and other social activities such as entertainment (Chuma, 2014; Pinto, 2015). Such level of advancement and accessibility is increasingly creating opportunities for high usage and the likelihood of psychological consequences (Bolton et al., 2013; Chiang, 2013; Wu, Cheung & Hung, 2013). Given its growing importance, the power of social media to influence consumer behaviour cannot be over looked. Studies shows that, at a global level, it has become a major medium through which businesses engage their customers and for multiple levels of communication in all social interactions (Kim, 2016).

Although social media usage can be found among different groups of people, the younger consumer generation has been found to be connected to social media to a higher degree and this has become the focus of attention by researchers (Chiang, 2013; Dunne, Lawlor & Rowley, 2014; Khan, 2017; Westlund & Bjur, 2014). The younger generation basically consists of those from the later generation of generation Y, born from 1980s to 2000 and described as millennials, and the generation Z who are described as totally distinct from previous generations of consumers or market segment. They are considered as a dominant consumer segment, brand conscious, technologically advanced and digital citizens (Abeeele, 2016; Bertel & Ling, 2016; Bolton et al., 2013; Kotler & Keller, 2013; MacCasland, 2005; Mascheroni & Vincent, 2016; Walsh, 2009). They spend a lot of their time on technology devices mainly smartphones, internet and social media for social connections, information and entertainment. They are considered technology lovers and multi device owners (Bertel & Ling 2016; Lien & Cao, 2014; Khan, 2017; Lin & Lu, 2011; MacCasland, 2005; Naumouska, 2017; Whiting & Williams, 2013). Consequently, young people have been considered vulnerable to excessive usage and behavioral outcomes of social media. Due to their prolific usage of social media, they are considered as the population of interest for new digital media technologies such as smartphones and social media (Babadi-Akashe, 2014). As social media assumes a high level of influence it is imperative to understand young consumers from different parts of the world.

Social media has created strong interactions in people and Bolton et al. (2013) suggested social media antecedent factors and outcomes in young people should be the focus of research. In response to this call, psychosocial antecedents and outcomes including social capital, psychosocial motives, and psychological wellbeing such as dependence and addiction associated with social media, has been examined. Findings suggest some social and psychological factors including entertainment, information, and relationships are key drivers of social media behaviour (Al-Kandari et al., 2016; Bulduklu, 2017; Cheng et al., 2015; Kuru et al., 2017; Khan, 2017;Wei & Lo, 2015). Other findings suggest individual psychological factors such as personality, self-esteem, and self-seeking status influence social media behaviour in young people (Seidman, 2012; Steinfield, Ellison & Lampe, 2008; Wilson et al., 2010; Wood & Scott 2016). The Western world and Asia have been the central geographic context for the majority of these studies. However, social media usage behaviour in a diverse sociocultural context (Carter & Yeo, 2016; Khan, 2017; Rubin, 2002; Sundar & Limperos, 2014; Whiting & William, 2013; Wu et al., 2013) may present different patterns of behavior relevant to understanding social media behavior. As there are only a few studies from a developing country setting (Karikari et al., 2017), this calls for more studies to bridge this gap (Al-Kandari, Melkote & Sharif, 2016). Findings from the US, UK and Asia have been the focus of developing countries studies on social media. In Ghana, Karikari et al. (2017) found that social media supports the generation of social capital and user well-being but usage can be influenced by external social pressure. Nevertheless, there have not been many studies on the extent to which psychosocial factors associated with social media usage in Ghana may differ from other parts of the world. Consequently, as psychosocial factors have become significant drivers of young people's social media behaviour, it is imperative to examine these factors and how they interplay with usage behaviour and psychosocial outcomes from a different context.

Thus, the main purpose of this chapter is to examine the psychosocial antecedents influencing social media usage behaviour of young people, the extent to which these factors drive continuous usage in social media and the subsequent behavioural consequences in social media behaviour of young consumers from a developing country setting.

