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Translation Practice in the Field

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Translation Practice in the Field. Current research on socio-cognitive processes
Edited by Hanna Risku, Regina Rogl and Jelena Milosevic

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Translation Practice in the Field

Current research on socio-cognitive processes

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INTRODUCTION

Translation practice in the field

Current research on socio-cognitive processes

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1. Introduction

This volume focuses on recent research that studies translators, interpreters and translation project managers in their authentic work situations and environments, i.e., as embedded in a specific temporal and spatial context. In an attempt to extend the scope of analysis of translation process research from individuals and texts to subjects or collectives in their social and material worlds, particular attention will be paid to the following areas: current translation and interpreting practice, the genesis of translations, the handling and completion of translation projects in real working environments and the factors shaping these translation/interpreting situations.

Most of the papers in this volume were originally presented at the Fifth Translation Process Research Workshop (TPRW5) in December 2016 at the University of Graz. The biannual TPRWs are dedicated to current research on cognitive and behavioural aspects of translation. As local hosts, we took the liberty of giving TPRW5 an additional agenda by highlighting socio-cognitive approaches and workplace research. This focus has its roots in our own research project, *Extended Translation: Socio-Cognitive Translation Processes in the Workplace* (ExTra), which was financed by the Austrian Science Fund (FWF). In this project, as in the articles in this volume, we have studied the translation process while taking account of the technological and social embeddedness of translators in their real working environments. Our primary objective is to contribute to expanding the established tradition of experimental translation process research (TPR) with an ethnographic approach that permits insights into the diversity and complexity of translation practice, aspects that cannot really be reconstructed in a laboratory setting.

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While the specific theoretical foundations of the individual articles in this volume might differ and range from situated cognition and ergonomics to practice theory, they all nonetheless agree on the situatedness of translation, interpreting and related processes, one of the main assumptions of our research. Of particular interest are the processes at the workplace, the actions of those involved – as embedded in a specific environment – and how such workplaces develop over time, i.e., the process dimension of translation work. Accordingly, it seems appropriate to begin with an overview of the notion of the translation/interpreting process in translation studies before moving on to introduce and discuss those elements of workplace research that are of relevance for this volume and for contemporary translation studies research.

2. The derivation and diversification of translation process research

Interest in TPR has continued to grow since the first pioneering works emerged in the 1980s (e.g., Gerloff 1986; Krings 1986; Lörscher 1987). The study of translation as a process complements research that focuses on source/target text relationships or the cultural and literary systems of which they form part. TPR applies empirically sound cognitive science approaches to observe and describe translation processes in order to identify patterns in the behaviour of translators/interpreters under different conditions and draw inferences on their cognitive processes. Theories and models initially from the cognitive sciences, cognitive psychology and cognitive linguistics in particular are used to describe and explain the connections in this behaviour and obtain a better understanding of translation processes (e.g., Risku 2010; Muñoz 2010a; 2010b; Martín 2013). TPR looks at factors related to people, tasks and (work) settings, studying, for example, whether bilingual laypersons translate differently to advanced translation students (Hansen 2003); whether and how creativity shows itself in the translation process (Kußmaul 2000; Bayer-Hohenwarter 2009); how contextual information influences translation (Rydning and Lachaud 2010); how reading and writing processes are distributed during translation (Dragsted 2010); or the special challenges faced in sight translation (Shreve, Lacruz, and Angelone 2010).

Substantial parts of translation/interpreting processes take place in the brain or, in the case of translation, on the screen and are therefore difficult to observe with the naked eye. Thus, TPR uses various data collection methods (e.g., introspection, EEG measurement, think-aloud protocols, retrospective self-reflection, screen recording, keystroke logging, pupillometry and eye tracking), often in combination, to increase the reliability of the results (cf. triangulation; Alves 2003; Lachaud 2011). In the case of interpreting, separating the process from the product for analysis purposes is difficult; this is applicable above all in field studies (see Englund Dimitrova 2005 for a stance on combining process and product analysis). Accordingly, the methods commonly used in TPR have so far been applied less frequently in studying the interpreting process. Indeed, the very nature of interpreting makes the use of methods like think-aloud protocols or screen recordings difficult (Tiselius 2013, 140; for eye-tracking studies, see Hyönä, Tommola, and Alaja 1995; Seeber 2012), not least because it is impossible to verbalise the process while interpreting, and interpreting is usually not reliant on a computer screen to the same extent as translation. Some studies have, however, used the immediate introspection method, with the interpreters describing the process and processing difficulties immediately after interpreting (e.g., Ivanova 1999; Vik-Tuovinen 2006; Englund Dimitrova and Tiselius 2009; Tiselius and Jenset 2011; Tiselius 2013).

Recognition of the situatedness of translation processes has encouraged their study in their natural environment. Consequently, the approaches used in contemporary TPR can now range from experimental laboratory research to ethnographic workplace studies, apply both participant and non-participant methods, and include studies from the emic ('insider'/participant) as well as the etic ('outsider'/observer) perspective. Seeing the specific translating/interpreting situations not as constraints, but as resources and components of the process inevitably reshapes the concept of the translation process and thus the research object of TPR. Now seen as an interaction process (Risku 2014), the translation process then includes elements inside and outside the brain and the body, as well as objects within the environment (Clark and Chalmers 1998). If the process has no *a priori* definable 'inside' and 'outside', and the relevant components of the cognitive system only become visible in action and *in situ* (Hutchins 1995a), the concept of the translation process – and the scope of TPR – becomes broader.

As the articles in this volume show, TPR can now draw on a range of diverse theoretical frameworks, study designs, research foci and key concepts to investigate and describe the process. Depending on the framework, the specific process entities examined might then include activities, actions, tasks, patterns or practices, and be studied with a focus on knowing, doing, or saying. To accommodate this diversity and enrich the current concept of the translation process, it thus also makes sense to incorporate corresponding elements of workplace research.

3. Workplace research

Workplace research explores work-related practices, actors, networks and environments. It analyses and interprets investigated behaviours in terms of how work-related tasks and social and environmental constraints such as time, technology, knowledge, roles and expectations are identified, conceptualized and interpreted. To grasp a specific work-related practice, workplace research explores how practitioners experience it in an everyday work context. The underlying assumption is that the observed practice, which is seen as "lived work" (Button and Harper 1996, 272), differs from the idealized functional representations and abstract specifications of the tasks it entails. It thus raises the need to look into "what work consists of as it is lived as part of organizational life by those who do it" (Button and Harper 1996, 272; see also Bergmann 2005; Clancey 2006).

As developments like globalisation and technologisation increasingly transform the way we work, interest in the study of work environments and work as a situated activity has grown, leading to the emergence of a sociological research approach known as *Studies of Work* (SW). Its origins lie in ethnomethodology (see Garfinkel 1986), which aims to identify and investigate mechanisms and principles that allow actors to construct a meaningful structure and order for their actions and social interactions. SW use observations, descriptions, and analyses of real work processes to determine the situated, embodied practices in which the specific knowledge and skills required materialise (Bergmann 2005, 639–640). Accordingly, alongside the temporal, spatial, material, and social context of an activity, SW also look at the embodied knowledge that becomes evident when an activity has been carried out successfully and the specific practical skills that are needed to do so.

The inclusion of further research approaches and perspectives has led to the development of other fields of research in SW, including *Workplace Studies* (WPS), which focus on the empirical study of work, technology, and interaction in complex organisations. Many of the frequently interdisciplinary WPS initiatives, interests, and research projects involve collaborations between academia and industry to analyse the design, deployment, development, and success or failure of advanced technology in supporting work and collaboration (Heath, Knoblauch, and Luff 2000, 300; Luff, Hindmarsh, and Heath 2000, 12). These initiatives stem from research fields like computer-supported cooperative work, socially-distributed cognition, human-computer interaction, artificial intelligence, social anthropology, ethnomethodology, ethnography and/or conversation analysis (Luff, Hindmarsh, and Heath, 2000, 13; Knoblauch, and Heath 2006, 141–142).

WPS investigate authentic work-related activities from a theoretical and analytical perspective based on Suchman's (1987) concept of "situated action", wherein the "rationality of the action" depends on the "rationality of the situation" (Knoblauch and Heath 2006, 144). They consider not only an activity's orientation towards a certain goal but also its situative context, and the adaptation of the involved actors and technical tools to this context (Suchman 1987). A methodological consequence of Suchman's thesis is that to understand technologies, their involvement in day-to-day practices and the meanings attached to them by those who use them, researchers must "turn away from the experimental, the cognitive and the deterministic, to the naturalistic, the social and the contingent" (Heath, Knoblauch, and Luff 2000, 303). That is precisely what this volume is all about: extending our view of cognitive processes to social and environmental factors as they emerge in specific translation practices.

WPS focus primarily on the connections between work activities and the technological systems that feature in them. They thus help us to better understand not only the technologies themselves and how they influence work practices and processes, but also the characteristics of this work and the people who use them (Heath, Knoblauch, and Luff 2000; Luff, Hindmarsh, and Heath 2000). WPS can therefore often take the form of applied research, accompanying the development of a technology, documenting its successes/failures and subsequently also influencing its development or the way people use it (Knoblauch and Heath 2006, 142).

In WPS, technology is investigated in its social context, i.e., its role in social actions and interactions, the sense and relevance attached to it by its users and its contribution to enabling and supporting the cooperative work of often spatially distributed individuals (Knoblauch and Heath 2006). The goal is to gain an understanding of how tools and new technologies – from simple artefacts to advanced devices and applications – feature in day-to-day organisational conduct and interactions by focusing on their situated and contingent character. WPS also look, for instance, at how artefacts are integrated in a given workplace, how they are used to overcome everyday work challenges as well as how seemingly 'personal' devices like computers are used and how this depends upon a complex social organization of which they form part (Heath, Knoblauch, and Luff 2000, 299–300).

According to Garfinkel (2002, 175–176), familiarity with and a grasp of the field of research are the key requirements for the ethnomethodological study of sensemaking and sense-structuring mechanisms. The research method itself must therefore be part of the field, a requirement that can be met using, for instance, ethnographic observation methods. WPS are therefore generally qualitative studies that draw on ethnomethodology and conversation analysis. In field studies, observation methods and video recordings (Knoblauch and Heath 2006, 146) can be augmented by other methods like interviews or artefact analysis. To gain a deeper understanding of work and work-related practices, patterns and behaviours, methods such as those mentioned in Section 2 can further augment those used in WPS. In TPR, for instance, eye tracking, think-aloud protocols, screen recording, keystroke logging, introspection, retrospective protocols, artefact analysis or surveys can all be suitable methods.