THEORETICAL FRAMEWORK

Uses and Gratification Theory

Originating from media psychology, the Uses and Gratification Theory (Blumler & Katz, 1974) constitutes a dominant theoretical body for examining and explaining

the reasons for adopting new digital media technologies such as social media. The theory assumes that media use is a goal directed activity in which the audience or users are active participants. This means that individuals actively seek out media to fulfill specific needs that leads to gratification (Rubin, 2009; Whiting & Williams, 2013) and that media cannot be used without its audience. The framework considers motives and individual factors that are the reason for the use of social media, use behaviour and behavioral effects of social media (Khan, 2017).

Proponents of the Uses and Gratification Theory suggest many underlying motives, both utilitarian and non-utilitarian, for media use such as seeking to relax, entertain themselves, interact with people, escape some things etc. (Leung & Wei, 2000). In recent times, social media gratification has evolved into mainly social interactions, entertainment, information, affection, social coordination etc. (Buluduklu, 2017; Khan, 2017; Sundar & Limperos, 2014; Wei & Lo, 2015; Whiting & William, 2013). The Uses and Gratification Theory has been applied in a wide range of new media technologies.

According to Rubin (2009), there are various dimensions of focus of the theory. The theory focuses on the connecting motives and consequences to media behaviour and attitudes; comparing motives across different media; exploring a variety of media's psychological and social situations; connecting media motives sought from motives obtained; exploring different attributes, backgrounds and affection for motives; and assessing the reliability and validity of motivation measures. New media technologies have rekindled the interest in the application of the theory. Some studies have focused on reasons and motives for media use, media use effects and how motives influence media use behaviour. The theory has become useful in assessing social media use behaviour hence its usage for this study. However, there has been more emphasis on the media and communication aspect focusing on the media and the message rather the consumer or user of the media. Hence, this chapter concentrates on what drives users to continuously engage social media and the behavioral outcomes of such sustained usage.

Social Media Usage

Media use is the purpose or function for which a technology medium is consumed as well as the frequency of use (Weiser, 2001). Social media usage in young people includes information gathering and sharing of content as well as interactions with friends and relatives. Social networking sites have become the most popular aspect of social media and it is used for social connection, for sharing of media content, for academic work and searching for and buying of goods and services generated by

these contents (Watulak & Whitefield, 2016). Another dimension of social media is the media sharing sites that permits users to upload your photos, videos and audio to or from other sites anywhere in the world. One of the main common forms of a media sharing site is video sites where YouTube.com, Facebook and Instagram are the dominant and most widespread, according Bolton et al. (2013).

Studies show that young people's social media behaviour is on the high side. Social media frequency of use has increased over the years as more young people get connected (Whiting & William, 2013; Wu et al., 2013). Carter and Yeo (2016) reported that most students have integrated social media into their daily lifestyle. They reported that, on a daily basis, young university students in Malaysia use social media 20 times, accessing chat apps such as WeChat, Twitter, Facebook, WhatsApp and Instagram. Wu et al. (2013) discovered that young people spend more time on smartphones and social networking sites than other digital media. Hussain (2012) observed that students used social media for enjoyment and some academic activities, while Tess (2013) is of the view that young students rarely use social media for learning; nonetheless they use it for career networking and connecting with friends. Karikari et al. (2017) added that, in Ghana, young people have social pressure to connect with friends through social networking sites hence the high usage behaviour. Overall, the findings reveal that most students have integrated chatting on social media into their day to day lifestyle. Such usage behaviour may be attributed to psychosocial drivers including motives and other psychological factors, which is the focus of the next sections.

Gratification and Motives Driving Social Media Use

Gratification, on the other hand, has been conceptualized as the needs, motivation and satisfactions driving media consumption (Walsh, 2009). Different authors have used different terminologies and classifications for the gratification consumers usually seek. For instance, some researchers posit that gratification is the motive that drives media use in general (Khan, 2017; Leung & Wei, 2000; Whiting & William, 2013), and more specifically, drives the use of media usage (Wei, 2006). Lin (2002) posits that gratification is a need, and media use is a conscious effort towards the fulfillment of both emotional and mental needs (Leung & Wei, 2000; Ling, 2000; Wei, 2008). Gratifications are psychological and social needs, which are fulfilled through the use of technology (Cheung, Liang, & Leung, 2015).