4. Researching translation practice in the field: Theoretical frameworks

Translation researchers draw on a variety of theoretical and analytical perspectives to explore translation/interpreting work practices. However, the previous gap between the cognitive and the sociological camps is closing when it comes to studying the translation/interpreting workplace. Cognitive approaches – especially situated, embedded cognition – look not only at mental processes but also at social and material environments; they deliberately consider networked structures and take account of the situatedness of actions. Sociological approaches relating to the meso levels (organisation, company) and micro levels (group, individual) simultaneously consider not only social trends and developments but also the individual. These approaches enable the study of work as a social practice in concrete, situative contexts – increasingly also in its technological mediation or agency.

Despite a few notable exceptions – e.g., Kuznik and Verd's (2010) application of a model of factors constituting workload, or Kuznik's (2016a) combined sociology of work and organisational ergonomics framework – the study of translation work practices still rarely borrows from sociological approaches to work, even though its research object does constitute a classic sociological and organisational development domain. This may be because translation or translation-related tasks were for a long time predominantly conceptualised less as work and more as (non-) professional practices (for a sociological approach to profession, see Monzó 2006; Tyulenev 2015). Indeed, a number of studies into the professional status and occupational conditions of translators and interpreters do not directly consider their actual workplaces (Sela-Sheffy and Shlesinger 2011; Dam and Koskinen 2016). Nonetheless, their findings do deliver a very important context for the topics discussed in this volume. The translation task is also approached in *sociologically-oriented translation research* using Actor-Network Theory (Buzelin 2005; 2007; Abdallah 2014) or Bourdieu's habitus/field theory (Vorderobermeier 2013; 2014; Hanna 2016). However, especially the latter is usually set at a higher analytical level and cannot therefore take account of the situatedness of action and its embeddedness in a specific work environment or examine its artefact mediation in any detail. A differentiated conceptualisation of translation as work can therefore only serve to benefit future research in this field. Olohan (this volume), for instance, augments such approaches with a practice theory approach that includes the notion that praxis is mediated both materially and through discourse and is created or embedded in a specific spatial and temporal situation.

Ergonomics theories, concepts and methods have also found their way into translation studies in a trend set by two conferences at Stendhal University in Grenoble (in 2011 and 2015) and the corresponding special issues of the journal *ILCEA* (Lavault-Olléon 2011b; 2016). These focused on the ergonomics goal of putting people back at the centre of work-related research, i.e., adapting work to people and not vice versa. This calls for a holistic approach that analyses, questions, and improves the relationship between the working persons, their individual work tools, methods, and environment from a physiological, cognitive, and social perspective (Lavault-Olléon 2011a, 6; see also Ehrensberger-Dow and Hunziker Heeb 2016). It also places the emphasis on embedding observed activities in a local framework of interaction and a specific (material) environment (Lavault-Olléon 2011a, 7). Ergonomics studies serve not only the critical analysis of the current state of affairs; the insights gained should also flow back into the object of study and bring about an improvement in the observed praxis (Kuznik 2016a, 2–3).

Ergonomics shares the notion of situative embeddedness with current approaches in *situated and embodied cognition*. These (especially Suchman 2007; Clark 1997) emphasise that thought, bodily activities and interaction with the social and physical environment inseparably constitute the systemic unit of cognition, thus underlining the importance of embodied, sensomotor coordination, the affordances of the environmental objects and artefacts (Gibson 1977), and the distribution of knowledge and intelligence in the environment and social interaction (Hutchins 1995b). Seen from this perspective, we can only study socio-cognitive processes when we observe them *in situ*. A number of translation studies research endeavours adopt this approach. However, only a few of these are also actually based on empirical studies at real workplaces. Krüger (2015), for instance, draws on this approach in his work on the translation process, although his actual model is not based on concrete empirical workplace findings. Tercedor (2011) applies the concepts of situated and embodied cognition to terminology work, but uses an experimental research design in her study of terminological variation. Using this framework, Risku delivers a first empirical look at the socio-cognitive processes in the translation workplace, e.g., with regard to work and project management processes (Risku et al. 2013), the use of tools (Risku 2016), the writing and translation sub-processes (Risku, Milosevic, and Pein-Weber 2016), (perceived) roles and responsibilities (Risku, Pein-Weber, and Milosevic 2016) or situated knowledge (Risku, Dickinson, and Pircher 2010). This volume also contains further examples of its application, e.g., to the macro-level work dynamics of literary translators (Kolb, this volume) and to (organisational) ergonomics in different settings (Ehrensberger-Dow and Massey, this volume).

5. Topics in translation/interpreting workplace research

Translation workplaces have been studied in various *fields and settings*, e.g., specialised translation (Kuznik and Verd 2010; Olohan and Davitti 2017; Kuznik

2016b; Risku 2016; Risku, Pein-Weber, and Milosevic 2016), literary translation (Flynn 2004; Kolb, this volume), the translation of technical documentation (Kastberg 2009) and advertising materials (Vandal Sirois 2011), and transcreation (Pedersen, this volume). Abdallah (2012) provides important insights into the work processes in subtitling production networks, while Marinetti and Rose (2013) offer insights into the work and text design processes in theatre translation. Although interpreting research only rarely looks explicitly at the workplace (and some of the studies mentioned below have a rather specific focus that does not serve solely to illuminate interpreting workplaces), a number of important – usually ethnographic – studies have also been carried out in this field. These deliver insights into the working conditions, interaction frameworks and factors of influence on the interpreting situation and process in different settings, e.g., interpreting for asylum seekers (Scheffer 1997; Pöllabauer 2005), sign language interpreting via a video remote interpreting service (Brunson 2008), court interpreting (Kinnunen 2010a, 2010b; Hale and Napier 2016), conference interpreting (Duflou 2016), the provision of community interpreting services (Dong and Turner 2016), and interpreting in religious contexts (Hokkanen, this volume, 2017; Hild 2017).

Studying the actual processes and interactions at translation and translation-related workplaces affords a current look at dynamic, volatile work practices whose structures and processes are clearly changing due to globalisation and digitalisation (e.g., Gouadec 2007; Abdallah 2012; Cronin 2013; Risku et al. 2013). Kuznik and Verd (2010) found an "almost residual presence of translation itself in the in-house jobs of the translation agency" they analysed. Hébert-Malloch (2004) made similar observations in her analysis of the video-recordings of a translator at work. Risku and Windhager (2013), Risku et al. (2013), Olohan and Davitti (2017), and Risku (2016) shed light on the role of translation agencies and the long ignored area of project management. These studies show that project management coordinates and facilitates the translation process, and that it contributes to shape and structure it (for the role of interpreting agencies in the provision of community interpreting services, see Dong and Turner 2016). Risku (2014; see also Risku, Rogl, and Pein-Weber 2016) also shows that frequently, when closely scrutinized, the translation process involves far more actors than originally assumed, who collaborate in an increasingly long chain and in increasingly complex networks. A complete translation can thus be the work of a whole group of actors, e.g., a translation manager, a translation memory, a freelancer, a validator, a layouter, and, in some cases, even the client. This clearly shows that modern-day translation and interpreting must be seen as a social praxis in a dynamic, networked production framework (see Buzelin 2006; Abdallah and Koskinen 2007; Abdallah 2012). Researchers have also elaborated on trust (Abdallah and Koskinen 2007;

Olohan and Davitti 2017), on the role of collective decision-making, on the effects of asymmetric information/goal conflicts and the interplay between ethics and quality (Abdallah 2010), and on the role of cooperation and conflict in collaborative work environments (Marinetti and Rose 2013).

These changes, especially the *new technological demands*, bring fresh challenges both for translators and (to some extent) interpreters (e.g., remote interpreting, see Roziner and Shlesinger 2010; Braun 2013; Bower 2015). Risku (2016) showed the central role of technology in the translation workplace in her longitudinal ethnographic study of a translation agency, where she found that translation processes are often restructured following changes in technology, especially those related to translation project management. Likewise, LeBlanc (2017) observed shifts in business and administrative practices in a translation agency after implementing CAT tools. Studies on the attitude of translators to technology, their willingness (or lack thereof) to use technology and adapt to software changes (Gough 2011; Grass 2011; Olohan 2011; LeBlanc 2013), and the related influence of organisational culture (Ehrensberger-Dow and Massey, this volume) have also delivered important insights. Such studies bear witness to the fast-moving pace of translation practices.

In the debate surrounding the role of translation tools, ergonomics research reminds us not to lose sight of the translators themselves – the ones who actually use the tools and whose needs they should address. Pym (2011), Bundgaard, Christensen, and Schjoldager (2016), and Christensen and Schjoldager (2016) have been looking more closely at how translators use CAT tools and at the impact of such tools on the realities of translation work (with regard to their possibilities to survive and succeed in the translation marketplace, see Grass 2011). Massey and Ehrensberger-Dow (2011) and Teixeira and O'Brien (this volume) have sought to approach these questions from the cognitive ergonomics perspective. Toudic and Brébisson (2011) studied the organisational and technological requirements at translation workplaces from the translator, translation agency, client and end-user perspectives – in particular, whether the increased use of translation tools goes hand-in-hand with a potential loss of autonomy and responsibility for translators. New technologies also lead to new work practices, e.g., the use of machine translation and post-editing (Brunette and O'Brien 2011; O'Brien et al. 2014; Cadwell et al. 2016; Martikainen and Kübler 2016), which likewise have the potential to transform translation work realities.

Early interpreting research and recent physical ergonomics research in translation studies have explored the effects of *working conditions* on translators/interpreters and potentially related health issues. In the case of interpreting, the initial focus lay primarily on the working conditions of conference interpreters (overview in Grbić and Pöchhacker 2015). A study commissioned in the early 1980s by the AIIC analysed interviews, stress logs kept by interpreters and survey data. It provided insights into conditions in interpreting booths, task-related factors, interpersonal relations, the home/work interface and how these aspects affect the work and stress loads of interpreters (Cooper, Davies, and Tung 1982). Further studies have provided a more detailed picture of specific aspects such as fatigue (Brasel 1976), conditions in interpreting booths (lighting, Steve and Siple 1980; CO_2 levels, Kurz 1983; temperature, Kurz and Kolmer 1984), occupational stress and its causes and physiological effects (e.g., Williams 1995; Kurz 1997, 2002, 2003), workload (AIIC 2002), and burnout (Bower 2015). Some of these aspects have also been explored in community interpreting (Norström, Fioretos and Gustafsson 2012) and sign language interpreting research (Maßmann 1995; McCartney 2006; Schwenke, Ashby and Gnilka 2014). Particular areas of attention include aspects such as vicarious trauma and secondary traumatic stress (Bontempo and Malcolm 2012) and emotional stress (Valero 2015). However, many insights have been obtained in experimental settings or through surveys. Observational or ethnographic research still remains rare; for an example, see Hokkanen's contribution on the role of interpreters' emotional involvement (this volume).

The same holds true for translation. Research frequently looks at the occupational conditions in specific markets (e.g., Dam and Kornig Zethsen 2011 for Denmark; Ferreira-Alves 2011 for Portugal; Pym et al. 2013 for the European Union), in relation to different job profiles (e.g., freelance translation, Fraser 2001) or in a speciality (e.g., subtitling, Mueller 2005). While such research yields important insights into the market conditions, order levels and employment status of translators, very little of it actually looks at the conditions at the translation workplace. Indeed, translation researchers have only recently really taken an interest in physiological or health issues related with translation work (e.g., Ehrensberger-Dow et al. 2016). Pineau (2011) and Meidert et al. (2016), for instance, investigated how the work equipment of translators can become a source of physiological problems, and suggested ways to adapt it to translators' needs and for translators to learn how to adopt healthier work practices. Peters-Geiben (2016) summarised a series of thoughts on how to incorporate the subject of workplace health into translator education. Finally, very few research projects have focused on translator/interpreter job satisfaction, with some notable exceptions: the studies by Swartz (2006) into sign language interpreting, Liu (2013) on the relationship between translators' visibility and their happiness at work, and Hubscher-Davidson (2016) on Trait Emotional Intelligence and its correlations with job satisfaction, career success, and translation experience.

6. The contribution of this volume

This volume addresses three main topics, each one covered by at least two articles. The three articles in the first section present *new insights into work-related processes in different translation/interpreting settings*. Covering fields as diverse as literary translation, transcreation, and church interpreting, they show just how different translation/interpreting workplaces can be from each other; from the literary translator working from home, through the highly specialised functions and working environment in a transcreation enterprise, to the church as workplace, where the work requirements ultimately depend on the interpreters' own (and very different) perceptions of what it means to work in that particular context.

The section begins with Waltraud Kolb's article on macro-level workplace dynamics as recorded in an empirical study of five professional literary translators translating a short story by Ernest Hemingway. Literary translation has long been one of the major objects of study in translation research. However, aside from some more sociologically oriented studies, very few researchers have explored the actual workplaces of literary translators and retraced their work practices in non-experimental settings. Drawing on the notions of the social embeddedness and situatedness of translatorial action and cognition, Kolb sheds light on how translators working from home organize their work and how their social interactions contribute to the hybridization of the translators' voice in their translations. The article tackles important methodological issues regarding the intricacies of data gathering in places where translators' professional and private spheres merge. It discusses challenges related to the (un)obtrusiveness of such an approach and considers questions of research ethics in observational studies. Kolb's study yields results that might not have been possible with an experimental research design, and provides insights into the different working styles and work routines of translators, including the organisation of their work sessions and revision loops. It shows the fragmentation of the translation process in an authentic workplace, the social embeddedness of translation work even when done alone from home, and the resulting traces of the contextual voices of others in the finished translations.

Daniel Pedersen provides insights into a quite different translational context: the daily work routines of marketing translation project managers. The product of the so-called *transcreation* service does not differ significantly from those of other forms of translation. However, the process exhibits some very specific characteristics. For instance, the clients and their international marketing strategies define the limits of campaign consistency. Project managers coordinate briefs and tasks, and push for ever new solutions. Copywriters offer several translation suggestions and their corresponding rationales. Copyeditors review the suggestions and also provide further solutions. In addition, project managers forward several final solutions and their rationales to the client to choose their favorite one(s). There is little new in the insights that the translation/transcreation process is a network activity, or that both verbal and nonverbal information are being translated to fit the translation brief. Nevertheless, inspiring outcomes include acquiring details of how project managers continuously push copywriters, copyeditors and ad hoc colleagues who happen to be available to deliver more (adequate) solutions so as to provide the client with multiple translations (or transcreations) and their rationales. Through his ethnographic workplace study, which included a four-week immersion in the work of a marketing agency, Pedersen managed to describe the processes from the insider perspective of transcreation managers.

Hubscher-Davidson (2011, 3) points to the relative lack of studies that focus on translators' emotions and views, and the same can be said for those of interpreters. Sari Hokkanen contributes to closing this gap with her article on the interpreter's role in church interpreting. To do so, she takes an affective approach that views emotions as embodied key factors which depend both on internal characteristics – such as subjective experiences and a person's physiology – and on factors like patterns of enculturation and the material and relational aspects of a person's environments. In an autoethnographic study where she draws on her own simultaneous interpreting field notes from two different church settings, Hokkanen discusses the subjective feelings of involvement and detachment that might manifest themselves in relation to an interpreted event. She thus compares her own experiences of her role as an interpreter with the prevailing model of the interpreter's role in such settings, i.e., that of a fully uninvolved participant. The results show that the extent of involvement and detachment varies between the two assignments. While an internalized model of an uninvolved interpreter might serve as a good point of orientation and reference, the interpreter's actual subjective experience of his/her role is a complex interplay of personal, emotional, situational, social and material aspects that come into play in an interpreting assignment.

The second section contains two articles on *workplace, technology and ergonomics*. They provide insights into the increasing use of technology in the translation workplace. Carlos Teixeira and Sharon O'Brien offer a cognitive ergonomic perspective on translation workplaces, with a particular focus on tools. In order to gain comparative data for the ten translators employed by a language service provider, Teixeira and O'Brien opted for a pre-set fictitious translation assignment at the translators' workplaces. Their data collection methods drew on the typical TPR repertoire: keystroke logging, screen recording and eye tracking, complemented by short, retrospective interviews. The wealth of data allowed for a thorough analysis of how the translators used the two screens and the software tools at their disposal, their use of terminology resources, their shifts between the two screens and the division of their visual attention between different areas in a software interface.

Teixeira and O'Brien found that translation tools can represent a source of considerable cognitive friction that might be aggravated by the need to switch between tools and tasks. Their article opens up a variety of future avenues of inquiry, e.g., into the simultaneous use of translation memories and machine translation that now forms part of the work of many translators or the interplay between technological and organisational constraints in translation workplaces. They raise the question of whether development efforts should focus more on the ergonomics of tools and processes than on increasing the speed of translation turnarounds. They show how important it is for translation research to be able to offer insights into the actual technological and ergonomic needs of translators and to participate actively in research and development efforts in the language technology industry.

The article by Maureen Ehrensberger-Dow and Gary Massey also focuses on workplace conditions and investigates ergonomic issues and constraints at translation workplaces. Drawing on the situated cognition framework, their research views translating as an activity situated in socio-technical systems that include tools, computer interfaces, and social networks. They explore translation from an organisational ergonomics perspective in two research projects: *Capturing Translation Processes* and *Cognitive and Physical Ergonomics of Translation*, which incorporate data from different translation settings. The data collection methods include screen recordings, retrospective verbal protocols, an online survey, qualitative interviews with translators, ethnographic observation, and the ergonomic assessment of freelance, commercial, and institutional translation workplaces. In their data analysis, they focus on work-related constraints posed by factors like resources and tools, clients and colleagues as well as on identifying positive and negative (stressful) ergonomic aspects of translation work. Their findings point to the importance of the translators' perceived self-determination for the success of socio-technical change and the link between involvement in organisational decision-making processes and willingness to adopt new technologies. They also discuss the need for effective feedback systems that enable exchange between the different actors involved in the translation process as a means of giving translators a voice (and thus allowing them to contribute to organisational change) and mitigating potential socio-technical issues.

The final section contains two articles on *translation expertise and knowledge in practice* that describe the requirements on, and process patterns of, translators from different perspectives. Expertise has been a prominent topic in TPR over the last 20 years. There are several definitions and descriptions, most prominently from the perspective of the deliberate practice approach by Ericsson (2010) and Shreve (2006). In lab experiments, comparing the behavioural patterns of lay or novice translators to those of their (semi) professional counterparts has become a prototype of TPR. However, the skillset needed to exhibit high levels of expertise is still a topic for debate. As Erik Angelone and Álvaro Marín show, a myriad of expertise indicators have been proposed, including declarative and procedural knowledge, self-regulatory and metacognitive skills, situational and task awareness, adaptive psycho-physiological traits, automaticity, deliberate bundling, self-confidence, and target text orientedness. Whether or not we actually possess adequate criteria to differentiate between novices, professionals and experts in the first place has also been questioned (Jääskeläinen 2010). Angelone and Marín offer a fresh perspective on the notion of expertise by studying how working translators and translation project managers envision and understand it. In order to gauge their perceptions of translation expertise, they conducted a survey of translators and project managers, the results of which paint a new, emic, situated picture of translation expertise. Angelone and Marín's exploratory study not only sheds light on the similarities and differences in the views of these two groups of practitioners; it also suggests novel defining characteristics of translation expertise and translation task difficulty and revisits the concept of transferability of expertise.

In her contribution, Maeve Olohan applies the sociological framework of practice theory to translation work and, more specifically, to the relationship between translation practice and knowledge or knowing. Based on an ethnographic study in the translation department of a research organisation, she shows how the traditional understanding of knowledge as a codifiable object that is easily transferable from one person to another falls short of what knowledge and knowing can turn out to be when observed *in situ*. Her data from the workplaces of three in-house translators and a project manager illustrate how knowledge is not only inextricably linked with a situational context; it is also more adequately viewed as not existing prior to a specific practice but as emergent through translational practice and processual in nature. This accounts for her use of the term "knowing-in-practice". From a practice theory perspective, translators thus become the carriers of translational practice through which knowledge and knowing 'transpire'. The examples from her workplace observations show how knowing in translation practice is embodied, materially and discursively mediated and collective in nature. This situated and embedded notion of knowledge or knowing is a valuable contribution to prior literature on the broad topic of translators' knowledge, competence, or expertise.

7. Conclusions

The contributions in this volume report on inspiring field and workplace research that provides insights into factors that influence translation yet would not become visible in lab or classroom research, such as the embeddedness of translators in complex networks of interdependent environmental, artefact-mediated and social elements. They complement the current state of knowledge on work-related issues in the translation process and allow us to grasp the intrinsic logic of these work processes and contexts and how they are perceived from the inside (Bergmann 2005).

The articles provide apt examples that help us to reflect on the status of the results of field and workplace research. Such research encourages us to rethink existing theoretical models and concepts by showing that practitioners view the factors that make up and influence their workplace and practices differently from established research positions. This view cannot be simply dismissed as a non-scientific, partial and subjective opinion: the voice of the field is an essential research object in itself, with repercussions for scholarly models and conceptions. Field and workplace research can correct scholarly misconceptions; for instance, those that might arise from the need to reduce and control the variables in lab experiments. We urgently need to grasp the intricacies of the contingent context, especially the interdependencies of the organisational, social, cultural, physical, and media infrastructures of translation. Field and workplace research also has an applied dimension: if the models and concepts of translation research are to be applied to improve translation didactics, curricula, evaluation, technology or social and organisational ergonomics, the expectations and notions of praxis have to be taken into account as factors that determine and influence translation.