Studies have identified several psychosocial motives based on the Uses and Gratification Theory (Blumler & Katz, 1974; Khan, 2017; Rubin, 2009; Sundar & Limperos, 2014; Whiting & William, 2013) driving social media use, and several findings support gratifications connected with social media and social networking sites (Kuss & Griffiths, 2017; Ryan, Chester, Reece, & Xenos, 2014). The psychological

and social gratifications, such as information, entertainment, and social relationship, are considered to be the main antecedents for use behaviour of most young people in social media (Ling, 2000; Walsh, White & Young, 2007; Whiting & Williams, 2013).

Social media increases human interactions even at a distance. Hence, social motivations are highly involved in human to human technology interactions (Khan, 2017; Ko et al., 2005). This is confirmed by Khan (2017) who indicates that those who have strong social interaction needs were more likely to comment on videos by showing their likes or dislikes and are more likely to upload videos. Also, among the 10 themes Whiting and William (2013) considered to be gratifications for using social media, they highlight social interactions and expression of opinion. Lawlor and Rowley (2010), in a qualitative study, reported that usage of social networking sites by young people is driven by personal gratifications such as personal identity and managing social relationships: these were found to be the basis for sticking to social networking sites and online social media chats. Ko et al. (2005) as well as Sundar and Limperos (2014) likewise reported that motives for social media use include relational needs such as social interaction. Similarly, Karikari et al. (2017) reported that young people in Ghana have external social pressure. This is a strong antecedent for social media engagement and social media being able to be used for building social capital and subjective wellbeing.

Moreover, entertainment, information seeking and information sharing were also predominant gratifications for using social media. Kang and Atkin (1999) found that entertainment is a major reason for multimedia adoption (see also Khan, 2017). This is supported by Chan and Fang (2007) who reported that entertainment gratification is one of the major psychosocial factors driving social media for fun and music as well as other activities. The user participation was reported as a stronger predictor for liking a video and reading information while those who seek entertainment gratifications are more likely to view videos and read comments on social media. Al-Kandari et al. (2016), Ko et al. (2005) and Whiting and William (2013) also reported that motives and needs driving social media include self-expression, entertainment, opinion exchange and information seeking.

Although additional gratifications have been identified (e.g., escapism, Sundar & Limperos, 2014; relaxation, Whiting & William, 2013), it appears that the most predominant psychosocial gratifications driving social media content engagement are social gratification, entertainment gratification and information gratification, hence this study embraces these emergent gratifications. Most of the aforementioned studies have not explored the extent to which gratifications influence social media usage rate in young people, especially in developing countries. Therefore, this chapter was carried out to examine the current gratifications influencing young people's social media and the extent of influence thereof, in the context of a developing country. Based on this gap the research questions were formulated as:

Research 1a: To what extent does social relationship gratification drive social media usage positively?

Research 1b: To what extent does information gratification influence social media usage positively?

Research 1c: To what extent does entertainment gratification influence social media usage positively?

Individual Factors in Uses and Gratification

There are individual psychological factors, such as personality factors, influencing usage behaviour in social media. Researchers have adopted the big five personality approach (using agreeableness, conscientiousness, extraversion, neuroticism and openness) and found the most prominent influencers of social media use were extraversion and conscientiousness (Wilson et al., 2010). Seidman (2012) likewise confirms that higher extraversion is associated with frequency of Facebook use while agreeableness and neuroticism influence the motive of belonging.

Other studies have explored different individual factors such as self-esteem, impulsivity, shyness, loneliness, locus of control, and factors which may predispose people to use digital media to a high level (Bian & Leung, 2015; Philips & Bianchi, 2005; Walsh et al., 2009). These individual factors have been found to influence usage, motives and addiction. For instance, Wilson et al. (2010) found that personality factors such as extraversion, conscientiousness and self-esteem could influence the tendency to be addicted to social networking sites. Earlier findings on self-esteem suggest that it is part of general psychological wellbeing in technology usage behaviour. For instance, Steinfield, Ellison, and Lampe (2008), in a longitudinal study of young people in the US, found that self-esteem is associated with young people's use of Facebook where those with lower self-esteem gained more in bridging social capital than those with higher self-esteem. However, recent studies have used self-esteem and self-seeking status as major individual factors in social media studies due to the fact that only extraversion has been found to show consistency in media use (Khan, 2017).