Workplace research can also connect academic translation research with the language industry. It allows academics to involve practitioners in their research and to investigate how translation experts adapt their work processes to the changing requirements of dynamic technological environments. In this way, translation research remains grounded and tuned in to the developments in the field, thus putting it in a position to understand, reflect on, criticize and, when needed, help change these developments. Workplace and field methods like ethnography and autoethnography enable researchers to become part of the examined field and to analyse perceptions of the translation process systematically.

Most contributors to this volume also participated in the Fifth Translation Process Research Workshop, which provided us with the opportunity to bring together different strands of TPR and explore their potential for interaction. Others were invited to submit articles to complement the range of perspectives. Rather than trying to define a single unified TPR theory, we are convinced that it is through such broad interdisciplinary encounters and cooperations that an even more comprehensive understanding of the translation process will emerge.

TPR is still a relatively young line of research in translation studies. However, it has already evolved from the early think-aloud protocol studies of problem solving to a multi-method approach that grasps the translation process from a broader, interdisciplinary perspective and on different levels – from neural to mental and socio-cognitive. These different explanatory levels will continue to require different data acquisition methods and locations, both in the lab and in the field.

Translation practice is on the move, and so are translation theories. TPR will need to tackle the challenges to follow and contribute both to practice and to theory. One of the most important challenges in the development of TPR will be keeping pace with the current insights in cognitive science. As Ricardo Muñoz summed up in the final panel discussion at the 2016 workshop, "thinking is not what we thought": recent revolutions in cognitive scientific views will keep TPR researchers busy developing concepts and methods that concur with the current state of research. With this volume, we hope to be doing our part in contributing to the development of a truly interdisciplinary, up-to-date understanding of the field – and the translation process.

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“It was on my mind all day”

Literary translators working from home – some implications of workplace dynamics

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This paper explores authentically situated translation processes of literary translators, based on an empirical study of five professional German literary translators translating a short story by Ernest Hemingway. It focuses on macro-level workplace dynamics: How do translators working from home organize their task? With whom do they interact? Situational factors will emerge as constitutive elements of translatorial cognition and action, and it will be shown how the fragmentation of the translation process and the blurring of boundaries between the professional and personal spheres of life significantly impact the emergence of the translator’s voice and the translation product.

Keywords: translation process, literary translation, workplace, cognition, situatedness, voice

1. Introduction

For some time now, translation process researchers have been turning their attention to the situatedness and social embeddedness of translation processes, exploring the “extended, embodied and situated nature of human cognition” (Risku 2014, 333) and taking into account the “interactive loops between cognition, action, artifact, social and other environments” (Risku, Windhager, and Apfelthaler 2013, 164). Recent studies have focused on the interaction of multiple actors involved in the production of a translation (see, e.g., the contributions in Ehrensberger-Dow and Englund Dimitrova 2016), including the interaction between humans and technological tools (e.g., Ehrensberger-Dow and Hunziker Heeb 2016; O’Brien 2012), on translators working in organizational settings of, for instance, major language service providers (e.g., Kuznik and Verd 2010; Ehrensberger-Dow 2014) or, less frequently, on freelancers (e.g., Risku 2014). The

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vast majority of studies so far have dealt with non-literary translation and, to a lesser degree, interpreting. In literary translation, for example, Hélène Buzelin (2005; 2007) – inspired by Bruno Latour's actor-network theory studies – studies the production process of literary translations, from the selection of the source text to the editing and promotion of the published version. Francis Jones (2011) studied poetry translation and translatorial action performed within networks of actors. Also, the publications of the research group 'Voices in Translation: Rewriting Literary Texts in a Scandinavian Context' highlight the interaction and networks of actors involved in the production of literary translations (Jansen and Wegener 2013b; 2013c; Taivalkoski-Shilov and Suchet 2013; Alvstad and Assis Rosa 2015b).

Literary translation is also at the heart of my own research of translation processes and practices. In this paper, I will discuss some findings from an empirical study in which five professional literary translators translated a short story by Ernest Hemingway into German. The research design combined quantitative and qualitative methods, and process and product analyses. It produced a wealth of raw data that can be analyzed from different angles and perspectives, to address a large variety of research questions. For instance, in Kolb (2011; 2013) I focused on the translators' acts of reading and participation in meaning construction when faced with ambiguity and repetition, typical features of much literary writing, including Hemingway's, examined from a reader-response perspective and against the background of cognitive stylistics. In what follows I will not primarily look at micro-level textual choices, but rather focus on a macro-level practice analysis. I will look at how the translators organized their task, their timelines and workplace routines, and examine the five processes in terms of their social embeddedness and situatedness. Two aspects have emerged as deserving closer scrutiny: (1) the fragmentation of the translation process, and (2) the hybrid nature of the translator's voice. I will also address the mutual permeation of professional and personal spheres of life and how it directly impacts micro-level textual choices. As a first step, I will discuss the research design and some methodological challenges that come with a study that aims at exploring the work of freelancers at their authentic workplaces.

2. Study design

My interests and background as a literary translator, teacher of literary translation, and translation scholar necessarily define the overall aims of my empirical study of literary translation processes. The study is exploratory in nature. It does not aim to primarily reach generalizations of any kind, but rather a detailed description and thus a profound understanding of individual translation processes and routines, decision-making, and translatorial cognition, agency, and voice. In particular, I am interested in the emergence of the translator's voice in the target text. Kolb (2011; 2013) shows how a literary translator's self-concept – the way a translator sees his or her own role in the whole process, in particular vis-à-vis the role of the original author – crystallizes into his or her voice in the final product. In contrast, the spotlight in this paper is on the social embeddedness and situatedness of translatorial action and cognition, on the situational factors that impact the translation process, and the emergence of the translator's voice.

In the context of this study, the term 'voice' is used either in a narratological sense (the narrative voice) or, more importantly, to describe the textual manifestation of the translator's subjectivity and agency, as an "index of the Translator's discursive presence" (Hermans 2009, 286). The translator's subjectivity and agency may be manifested in the text in manifold ways, be it in lexical and other stylistic choices, in omissions, explicitations, etc. From a narratological perspective, the narrative voice in a fictional text (or that of a character) may also be an index of the translator's discursive presence. Alvstad and Assis Rosa (2015a) label these manifestations 'textual voices,' which they distinguish from 'contextual voices' – those that originate from other actors involved in one way or another in the production of the translation, such as literary agents, editors or proof-readers. Taivalkoski-Shilov (2013) uses 'intratextual voices' and 'extratextual voices' for a similar difference. Such differentiation will be taken up below.

The study design can be summed up as follows: Five professional literary translators participated in the study without pay; the fictitious brief was to translate Hemingway's "A Very Short Story" into German to be published by Rowohlt, Hemingway's long-time German publisher. The participants were allotted one month to complete the task. They worked in their usual work environments, using the keylogger Translog (Jakobsen and Schou 1999) and the open-source software Audacity for recording concurrent and retrospective verbalizations. The translation task and process was defined as starting with the first reading of the original (or setting up of the tools) and ending with saving the final target-text file. In the following, I will describe in some detail the most important features of the research design and discuss some challenges, restrictions, and opportunities that came with it.

2.1 Participants

I personally approached the participants (translators A, B, C, D, and E). They were all members of the Austrian Association of Literary and Scientific Translators (IG Übersetzerinnen Übersetzer) and I was under the impression that they might be willing to devote the required time and effort to the study and lay open their work and thoughts to the scrutiny of academics. Out of seven translators I approached, six agreed to participate. The data of one of those six were so flawed that they had to be excluded from analysis.

The remaining five participants were all aged between 45 and 60. Three were Austrian, two were German, and they all lived in Austria at the time of the study (2009/10). Four were female, one was male (B). They all had more than twenty years of experience as translators, with B and D having translated approximately forty books each, E twenty and A thirteen books. Translator C stands out with only four books to her name in 2009 (Table 1). At the time of the study they were all active members of the professional community in Austria, participating in professional events, Internet forums, etc. All participants except A had received translation awards for their literary work at the time of the study – A received one soon afterwards – and had given public readings of their translations. All of them had translated well-known writers from English and worked for renowned publishers, and their translations had been positively reviewed in newspapers. For the purpose of this study, the above criteria were taken to define their status as professionals and experts (for a discussion of these terms see, e.g., Jääskeläinen 2010). Income was not considered a relevant criterion, with fees being notoriously low in the field of literary translation. All participants except D also had other jobs in related fields at the time of the study, a situation that may be seen as typical of literary translators across Europe and probably in other parts of the world (see Fock et al. 2008 on the income of literary translators in Europe). As the community of literary translators in Austria is small, no more details can be revealed in order to safeguard their anonymity.

Table 1. Participants

Part.	University education	Experience (years)	Books translated	Other occupation
A	Translation	22	13	non-literary translator
B	Translation	29	40	non-literary translator and editor
C	Translation	21	4	non-literary translator and university teacher
D	Translation	29	40	–
E	Translation; American language and literature; history	28	20	non-literary translator and tour guide

Many literary translators come from other fields, and academic translator training was not a criterion for selection. All five participants had completed university-level training as translators (though not explicitly as literary translators; literary translator training was not offered at German-speaking universities at the time). Translators A and B also had partial university-level training in unrelated fields, E also had degrees in American language and literature, and in history. Their own academic training might well have contributed to their willingness to be part of this study. All in all, their educational backgrounds and professional trajectories indicate high levels of cultural and symbolic capital in Bourdieu's (1986) sense of the terms, again something that can be seen as typical of literary translators (see Vorderobermeier 2013 for a study of social and professional trajectories of approximately 200 literary translators in Austria, Germany, and Switzerland).

2.2 Material for translation

Hemingway's story, appropriately entitled "A Very Short Story," is about a man and a woman who meet in the Italian town of Padua at the end of World War I. It was first published in the 1925 volume *In Our Time*, Hemingway's first collection of stories to come out in the United States (a slightly different version was included in his 1924 Paris collection *in our time*, edited by Ezra Pound). The selection of this short story as the source text held a number of advantages. First of all, stylistic choices or translation strategies relating to the rendering of narrative voice or character portrayal cannot very well be made without taking the whole of a text into account. Hence, translating a complete literary work instead of just a passage from a longer text added to the project's authenticity. At the same time, Hemingway's story (637 words) was short enough not to scare off potential participants and be manageable from the researcher's point of view. No participant had translated Hemingway before, and the story contained a number of challenges, related to narrative perspective and voice, stylistic ambiguity, and rhetorical devices such as repetitions and parallelisms, all from an author who would years later be awarded the Nobel Prize for literature (see Kolb 2011; 2013). The participants were asked not to consult the existing German translation by Annemarie Horschitz-Horst from the 1930s; and as far as I know none of them did. As the translators took a personal interest in the project and their willingness to participate involved a high level of mutual trust in the first place, there is no reason to assume that they would not comply with this request. In a non-academic situation, however, some translators might have chosen to consult the previous translation, while the wish not to risk the influence of previous translators' efforts might have prevented others from doing so (see Koskinen and Paloposki 2015 on retranslators' anxieties of influence). Translator C, for example, expressly decided against reading a critical analysis of the story she had come across during her initial Internet research so as not to be influenced at a point when she first tried to come up with her own interpretation of the story. Not leaving this decision to the translators themselves was a compromise I was willing to take as the story was so well suited for the purposes of the study in every other respect.

2.3 Tools and production of data

One aim of the study was to explore the suitability of the selected research tools for studying translation processes of freelance translators working at home (see, e.g., Alves 2015; Muñoz 2016). The primary concern was to create a research design that would allow for a high degree of ecological validity and authentically situated processes, allowing participants to follow their usual work patterns and routines as much as possible. Therefore, it was paramount that the participants worked in their usual environments: Four participants had a separate room or den in their homes; translator C had a desk in her bedroom and an office space at the university where she was teaching and used both in the course of the study (with the main part of the translation done at home). This imposed certain restrictions on the number and nature of methods and tools that could be used as the participants had to handle the technological side of the project themselves and there was no immediate support available in case of technological emergencies (the translators lived in different parts of the country and worked on the translation whenever their schedules allowed them to do so). As mentioned above, the participants used Translog and Audacity. All of them ran the audio recording software without major problems, but three participants experienced problems working with Translog and on several occasions files did not get saved – the sources of the problems could not be identified retrospectively: Translator A had to re-type 13 minutes of revisions, and B had to re-type 10 minutes of his first draft; the most extensive loss was experienced by C, who had to re-do three quarters of her first draft (67 minutes). For all parts not captured by Translog, however, verbal records are available so that, given the aims of the study, the missing data do not unduly impair its validity. As we will see below, the fact that B had to re-translate a few sentences of his first draft even led to some interesting results.

Additional tools such as screen recording or eye tracking software certainly would have yielded additional data of interest, above all detailed information on Internet searches, online dictionary look-ups, etc. Video recordings would have yielded information about the use of print dictionaries, for instance, and a wealth of other data about all kinds of physical movements. As it was, the participants were asked to also talk while doing research or consulting a dictionary and describe in detail what they were doing. While most of them did so conscientiously in the beginning, they did less and less so as their work progressed. In my judgment, however, the use of these additional tools would have unduly increased the risk of technological failures and the pressure on the participants. Video recordings, in particular, were deemed too much of an intrusive presence in the privacy of the translators' homes, where spouses and children, whose privacy needed to be protected, were also present. The type of workplace thus imposed methodological and ethical restrictions on the selection of tools.

While participants who had lost Translog data did feel a considerable level of frustration, none of them vented any frustration about being expected to 'talk all the time'. Their easy acceptance of the talking requirement that certainly introduced a measure of artificiality may probably be explained by the interest in the project they took from the beginning. Translators E and D did feel the urge at certain points to revise a printed-out interim version 'silently', without talking and recording, and the study design did allow for this. Needless to say, the setup also precluded participant observation. Any attempt at coordinating schedules for participant observation would have counteracted the very aims of the study. The study was designed so that translators were able to treat the project as regular translation work as far as possible and work on the translation whenever they could fit it into their schedules. Not all of them were able to meet the deadline of one month to complete the task. As we will see below, all participants worked on the translation over several days, with processes being highly fragmented.

2.4 Nature of data

The material for analysis comprises quantitative and qualitative data, including questionnaires for background information, the source text and the final target texts, interim versions of the target texts (including electronic versions but also printed versions with or without handwritten notes and revisions), Translog files, transcriptions of verbal records, translators' notes (some of them jotted down by hand on paper, some of them contained in an electronic file), and the texts of emails that accompanied the final target texts sent to me. The verbal records contain concurrent verbalizations – the participants were asked to talk as much as possible while working on the translation, including dictionary look-ups or Internet searches, etc. – and retrospective verbalizations: the participants were also asked to put on record retrospectively, as far as possible, any thoughts they had while doing something else or report on any task-related actions they took while away from their desks. The data thus include, for instance, reports by D that she had discussed her translation with her husband over a late breakfast, or by B that a possible solution for a pun had occurred to him while taking a shower, or comments from A that leaving her desk for a moment had helped trigger a new solution.

As might be expected, the extent of retrospective reporting varied. Some participants talked more extensively about what they had done while not working at their desks than others. And while this record must necessarily remain incomplete, the sections of retrospective reporting that we have do contain highly interesting material that we would otherwise not have access to (see below). Concurrent verbalizations were also different in nature. They ranged from disjointed sequences of thinking aloud on the one end of the continuum to explicit social communications on the other – i.e., "socially motivated verbalizations generated to communicate to one or more listeners" (Ericsson and Simon 1993, xiv) – in this case, explanations, descriptions and rationalizations directed at me as the researcher. The modes of verbal reporting differed from participant to participant. Translator A produced the longest 'proper' think-aloud sequences and B, the highest percentage of social communications. Individual participants even used different modes at different points in time. For the purpose of this study, social communications data proved to be just as valuable as 'proper' think-aloud sequences in that they tell us about translators' self-concepts. How a translator's perception of his or her own role and identity may influence textual choices is an issue that is important in my research but will not be taken up in this paper (see Kolb 2011; 2013).

The study's overall design was geared towards gaining deeper insights into the work, in all its facets, of freelance literary translators working from home. This entailed some challenges and some restrictions as to the selection of tools and methods, and a number of compromises had to be made. At the same time the research setup gave the participants not just the freedom to make their own schedules but also a certain leeway in handling the tools so that, for instance, two translators had no qualms about turning off the audio recording software when they felt that pressure was too high and they wanted to read and revise their text, for once, silently.

3. Outline of task organization

The data obtained in the study comprise micro-level and macro-level information on the five translation processes, the focus here being primarily on the macro-level. In what follows, I will first outline the translators' overall organization of their task in terms of timelines, sessions, and phases, and then discuss some implications of the workplace dynamics in more detail, with a focus on two aspects that have emerged as particularly significant in the course of the analysis: (1) the high level of fragmentation of the translation process, and (2) the hybridity of the translator's voice.

3.1 Timelines and sessions

Table 2 displays the overall timelines and task organization. All participants spread their work over a number of days, even though the text was just about one and a half pages long. Translator E worked on three days within a 4-day period; translators A, C and D worked on the translation on four days within an overall timespan of 22, 13 and 6 days, respectively; and B worked on five days within a 12-day period.

Table 2. Timelines and sessions

Part.	Days/ timespan	Sessions	Verbal record (hh:mm)	Full-text revisions on paper	On-screen revisions (incl. typing of paper revisions)
A	4 / 22	5	5:13	3	5
B	5 / 12	8	2:32	0	1
C	4 / 13	5	3:36 (incl. 67 “lost” min.)	2	3
D	4 / 6	8	3:54 (excl. 2 “silent” revisions)	3	4
E	3 / 4	3	1:35 (excl. 1 “silent” revision)	2	1

All translators except E did more than one session on at least one day (a work session being defined here as a discrete period of work on the translation, separated from the next session by at least one hour), indicating a high fragmentation of the translation process. B and D had the most sessions, with eight each. While D did not usually offer reasons for interrupting her work so frequently, translator B did: His verbal record indicates that the high level of fragmentation in his case was chiefly due to repeated interruptions by family members and the need to take care of some household chores, a situation that many freelancers working from home will know first-hand. As he commented, this pattern of frequent interruptions is typical of his workdays. Another feature of B’s profile that stands out is that unlike all other participants, he worked exclusively on-screen; again, his typical routine. While all others printed out two or three interim versions, made revisions by hand on the print-outs and then entered the revisions into Translog (while also making additional on-screen revisions), B made all revisions on-screen (multiple short revision loops while producing the first draft, then one full-text revision at the very end). He worked with a split screen showing the source text in the upper window, and the target text in the lower window, and his paperless working style also extended to noting down words for consideration not on paper (as others did) but in a word file.

The total times of recorded verbalizations were taken as rough indicators of total working times and, as indicated in Table 2, they varied greatly. Translator A spent the most time on the task, more than five hours, while E completed the translation in just over one and a half hours (to which we have to add one session of silent reading of unknown length). In an e-mail E sent with her data, she mentioned that she had not let the text “rest” for a sufficient time before sending it off as she would have done “in real life,” adding “But then again, this is what a translator’s reality is, isn’t it?” (All English translations of German-language verbal data are mine.) We might take this to mean that had it not been in an academic context, she might have done one more revision. Similarly, the academic context might have been the reason why D did not quite let go of her translation even after having sent off her target text (for the first time), but made some “post-delivery” revisions and sent off a slightly revised version of her target text a few days later – something one might be reluctant to do in one’s dealings with a publisher in real life.

3.2 Phases

On a very general level, carrying out a translation can be divided into three broad phases – following Mossop’s (2000) terminology, ‘pre-drafting,’ ‘drafting,’ and ‘post-drafting.’ In this study, drafting refers to the phase in which the first draft is produced (including all kinds of activities, such as research or revisions), pre-drafting refers to all activities that come before the first sentence is translated (e.g., reading of the source text or research), and post-drafting refers to all activities after the last sentence of the first draft has been completed (typically further research and revisions). As not all participants recorded all activities at all times, it is impossible to give exact times for all three phases. In particular, not all translators audio-recorded their setting up of the tools or their first reading of the source text. Some reported on it retrospectively, though without giving times; the timelines given in Table 3 thus only include times covered by audio recording and activities either captured by Audacity or reported retrospectively.