Self-esteem is the sense of value and worth a person puts on him/herself. It stems from the need to feel good about one self. Esteem needs, as proposed in Maslow's theory of need, identified lower esteem needs such as status, fame, glory; and higher esteem needs such as self-respect, confidence, competence, and achievement. Self-seeking status gratification is a satisfaction for the need to feel important, to impress others and feel cool (Khan, 2017). Connecting these two variables can bring insight into new individual factors for social media use.

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Other findings similarly connect the use of social media to age and gender with findings suggesting that young people are more likely to use mobile technology as an expression and fashion (Ling, 2003; Ling, 2004); whereas, adults moreover tend to emphasize mobile phone use to feel safe and secure (Ling, 2004). Regarding gender, the evidence points to mixed results (Bolton et al., 2013; Campbell, 2006; Ling & Haddon, 2003; Wu et al., 2013); and such mixed findings require continuous research in social media. Based on these findings, the following research questions were formulated:

Research Question 2

Research Q2a: How does self-esteem drive social media usage in young people?
Research Q2b: How does self-seeking status influence social media usage in young people?
Research Q2c: To what extent does age and gender affect social media usage?

Psychosocial Outcomes of Social Media Use

Current psychological research fronts have shifted from emergent use behaviour to the psychological consequences associated with social media use such as problematic, addictive or dependent use as a consequence of high usage (Bolton et al., 2013; Kuss & Griffiths, 2017; Walsh, 2009; Wu et al., 2013). Brown (1993) introduced technology addiction using indicators such as withdrawal, salience, loss of control and others. Based on the biomedical model of substance addiction, the behavioural addiction concept assumes that an individual dependent on a substance will exhibit withdrawal symptoms when they are denied that substance; and that can disrupt normal daily functioning. In the same way, when this is applied to behavioural addiction, a person can use a technological media to such an extent that lack of usage may lead to withdrawal symptoms and heavy usage can impact general wellbeing. It has been argued that the term addiction should be extended to include behavioural addictions such as excessive use of technology. According to Brown (1997), behavioural addictions entail usage without being able to control technology use. It is similarly difficult to abstain, and continuous use can be harmful to the user. Excessive, uncontrolled and impulsive usage can be described as an addiction problem (Billieux, 2012).

As social media use becomes prominent among young people, more findings are pointing to excessive and/or addictive use. Wu et al. (2013) reported that young people who spend more time on smartphones and social networking sites may be addicted to smartphones and social networking sites. This is supported by Kuss and Griffiths (2017) whose empirical review confirms that, due to the need for

social connection, the main basis for social networking addiction is to sites such as Facebook, Instagram and Twitter. Furthermore, Fernandez-Lopez et al. (2017) in a multi-cultural study reported that social networking and social media may drive consumers into dependence and addiction.

Yet there are other studies suggesting that social media addiction may be culturally specific, may not be applicable to all use situations, and some young people can control the use of mobiles (Asante, 2018). According to Billieux et al. (2014), the biomedical model of addiction and dependence may not be applicable in all situations of excessive use and there is a need to offer alternative explanations. Ahmed, Qazi, and Perji (2011) found that young people in Pakistan use media technology within reasonable limits even if it is an integral aspect of daily life. Others see addiction as only a simplification of individual psychological functioning (Asante, 2018; Billieux, et al., 2015). However, Orford (2001) argued that excessive media usage behaviour might have negative outcomes but may not be described as an addiction. He however, suggests that high media use could be described as psychological attachment or involvement with the object. Hence, extensive usage of media technologies can only show high involvement or psychological attachment and not addiction. Walsh et al. (2009) used involvement in young people's mobile phone behaviour and reported that, although involvement was high, there was no connection between frequency of use and psychological involvement. Nonetheless little has been found on psychological attachment or involvement in social media. Hence, there is a need to put young people's heavy usage of social media into a different behavioral perspective for better understanding of emergent social media consumer behaviour. So for the purpose of this study, Orford's approach to explaining young people's psychological attachment or involvement is adopted in assessing behavioural effects. The study likewise adopted Walsh et al.'s (2009) psychological involvement and adapted it into three levels of psychological attachment, namely; emotional, cognitive and behavioral attachment. To this end, Research Question 3 was formulated.

Research Question 3

Research Q3a: How does emotional attachment to social media drive usage in young people?

Research Q3b: How does cognitive attachment to social media influence social media usage in young people?

Research Q3c: How does behavioral attachment to social media influence social media usage in young people?

Research Q3d: To what extent does age and gender affect psychological attachment to social media usage?

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METHODS

The purpose of this section was to unfold the research methodology for answering the following research questions.

Research Q1: To what extent does social gratifications of relationship, entertainment and information influence social media usage in young people in a developing country?

Research Q2: How do individual factors of self-esteem and self-seeking status influence social media usage in young people in a developing country including moderation of age and gender?

Research Q3: How does emotional, cognitive, and behavioral attachment to social media influence social media usage in young people in a developing country including the moderating effects of age and gender?

To answer these questions the study adopted a quantitative approach in order to obtain better answers to the research questions and meet the objectives. A survey method, which is a widely used data collection method for measuring multiple variables, was used. The survey method allowed for a deductive approach based on a theoretical framework with empirical measurement through data analysis (Neuman, 2007).

The Study Context

The study was carried out in Ghana, an emerging economy in the West African sub-region with a considerable level of market potential for technology and digital media. With a population of 29.99 million people, Ghana has experienced high growth in technology as a result of market liberalization, privatization, technological advancement innovation and other benefits derived from using digital media (Atsu et al., 2013; Tobbin, 2012). According to ITU (2019), mobile subscription shows about 36,751 active users of smartphones in Ghana leading to high social media usage, social and economic growth in investment and GDP, improvement in micro trading and economic activities, and strengthening social ties.

Population and Sampling

The target population was young consumers from age 18-35 with a mean age of 28.4 currently pursuing tertiary education at various universities in Ghana. A survey was conducted in three main universities spread across Ghana. These universities were chosen because of their geographic location, large number of students, easy

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accessibility and young active users of social media on these campuses (Bian & Leung, 2015; Dlodlo, 2015). Also, the universities were used because the university campuses house predominantly young people and a number of studies in new media technologies have used such samples. The young students are considered to be the most active users of new media technologies because they are the generation who has been exposed widely to technology since they were born. They started playing with mobile phone toys and digital gadget so they may have more to share on mobile phones (Karikari et al., 2017; Walsh, 2007; Yan, 2017).

Cluster sampling, where geographic clusters are created and a random sample of individuals are selected, was used to sample universities and students from the various campuses (Wilson, 2012). This ensured that the majority of geographic areas were covered. The characteristics of respondents are described below in Table 1.

Three faculties were selected at random from each university and students were randomly selected for the survey from these faculties at lecture halls. Each member of the population had an equal chance of being selected for the survey. Students responded to the questionnaire by themselves under supervision after briefing them and obtaining their consent.

Table 1. Characteristics of respondents

Variables	Total Population	Sample Frequency	Percent of Sample
Institution: U.G. U.C.C. KNUST	 29,754 31,229 31,189	 201 222 182	 33.3 36.8 30.0
Age: 20 years & below 21-25 years 26-30 years 31-35 years 36 years and above		 210 252 115 25	 34.8 41.7 19.0 4.2 0.3
Sex: Male Female		 292 312	 48.3 51.7
Frequently used social media: Facebook WhatsApp Twitter Instagram		 211 158 116 72	 34.9 26.2 19.2 11.9

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Measures and Scales Used for the Study

The survey questionnaire was made of three main sections - A, B and C. Questions assessing the social demographic data such as age, gender and type of social media frequently used were found in section A. Section B addressed mobile phone psychosocial gratifications, usage rate and individual factors. The questions here captured the social relationship, information and entertainment gratification and individual factors, self-esteem and self-seeking status. Section C was used to assess psychological attachment.

Usage rate was measure based on the number of times or frequency of use in social media on a daily basis. From a range of 1-10 times, usage was described as low usage; 11-20 times was moderate usage; and above 20 times was considered to be extensive usage. This was further categorized into high users and low users.