Time distribution data in Table 3 show that three out of five translators (A, C, and D) spent more time on post-drafting activities (i.e., revisions) than on drafting – in two cases (A and D) almost twice as much. They revised their texts more often than their colleagues, either on paper or on the screen (including entering handwritten revisions into the file). As indicated in Table 2, translator A had eight such revision loops; translator C had five, and translator D had seven. For the two remaining translators (B and E) it was the other way around. E’s post-drafting phase was very short (only 17 minutes plus one silent reading, comprising three revision loops only), but so was her drafting phase, both probably due to the research context, as mentioned above. B spent almost all of his time and effort on the production of the first draft, and did very little in the post-drafting phase (just 18 minutes compared to 2 hours and 17 minutes for the drafting phase). Out of his eight sessions, he spent seven on the production of his first draft and just one session on his one and only full-text revision – of course, his drafting phase included multiple short revision loops. In his questionnaire, B stated that his typical routine included two full-text revisions; that he made do with one in this case might have

Table 3. Phases in hours and minutes (hh:mm)

Part.	Pre-drafting (if known)	Drafting	Post-drafting	Verbal record
A	fast reading whole ST, slow reading first paragraph	1:57	3:16	5:13
B	reading ST	2:14	0:18	2:32
C	printing and reading ST (0:7), trying to make sense of story (0:7), setting up Translog and reading instructions (0:4)	1:27 (incl. 67 "lost" min.)	1:51	3:36 (incl. 67 "lost" min.)
D	reading ST (0:6), researching terminology and typing TL terms into Translog file (0:15)	1:17	2:16 (excl. 2 "silent" revisions, time not known)	3:54 (excl. 2 "silent" revisions, time not known)
E	stating task and reading ST (0:5), researching terminology (0:5), setting up tools (0:2)	1:06	0:17 (excl. 1 "silent" revision, time not known)	1:35 (excl. 1 "silent" revision, time not known)

been on account of the research context. True to his preferred working style, he did not print out any interim versions but made all his revisions exclusively on-screen. All in all, this overview indicates that work patterns of the five translators greatly varied in terms of overall time spent on the task and also in terms of how they distributed their time between the drafting and the post-drafting phase. By contrast, the high level of fragmentation was a shared feature.

3.3 Fragmentation of the translation process

The dynamics of a workplace in one's home is naturally different from the dynamics of an office away from it. This is nothing new: such differences are only to be expected, and the available data show as much. All profiles show highly fragmented translation processes with multiple sessions over a number of days and frequent breaks or interruptions (though to a much lesser degree in E's profile). Two of the translators (B and C) had a child living with them at the time of the study, and in both cases the child came in demanding his/her parent's attention – twice in the case of C (for example, she ended her first work session at her university office when her son came by), and several times in the case of B, for help with schoolwork, bedtime, etc. Four of the five translators provided reasons for interruptions only occasionally (such as a cigarette break). Translator B, however, always explained why he had had to interrupt a session (large sections of his verbal record, including these remarks, were social communications directed at me) and he frequently mentioned household tasks, such as monitoring the progress of a cake in the oven, or the arrival of guests as reasons for breaks.

The verbal records do not contain any indication of whether the participants considered these interruptions as disruptive or, on the contrary, as a welcome chance to stretch their legs, brew a cup of coffee, do the dishes or, just in general, get away from the job for a bit. However, the data do contain frequent instances in which interruptions or breaks led to unexpected and/or new solutions to a translation problem. As previous studies show (e.g., Kußmaul 2000), periods of time when conscious thinking about a job at hand is suspended often serve as a creative impetus. Translator A, for example, reported on how a new idea had occurred to her "all of a sudden" while checking on the audio-recording or, on another occasion, how leaving her desk for a short break (under one minute) during her first on-paper revision "brought a bit of logical thinking" and a solution to a problem she had struggled with. How the interruption of a work session, combined with a technological problem, directly impacted the emergence of the translator's voice and thus the textual level and the translation product will be shown in the following example.

Hemingway's short story opens with "One hot evening in Padua they carried him up onto the roof and he could look out over the top of the town. *There were chimney swifts in the sky*" (Hemingway 1986, 139). The second sentence (in italics) was an unexpected challenge for most participants due to its sheer simplicity, typical of much of Hemingway's writing. All translators except one (D) had difficulties deciding how to render 'were' in German. Of particular interest in our context is B's case. He first typed in an expanded version ('could be seen' instead of 'there were') and then wondered whether he should, after all, be "so hemingwayesque" and keep the simple 'there were' – concluding that "no," better not as it would make his translation "sound totally banal" in German. At this point he was interrupted by his child and ended the session, resuming work only three hours later. To his frustration, he discovered that his first paragraph had not been saved in Translog and he had to do this part again at the start of his new session. When re-translating the sentence he seemed completely unaware of his earlier doubts about its simplicity and fluently and without the slightest hesitation (we know this from his keylog) translated "*In der Luft waren Mauersegler*" (literally "In the air were common swifts"). At no point did he later reconsider or revise this version. In this case, the outside interruption of his work session by a family member – combined with the technical failure – gave rise to a different, spontaneous solution that turned out to be as simple as the original and arguably "hemingwayesque," even more so with 'air' being a more general term than Hemingway's 'sky.' Given B's overall profile, this was an interesting move. During his work, he frequently and explicitly commented on Hemingway's style. All in all, he saw it as his task to recreate it regarding conciseness, choice of simple words and simple syntax, but he usually prioritized his own stylistic choices whenever they were at odds with Hemingway's (Kolb 2011; 2013). In this case, the outside interruption did away with his original resistance to a "hemingwayesque" phrasing of the sentence and thus made the translator's voice resemble more closely Hemingway's. It shows how "acts of individual cognition and (inter)action [are] *constitutively* interwoven with their social, symbolic and material environments" (Risku, Windhager, and Apfelthaler 2013, 151, my emphasis). If we draw boundaries between actors, operations and environments we do so for analytical purposes (see also Muñoz 2016 on the "cognitive indivisibility" of these factors).

3.4 Hybridity of the translator's voice

Working from home also means that the translation process tends not to be restricted to actual work sessions, but to permeate other spheres of life as well, with the boundaries between professional and personal life blurring. D, for instance, jotted down words and phrases on a notepad while having breakfast with her husband, B thought about the translation while doing the dishes. And A and D both explained how they "carried" the translation "in their heads" over periods of time away from their desks. D explicitly described this blurring of lines as a "disadvantage" of her situation, saying in her retrospective report about day two, on which she had planned not to work on the translation at all but let it "rest," that "the text was still on my mind all day […] and I reflected on certain passages and then quickly made some notes on some slips of paper and also in the margin of the text I had printed out." Translator B's under-the-shower solution for a pun, mentioned above, is another example.

With the boundaries blurring between the translators' professional and personal spheres of life persons belonging to the personal sphere, such as spouses, children or friends, may become involved in the translation process in one way or another. The role of more obvious actors such as literary agents, editors, publishers, and original authors – also acting "from some position behind the scenes" as Jansen and Wegener (2013a, 3) phrased it – has been studied by Buzelin (2007), for instance, and by the contributors to the volumes edited by Jansen and Wegener (2013b; 2013c), Taivalkoski-Shilov and Suchet (2013), and Alvstad and Assis Rosa (2015b). My study does not comprise the parts of the translation process that have been analyzed in those studies. My data shed some light on even more invisible and unacknowledged agents who have, to my knowledge, not yet made their appearance in translation process research, most likely due to the lack of data. The design of this study did allow for documenting such interactions. In the course of the study, both D and E discussed the translation with their husbands and both reported that, as a rule, their husbands read all their work before they hand it in, thus acting, we may say, as their first – unacknowledged – editors or proof-readers.

Translator D reported on two specific revisions suggested by her husband, both of which she adopted into her text as she felt “he was right”; and we can assume that some of the words she jotted down during their shared breakfast also were his suggestions.

Translators B and C both considered at one point contacting a friend about a term, but in the end did not do so. Apart from family and friends, virtual translator communities (Risku and Dickinson 2009) also play an important role for most translators, and maybe even more so for freelancers, including literary translators, who work from home, granting them “instant access to peer support” (Risku 2010, 106). Translator B, for instance, asked an Internet forum of German-speaking literary translators for suggestions for the translation of a pun; of the two suggestions that he received he quickly discarded the first one, and then gladly adopted the second (see Kolb 2013 for a discussion on how the phrasing of this pun contributes to the styling of the story’s narrative voice).

Alvstad and Assis Rosa (2015a) labeled such voices that originate from other actors in the translator’s environment ‘contextual voices’. By adopting these contextual voices into the target text, the translator makes them part of his or her own (textually manifested) voice. The translator’s voice thus becomes hybrid in nature in the sense of being “heterogeneous in origin” (Merriam Webster 2017). To accomodate this heterogeneity or multiplicity of voices, Jansen and Wegener (2013a) have introduced the term *multiple translatorship*, based on Jack Stillinger‘s 1991 concept of *multiple authorship*. They argue that while “the translator is without doubt the central agent of the translation process, publishers, editors, proof readers, literary agents, and even the author of the source text often exert a significant influence over the translator and the translated text.” Based on the findings of my study, I would like to add to this list the largely invisible actors from a translator’s immediate and/or personal environment, such as spouses or friends. Interestingly, Stillinger – dismantling the myth of the solitary genius in literary studies[1] – also includes spouses in his list of potential actors: “In many cases multiple authorship begins, literally, at home,” he says, adding that “[t]he practice of spousal collaboration is so common […] that it is difficult to focus on its consequences for authorial ‘authority’ in a piece of writing” (Stillinger 1991, 50). The same can certainly be said for a piece of translation. As a rule, the hybridity of the translator’s voice or the multiplicity of translatorship is not something that will be recognized by or even be relevant for readers of literary texts – but it is, without any doubt, of great relevance if we want to gain a more profound understanding of how translations are actually being made.

1. In this context, Gertrude Stein’s influence as quasi-editor of Ernest Hemingway’s early texts immediately comes to mind (see, e.g., Knight 1995).

4. Conclusion

The aim of this paper was to explore the embeddedness and situatedness of translatorial cognition and action by looking at authentically situated translation practices and routines of five professional literary translators. Studying literary translators at their authentic workplaces – in this case, their homes – where the boundaries between professional and personal spheres of life are blurred, entailed some methodological and ethical restrictions. But it also yielded research opportunities and data that might be difficult to obtain in other settings, relating to, for instance, the role played by translators' spouses as largely invisible and so far unacknowledged proof-readers or editors, thus adding another dimension to the multiplicity of translatorship. At the same time it was possible to show how seemingly irrelevant outside interruptions or physical activities, such as leaving one's desk for a few moments, may in fact turn out to be highly significant by directly impacting the emergence of the target text. While the actual circumstances and situational factors will, of course, vary depending on the translator's respective workplace, the data strongly suggest that, from a process research perspective, any translation process is best conceptualized as essentially fragmented in nature; the translator's voice, as constitutively hybrid in nature; and translatorial cognition and action, in general, as inseparable from their specific environments.

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Managing transcreation projects

An ethnographic study

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This paper investigates the translation spaces of a very specific translation practice, namely transcreation. In a marketing context, transcreation is usually concerned with the adaptation of advertising material into several different languages or for different markets. The paper is based on an ethnographic field study carried out at a marketing implementation agency in London, during which a group of transcreation managers was followed over a period of four weeks. The study relies mainly on observations of the interactions between the employees of the above-mentioned agency and their partners as well as on the researcher's own participation in some of the agency's work-related activities. As an activity, transcreation often involves two or more writers. These writers are most likely to be physically separated, but as the data from this study show, a transcreation agency can serve as a case for joint, situated efforts.