Variables for psychosocial factors, individual factors and attachment were measured using a five-point Likert scale anchored from 1 to 5 and categorized into various responses ranging from (5) strongly agree to strongly disagree (1). Scores were then converted into high and low for the purpose of the analysis. Scales were adapted from related literature (Billiuex, 2012; Khan, 2017; Kuss et al., 2017; Walsh et al., 2009). However some were modified to suit the current research. Questions for the scales are described below in Table 2. The only validated scale available was the Rosenberg's (1965) self-esteem inventory, which was included in the current study. Table 3 presents the means, standard deviations and Cronhach's Alpha for all variables. All variables were with the acceptable range for Cronbach's Alpha .75 -.899 suggesting a good reliability level.

DATA ANALYSIS

The logistic regression, also referred to as Logit regression, was used in analyzing the data in both SPSS 21 and Stata/SE 14. In this type of regression the aim was to predict the relationship between two variables; where the dependent variable(s) is/are binary. This allowed for the assessment of the extent of the relationship between high users and low users of social media and its connection to various gratifications, individual factors and levels of psychological attachment. It also made it possible to measure the extent to which age and gender relates to gratifications, psychological attachment influences and the frequency of use in social media.

Table 2. Scales of measurement used

Information Seeking Gratification	Entertainment Gratification
Information gratification was assess based statements such as: To get information about things that interest you, To learn how to do things, To find out what is new out there, and To keep up with current issues and events	Information gratification was assess based statement such as: To be entertained, To play, To enjoy, To relax; and To pass time
Social and Relationship Gratification	**Self-Esteem**
To connect with friends and family To stay connected to those I care about To meet new people To belong to a community	On the whole I am satisfied with myself, At times I think I am no good at all, I feel I have a number of good qualities, I am able to do things as well as most other people, I feel that am a person of worth equal to other, In all I am inclined to feel that am a failure, I take a positive attitude towards myself
Self-Seeking Status	**Emotional Attachment**
To impress other users To feel important To make myself look cool To gain respect To establish personal identity	I am in love with my phone so much, I give my phone my first priority above anything else, Am always absorbed with my phone, I cannot live without my mobile phone
Cognitive Attachment	**Behavioural Attachment**
I cannot put my phone out of my mind The thought of losing my phone scares me Am always mentally conscious of my phone	I always have a drive to use my phone. My phone is the first thing I look at when I wake up Am always anxious to check my phone I cannot control my phone use behavior

Table 3. Construct reliability, means and standard deviations of scales

Constructs Used	Cronbach's Alpha	No. of Items	Mean	Standard Deviation
Information Gratification	.857	4 items	3.39	1.4
Self-Seeking Status	.868	5 items	3.13	1.37
Social Rel. Gratification	.871	4 items	3.16	1.03
Self-Esteem Gratification	.899	9 items	3.20	1.31
Entertainment Gratification	.784	5 items	3.14	1.31
Emotional Attachment	.700	5 items	1.33	0.72
Cognitive Attachment	.687	3 items	3.30	0.92
Behavioural Attachment	.780	4 items	1.08	0.72

RESULTS AND DISCUSSION

Social Media Gratifications in Young People

This chapter examined the psychosocial factors influencing social media behaviour including psychosocial gratifications and other personal factors driving social media usage behavior. It also assessed the extent to which these factors, social relationship, entertainment and information gratification, individual factors including self-esteem and self-seeking status and other factors such as age and gender drive usage behaviour. The findings are described in Table 4.

The results show that there is a significant positive relationship between social relationship gratification for using social media (with odds ratio of OR=3.72, $p<0.000$), entertainment (OR=3.56, $p<0.000$) and information gratification (OR=2.49, $p<0.001$). This shows that high users of social media are three times more likely to be driven by the need to bond through social interactions and the need to relate with other people including family, friends and other loved ones. Those driven by entertainment gratification are three times likely to use social media more and users who have a need for information are twice as likely to use social media at a higher rate.

It was observed that, for personal psychological variables, users with high self-esteem are more than three times more likely (OR=3.76, $p<0.001$) to use social media. The satisfactions that users pursue for social usage surprisingly include social relationship, information and entertainment gratifications, but interestingly self-seeking status, age and gender were not significant in relation to social media use.

These findings suggest that young people's drive for information and entertainment is high and that can make them vulnerable to high technology involvement and

Table 4. Gratifications driving social media usage results

Predictor of Social Media Usage Rate	Odds Ratio	Standard Error	Z	P>Z	Confidence Interval (95%)
Social Relationship	3.72	0.06	-6.13	0.000	0.19; 0.42
Entertainment	3.56	0.83	6.00	0.000	2.44; 5.81
Information	2.49	1.91	4.94	0.000	2.80; 10.87
Self-seeking Status	1.01	0.28	0.02	0.983	0.58; 1.74
Self-esteem	3.77	0.83	6.00	0.000	2.44; 5.81
Gender	0.32	0.06	-6.52	0.000	0.23; 0.45
Age	0.64	0.10	-2.85	0.004	0.47; 0.87

Log likelihood = -441.66774

addictive tendencies. It also shows that young people are driven by the need to satisfy social relationships and interactions with friends and family members while seeking pleasure as well. Findings from several studies (Carter & Yeo, 2016; Khan, 2017; Rubin, 2002; Sundar & Limperos, 2014; Whiting & William, 2013; Wu et al., 2013) support the argument that emergent gratifications are tilting toward these psychosocial gratifications. This confirms a report by Lawlor and Rowley (2010) that gratifications for using social networking sites include personal identity and social relationships and another report by Leung (2013) which suggests that socio-psychological needs such as entertainment and cognitive needs are crucial predictors of social media behaviour. The motivations or satisfactions driving Facebook include relationship maintenance, companionship, passing time and entertainment. These satisfactions drive people into excessive usage leading to addiction. It appears that gratifications drive user behaviour into psychological attachments addictions; which is consistent with Kuss and Griffiths (2017) who confirm the need for social connection, identifying this as the main basis for social networking and why people can be addicted to such sites including Facebook, Instagram and Twitter. This is also supported by Khan (2017) and Whiting and Williams (2013) who reported predominant gratifications for using social media as entertainment, social interactions, information seeking and information sharing, relaxation, communication utility, convenience utility and others. Wilson et al. (2010) also confirms social media usage with high self-esteem. Several other findings have likewise been consistent with the current finding (Carter & Yeo, 2016; Khan, 2017; Rubin, 2002; Seidman, 2012; Steinfield et al., 2008; Sundar & Limperos, 2014; Wood & Scott 2016Wu et al., 2013).

It could therefore be concluded that, to a large extent, social psychological gratification and individual factors drive the continuous usage of social media by young people, similarly in developing and developed countries.

Social Media Psychological Attachment

The current study sought to examine the extent to which young people are psychologically attached to social media and how that attachment relates to social media. Adapting from Walsh et al. (2009), three main levels of attachment were assessed - cognitive, emotional and behavioral. The findings are detailed in Table 5.

The findings show that users of social media are influenced significantly by emotional attachment (OR=2.61; $p < .000$) and are likely to be preoccupied mentally, although not very strongly (OR=1.998, $p < 0.03$). In other words, those who use social media more are almost three times more likely to become emotionally attached or have strong emotional feelings towards social media. They are furthermore almost two times more likely to be attached at the cognitive or mental level to social media usage. This shows that young people are emotionally attached to social media as

Table 5. Social media psychological attachments

Predictor of Social Media Usage Rate	Odds Ratio	Standard Error	Z	P>Z	Confidence Interval (95%)
Emotional Attachment	2.62	0.51	4.90	0.000	1.78; 3.85
Cognitive Attachment	2.00	0.64	2.17	0.030	1.07; 3.73
Behavioral Attachment	0.30	0.06	-6.22	0.000	0.21; 0.44
Gender	0.52	0.09	-3.88	0.000	0.37; 0.72
Age	0.87	0.12	-0.99	0.323	0.66; 1.15

Log likelihood = -463.53888

a behavioural consequence. This could be due to the human to human interactions on social media as emotional bonds develop with social interactions. Moreover, when people interact with others the words stay as impressions on the mind before bonds could develop. As could be observed through the gratifications that drive usage, it suggests that social relationships, entertainment and information are strong connections driving young users into high usage and hence towards emotional attachment. This confirms Wu et al. (2013) who report that young people who spend more time on smartphones and social network sites were more likely to be addicted to smartphones and social networking sites. Several other findings support either dependence or addiction of some sort (Fernandez-Lopez et al., 2017; Kuss & Griffiths, 2017). Although addiction could be too strong, the findings from this study suggest that young people are actually in love with the use of social media or it actually resonates well with them and makes them feel good, hence they cannot get it off their minds.