Keywords: transcreation, sociology of translation, ethnography, workplace studies, advertising, translation process

1. Introduction

Translation as a practice can be seen as a complex set of activities. Some of these activities are internal cognitive processes that take place in the mind of the translator and have long been investigated in experimental settings using, for example, eye-tracking, keystroke logging and think-aloud protocols. Other activities take place both inside and outside the mind of the translator and, aside from purely internal cognitive processes, can basically include almost everything that leads to the final translation product. These potentially vast amounts of translation activities call for empirical research approaches with a broader scope. Translation does not take place in a vacuum (Koskinen 2008), and many aspects concerning decision-making in translation require studies of "spatial and social characteristics of working environments" (Risku 2002, 532). Accordingly, this paper reports on

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such a study and focuses on one specific translation practice: the transcreation of advertising material.

Although it might appear to be a relatively new term in advertising and marketing, and also a newcomer in translation studies, transcreation as a phenomenon has in fact been investigated on a number of occasions. In a scholarly context, the term *transcreation* was introduced by the scholar and translator Purushottam Lal, who described the translation of ancient Sanskrit texts into modern-day language as a task in which "the translator must edit, reconcile, and transmute; his job in many ways becomes largely a matter of *transcreation*" (1964, 5). On a more general level, the term *transcreation* first appears in poetry and literature, and does not enter the more commercial domains until the early 21st century. Bernal (2006) notices how more and more language service providers have started to use *transcreation* as a term to describe the adaptation of marketing and advertising material. He finds this use rather problematic, because it seems to praise transcreation at the expense of translation. He notes that transcreation is being presented as a translation-like service that includes "not only translation but also creativity" (2006, 32), thereby implicitly reducing translation to a non-creative activity. Much of the same criticism is presented by Munday and Gambier (2014), who do not accept transcreation as a substitute for translation, but instead see translation as an umbrella term that is capable of embracing both transcreation and localisation, another translation practice in which source material is often comprehensively adapted (Mangiron and O'Hagan 2006).

When it comes to defining transcreation, Gaballo (2012, 111) embraces many applications of the term, including poetry translation, video game translation and advertising, and describes it, among other things, as an "intra-/interlingual re-interpretation of the original work suited to the readers/audience of the target language" and a "holistic approach in which all possible strategies, methods and techniques can be used". She also notes that "it requires the translator not only to conceive new words, but also to imagine new worlds". In its attempt to be all-embracing, Gaballo's definition nevertheless does not bring us much closer to understanding how to apply the term *transcreation*. Answers to this question are sought by Rike (2013), who points out that – despite the fact that transcreation and localisation seem to be very closely related, even to an extent where it can be extremely difficult to distinguish between the two – there is a tendency for transcreation to find its way into the creative industries, and especially marketing and advertising, whereas localisation is usually associated more with the software industry. This tendency is also picked up by Pedersen (2014).

The applicability of transcreation is also a theme in Katan's work. Katan (2015) does not characterise transcreation as something different from translation, but he does encourage translators and interpreters to take what he calls the *transcreational* *turn*. In fact, he sees this turn as a necessity rather than an option if translators and interpreters are to 'survive' as professionals. In other words, he suggests that a transcreational approach need not necessarily be a step away from translation, but can be a way to empower translators and interpreters in a world where machine translation and other computer-assisted translation tools are indirectly devaluating the human translator.

But what exactly happens in the process of transcreation? So far, the discussions on transcreation in academic circles, and in the language service industries, have paid a great deal of attention to the notion that transcreation might be something different from or more than translation. This may very well seem natural, given that transcreation is often presented as a service that goes beyond the scope of translation.

This paper, however, takes a different approach. While the matter of defining transcreation is certainly still a subject for debate and academic scrutiny, there also comes a time when we have to accept the existence of an industry that delivers products labelled *transcreations*, and look at these products and the processes that give rise to them. The present study takes its point of departure within the transcreation industry and will treat transcreation mainly from a sociological perspective (see Section 2.3).

2. Key concepts

2.1 Transcreation

The overall academic approaches to the term *transcreation* have already been introduced above. In this paper, however, transcreation as seen from within the transcreation industry itself will be given just as much attention as the academic treatment of this subject, thereby presenting the industry point of view.

In recent years, transcreation has spread widely in the creative industries, with the marketing and advertising domain being one of the most evident examples of its proliferation. Here, transcreation is often presented as something more than or different from translation. Transcreation providers present their service as something that takes over when translation is not enough – and as something that takes cultural nuances into consideration instead of just translating words (see Pedersen 2016 for examples). As mentioned in Section 1, the notion of translation as a practice that is insufficient for the adaptation of cultural nuances, wordplays, etc. has been strongly contested in academia. Nonetheless, the presence of a transcreation industry with its own set of characteristics is clearly undeniable, and it is these characteristics that we will focus on in the following sections, especially those relating to collaboration between human agents. From a general perspective, transcreation in the language service industry can be seen as a domain for the adaptation of marketing and advertising material (Rike 2013; Pedersen 2016). As a service, transcreation exists alongside other services such as ‘localisation’ or ‘translation’. It is generally seen to be a growing industry, and several companies offering transcreation services can now be found. In the empirical section of this paper, we will focus on one of these companies and on the actual activities that take place in projects labelled *transcreations*.

2.2 Assumed transcreation

In recent years, there have been many attempts to define transcreation and to specify the genres, the domains, and the industries to which it belongs. However, at present there does not seem to be any clear consensus on how to define the term. The present paper does not aspire to supply such a definition. Instead, it takes a more descriptive approach inspired by the tradition of descriptive translation studies, and in particular by Gideon Toury, who introduces the idea of ‘assumed translation’, meaning “all utterances in a [target] culture which are presented or regarded as translations, on any grounds whatever, as well as all phenomena within them and the processes that gave rise to them” in his famous work *Descriptive Translation Studies and Beyond* (Toury 2012, 27). In much the same way, transcreations are to be understood in this paper as utterances that are presented or regarded as transcreations. However, for this study, the idea of assumed transcreation deviates from Toury’s idea of assumed translation when it comes to defining the group of people who are supposed to be doing the assuming (see also Pym 2007). Whereas Toury points to the target culture as the decisive group, this paper assigns the decisive power to the transcreation service providers, meaning that (assumed) transcreation is all utterances which are regarded or presented as transcreations by the transcreation service providers.

2.3 The sociology of translation

This study mainly looks at transcreation as a social practice, wherefore the traditions of sociology in translation will serve as a theoretical base. In an attempt to systematise the sociological approaches to translation, Andrew Chesterman (2007) sketches four different perspectives on translation studies: the linguistic level, the cultural level, the cognitive level, and the sociological level. As typical sociological research topics, Chesterman (2007, 173) mentions the translation market, the role played by the publishing industry and other patrons or agents, the social status and roles of translators and the translation profession, and translating as a social practice. According to Chesterman (2007, 174), the main focus in sociological translation studies research is, thus, on "people and their observable actions." In an earlier publication, Chesterman (2006) sought to divide the sociology of translation into three subcategories, which he found useful for research purposes. These categories are: (1) the sociology of translation as products; (2) the sociology of translators; and (3) the sociology of translating, i.e., of the translation process.

In the present study, transcreation professionals are regarded as social actors, and the focus is on their interactions with other agents. These aspects are included in Chesterman's third subcategory – the sociology of translating – which, among other things, refers to translation as a social practice, to tasks carried out by translators, and to networks consisting of both human and non-human actors. The empirical section of this paper is centred around these elements.

3. Methodology

The present paper reports on an ethnographic observation study in a marketing implementation agency. Ethnographic studies are usually characterised by their extensive level of detail, by being very time-consuming (easily involving 6–12 months of field study), and by their focus on one specific group of people. A journal article of around 15 pages can hardly capture all this detail, and it is therefore important to emphasise that the present paper only describes a fragment of a much larger ethnographic study presented in Pedersen (2016). As a research method, ethnography has traditionally been closely attached to the field of anthropology. It has, however, spread across other fields as pointed out by Wolcott (1999, 43–44):

> In fields in which ethnography has only recently been recognized as an acceptable research approach, it is viewed almost exclusively as a method. Thus, for many of today's qualitatively oriented researchers, to be "doing ethnography" has become a shorthand expression for describing how they intend to gather their data, without necessarily suggesting or implying, and certainly without promising, that the outcome of their efforts will be framed as ethnography.

Ethnographic methods, although strongly related to anthropology, are not exclusive to this discipline. Other disciplines have embraced this methodological tradition. In organizational studies, the concept of organizational ethnography has gained territory; see, for example, Ybema et al. (2009) for more on the study of organizations. Different variations of ethnography, such as *netnography*, have also emerged. Netnography focuses on online groups and therefore breaks with the idea of the ethnographer being immerged in the field of study, at least in the stricter sense. Alvesson (2009) talks about at-home ethnography, where the researcher studies his/her own setting. Ethnography and field studies in general have also found their way into translation studies, and even though the number of research projects that have been or are being carried out using this methodological tradition is not overwhelming, there are some examples to be shown.

3.1 Workplace studies in translation

Studying translation in context is far from a new phenomenon. In Section 2.3, it was pointed out that the sociology of translation has been of interest in both functionalistic and polysystemic approaches. The focus has not always been on the translator's workplace, but even this particular setting has received academic attention. Risku (2004) investigates translation management at an Austrian translation agency; Koskinen (2008) deals with the Finnish translation unit of the European Commission in Luxembourg in a study that looks at numerous aspects of the lives of people translating for a huge institution and living in a foreign country; and Kuznik (2016) analyses the work of an in-house translator at a Polish company that manufactures machinery for the food sector. Furthermore, attention towards the workplace can also be seen in more survey-based work such as the study carried out by Dam and Zethsen (e.g., 2008 and 2009) and the interviews conducted by Abdallah (2010). The present study should be seen in this context, since it also seeks to provide an overview of the work that takes place in a transcreation agency.

3.2 Researcher roles

Gold (1958) established that an ethnographer generally has four different researcher roles. These range from the complete observer, who does not interact with the environment under investigation, to the complete participant, who is fully engaged in the research environment and takes part in the same activities as the subjects. In between these two extremes are the observer-as-participant and the participant-as-observer roles. These two latter roles are rather similar, and can be seen as stages 2 and 3 on the continuum from complete observer to complete participant. The fact that there are different researcher roles does not necessarily imply that the researcher's choice of role is definitive. Indeed, he/she can switch between roles when it is deemed relevant for the research. According to Robinson (2008, 248), "[e]thnographic study requires the researcher to both observe and participate in the field of study." Although it only shows a small part of the entire ethnographic study, this paper does contain examples of role shifting, with the researcher observing at some points and engaging actively in the transcreation process at others.