However, they do not show significant behavioural compulsion to use social media: this means they are conscious to use social media within acceptable limits and might not show withdrawal symptoms as proposed by behavioral addiction proponents. Moreover, age and gender did not influence social media usage behaviour significantly.

CONCLUSION AND IMPLICATIONS

The study was carried out to explore the extent to which social media gratifications and individual factors influence usage behaviour and whether the extent of psychological attachment contributes in driving continuous usage of social media. The findings suggest that social media frequency of use is driven by psychosocial gratifications such as information, entertainment, social relationships, and individual factor of

self-esteem; nonetheless self-seeking status, age and gender were not significant in influencing social media behaviour. Social media psychosocial consequences were observed to show emotional attachment with slight cognitive attachment however behavioural attachment was not a strong predictor of psychosocial attachment in social media as well as age and gender. It could be concluded that social and psychological needs have replaced basic needs as far as new digital technologies such as social media is concerned. Due to the level of drive from these satisfactions there is a higher need to satisfy such needs by businesses in a way that will lead to positive psychosocial attachment for brands.

Although physiological gratifications may be important to consumers, it appears that new digital media has moved beyond meeting physiological needs to more psychosocial needs of information, entertainment, belongingness, and individual differences, which have become crucial in ensuring continuous usage and could, create resonance for brands online.

Findings from this study authenticate that technology gratifications have evolved, and for the current generation of millennials in a developing country, it is social relationship, information, and entertainment gratifications that drive their usage behavior. The findings strengthen the existence of emergent psychosocial gratifications and individual factors as the drivers of usage behaviour in social media. The findings strengthen the importance of media uses and behavioural effects, which in turn, drives continuous usage.

The finding extends the Uses and Gratification Theory that social media is strongly connected to psychosocial satisfactions and personal factors driving the extent to which young people use the media. It is the gratification obtained that predicts the continuous usage. Again, there are behavioural effects (such as psychological attachments) due to the gratifications obtained but these may not be strong enough to be referred to as an addiction.

These findings imply that businesses can influence young consumers' behaviour by engaging them through social media usage behavior. It implies that young consumers can be engaged through information, relationship, entertainment and activities that enhance their self-esteem. Considering the upsurge of information, entertainment and relationship gratifications driving young people's usage behaviour in social media, this could be used to facilitate policy information to communities, schools and other places by government and other policy formulators.

LIMITATIONS AND FUTURE RESEARCH

The study is limited to only students in a developing country; accordingly other researches can focus on young people in general. Further, the selection of three universities and a particular age cohort could affect the generalization of the results. Different age groups could present different usage behaviour that could have improved the understanding of consumer behaviour in social media. Also, the study is limited by the use of self-reports and scales used to gather information from respondents on their social usage behaviour and psychological attachment. For instance the number of times it is used in a day may not be wholly reliable. Future studies could add open-ended and qualitative sections to enrich the data. Finally, future research should compare more media uses and gratifications as well as dependence and psychological attachment.

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KEY TERMS AND DEFINITIONS

Behavior: The actions and activities of a person or how a person's conduct.

Gratification: Satisfaction or pleasure obtained for engaging in behavior to fulfil a specific desire. Common gratification for using social media include: relationships, to relieve boredom and loneliness, for entertainment, etc.

Millennials/Second Digital Generation Users (2DG): Young consumers born in the 1990s, considered to be natives to digital media and distinct from the older segments of the population.

Outcome: A consequence or the way something turns out.

Psychological Attachment: A deep and enduring emotional bond which connects one person to another or an object.

Psychosocial: The interrelation of social factors, individual thought patterns, behavior, and how these influence interrelationships with others in a social setting.

Social Media: This is a Web 2.0-based social interactive plat form that allows users to generate and share ideas, pictures, videos, information, interests, and other expressions.

Uses and Gratification Theory (U&G): A theoretical perspective that examines why and how users engage with media to fulfil specific needs or achieve specific goals, based upon their psychological characteristics, social factors, and motives.

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