3.3 Frames of the ethnographic study

For this study, TagLine, a marketing implementation agency that delivers transcreation services, was chosen as the research subject.[1] The actual fieldwork consisted of four weeks of physical presence (Monday to Friday from 9am to 6pm) at TagLine's premises in London. As an outsider researcher, my presence could hardly avoid constituting some sort of intrusion. The situation was unusual both for the agency and for myself, and the conditions had to be agreed prior to initiating the actual field study. In essence, the agency categorised my stay more or less as an internship. The agency also offers conventional internships, but these differ greatly in nature from what I was doing. So, even in that context, I was a unique case. Roughly, the field study was conducted as follows:

Week 1 General introduction to the agency and visits to different departments
Week 2 More visits to a number of different departments in the agency
Week 3 One-day visit to a partner agency at a different location in London; remaining four days in one selected department at TagLine
Week 4 Observations in the same selected department for the remainder of the field study

The study was planned before initiating the four weeks of participant observation, but only to a certain degree.[2] Although there was a need for an overall plan of what was going to happen, the inductive approach, which is typical for ethnographic studies, also allowed for decisions to be taken during the fieldwork. Robinson (2008, 250) states that, when doing ethnography, the researcher "needs to be flexible and reflexive from the planning phase and throughout the fieldwork." Accordingly, I allowed pertinent events that happened during the fieldwork to guide me in new directions. In the following section, I will analyse a series of events deemed relevant for the present study.

4. Analysis

This section highlights examples from the field study that illustrate cases of (a) interaction between transcreation managers and other central agents in the transcreation process, and (b) teamwork among the in-house staff members. A common denominator for the elements brought into this analysis is that they all share the same point of departure, namely the transcreation manager in the agency who is

1. Services labelled *transcreation* by the agency itself.

2. All the data presented in Section 4 stems from this ethnographic field study.

in contact with all the other relevant agents (copywriters, copyeditors, clients). The labels *copywriter* and *copyeditor*, which appear in the following sections, are used by the agency to describe the people doing the actual transcreations. In other contexts, they may also be referred to as transcreators. For reasons of confidentiality, all brand names and the names of people participating in the study are fictitious.

Before diving into the details of the events, I will first present in Example 1 a step-by-step guide to the transcreation process. This guide will be used throughout the analysis section to identify the different interactions and their locations in the overall transcreation process. The guide was formulated by the agency under investigation in this study and should thus not be seen as representative for the entire transcreation industry, but merely as an example of how the transcreation process can be shaped.

Example 1

I. A transcreation file with a locally adapted creative brief, formulated by the transcreation agency and based on instructions from a creative agency, is sent out to the copywriter by the transcreation manager.
II. The copywriter adapts the copy.[3]
III. The copy goes back to the transcreation manager who makes a quality check.
IV. The copy goes out to a copyeditor who reviews the adaptations (transcreations) made so far.
V. The copy then goes back to the transcreation manager who does another quality check.[4]
VI. Two to three alternative solutions and their rationales are delivered to the client by the transcreation manager for final selection and approval.

Steps I, III, and V in Example 1 take place in-house and are the ones I was able to observe directly. Steps II, IV, and VI take place outside the agency and are performed by agents operating in the local markets (and have thus been more or less omitted from the study).

The following examples illustrate interactions during the steps mentioned in Example 1, starting with the copywriter, then moving on to the copyeditor, and finally the client. A couple of narratives are also provided to illustrate how in-house transcreation managers interact with each other during the process.

The first Example (no. 2) of a working situation connected to the agency shows some of the material presented to the copywriters and copyeditors:

3. Writes two to three transcreations.

4. From this stage, the transcreations no longer go back to the copywriter/transcreator.

Example 2

'Records rewritten' – unusual collocation

- Here we focus on the fact that [X] has broken multiple records.
- In English, the standard collocations are 'to set a record' and 'to break a record'; the verbs 'write' and 'rewrite' are usually used with the noun 'history' (e.g., [re]write history).
- Whereas we might barely register the stock phrase 'records broken', the phrase 'records rewritten' is an unexpected collocation and serves to arrest our attention.
- As such, it emphasises [X's] history and brand values where pushing boundaries is concerned: from technical innovation and excellence to involvement in setting new records in exploration and sport.

1. Does the same verb + noun combination work in your language? If not, what solution do you suggest to convey the same meaning with equal impact?
2. '<u>R</u>ecords <u>r</u>ewritten' – can you recreate the same alliteration in your language?

This brief explains the idea behind a particular collocation that appears in the text material. The collocation is unusual in the sense that the verb 'to rewrite' would not normally be associated with 'records'. The brief underlines that this unusual way of putting these two words together is not at all arbitrary, but serves as a strategy for gaining the reader's attention. In order to make sure that the writers do not miss this intention, the creative brief is normally fairly extensive, despite the fact that the transcreation material often only contains a relatively small number of words (usually less than 2000, and in many cases less than 100). So, from the very beginning of the process, knowledge is shared through the creative brief. The level of interaction, however, is easily overlooked, since the brief mostly serves as a one-way communication.

In Example 3, the interaction between the writers (copywriters and editors) and the transcreation manager is much more obvious. The example is an extract from a conversation between a copywriter and a transcreation manager, which illustrates step III (first in-house quality check) in the guide in Example 1.

Example 3[5]

TL: When you say 'REINTERPRET', you might get the meaning that the thing you are reinterpreting is the same, you just perceive it in a different way. But in this case the point is that the records are not the same, but all new. Could you provide an alternative that indicates more clearly that the records are new?

5. TL = TagLine; CW = Copywriter.

CW: I agree with you here. An alternative could be 'AT DER ER BLEVET FREMBRAGT/PRODUCERET NYE REKORDER' (THAT NEW RECORDS HAVE BEEN MADE/PRODUCED).

TL: Are you sure it's not possible to put 're' in front of 'skabe' in Danish?

CW: 'NYSKABT' It is possible to say 'nyskabt' in Danish, but somehow saying 'AT REKORDER ER BLEVET NYSKABT' just doesn't work. If you want to use the verb 'nyskabe', it would be better to say 'AT DER ER BLEVET SKABT NYE REKORDER' (THAT NEW RECORDS HAVE BEEN CREATED). However this does not convey the same unexpectedness as in the English source.

TL: 'AND STANDARDS HAVE BEEN REDEFINED' – This solution is very close to the one in adaptation 1. Could you provide an alternative that has a more different sound?

CW: If you still want to go with the verb 'nydefinere' (redefine), an alternative could be 'OG DER ER SKET EN NYDEFINERING AF STANDARDER' (AND A REDEFINING OF STANDARDS HAS BEEN MADE) or 'OG STANDARDER ER BLEVET DEFINERET PÅ NY' (AND STANDARDS HAVE BEEN DEFINED ANEW/AGAIN). Or alternatively 'OG DER ER OPSTÅET/UDVIKLET NYE STANDARDER' (AND NEW STANDARDS HAVE EMERGED/DEVELOPED).

The correspondence shown in Example 3 illustrates how a transcreation manager communicates with a copywriter about a specific project. The copywriter has delivered a suggestion for transcreation, and the manager follows up on this suggestion by giving feedback and asking questions. This conversation between the copywriter and the in-house transcreation manager is seen as part of a quality control in which the suggestions made by the writer are discussed. This conversation can continue when the copyeditor is assigned. In an interview with a member of the in-house staff who works as a transcreation manager, I received further insights into the ideas that lie behind this process and how it works in real life (Example 4):

Example 4

> When working in transcreation, a lot of the time you just have to keep pushing the writers to try a little harder. Some of the writers get it straight away, but it's very much a collaborative thing. You know, we might run it past someone in-house who speaks that language, and they'll say… they'll suggest "play with that, you could frame it with that, you might try that," and we'll send ideas back to the writer.

In Example 4, taken from an interview, it is explicitly noted that working on the transcreation is "very much a collaborative thing." But apart from indicating that the transcreation managers will try to make the writers come up with as many ideas as they can, this example also shows that other in-house members of staff play a crucial part in the development of the transcreation material. Although one specific manager is usually assigned to a project, along with one copywriter and one copyeditor, others can interact, and the transcreation managers can ask their colleagues about specific issues related to the transcreations. Step III (an in-house quality control) therefore shows clear signs of being a collaborative effort in which the workplace environment plays a significant part.

Step IV, in which the copyeditor comes into the picture, is central to the interview extract in Example 5. In this context, the copyeditor is seen as more than a proofreader and is essentially viewed as a second writer, i.e., someone who can also come up with new suggestions for the transcreation material:

Example 5

> Once you've been through the previous palaver, you might have a conversation going on with like… there'll be my questions in red, and the writer will come back and answer in blue, and there'll be another question from me in red, and an answer in blue. So before we send it to the second writer, we clean it all up. You just take away any options that you've totally rejected and leave over here the questions for the second (?)

The conversation between the transcreation manager and the copywriter shown in Example 5 concerns step III in the transcreation process. This conversation indicates all the questions that come from the transcreation manager, and all the answers that come from the writer. If a problem has been solved in the initial conversation between the transcreation manager and the writer, it will not go on to the second writer, who will only receive the relevant information.

In the above examples, the focus has been on the interactions between transcreation managers and writers (copywriters and copyeditors). But the process does not end there. As a final step, the client will receive the suggestions for transcreation (the agency will usually deliver two or three suggestions). The Example 6 shows that this interaction can sometimes turn out to be problematic:

Example 6

> Some of the clients don't get it and will massacre the copy, and you have to, very tactfully, not (?) explain why. It doesn't happen too often. Occasionally. So these are just sort of criteria. Does it… does the client change… Does it change the intended meaning? Does it omit anything that's important? Does it change the tone, style or register? Which tie in very much with the target audience. Does it improve the copy or weaken it? Does it make it too long? Does it make it inconsistent with other stuff or other parts of the campaign?

In some of the earlier examples, we saw how the collaboration between writers and transcreation managers was a way of avoiding misunderstandings and improving the final outcome. A lack of collaboration, on the other hand, can lead to misunderstandings and prove detrimental to the original intentions of the copy that is being transcreated. The transcreation managers will therefore follow the projects all the way through the transcreation process and make sure that the intended meaning is not altered. A briefing or quality control in the client's direction is, thus, also seen as an important part of the collaborative effort. However, this is not to say that client involvement is always a negative thing. Clients interacting in the process can also bring positive results, as the interview extract in Example 7, concerning the role of the client, demonstrates:

Example 7

> The client actually came up with something pretty clever, which we hadn't thought of. And we ran it past all sorts of in-house German speakers. Half of them didn't like it. But the two copywriters whose judgement we trust best, one of them used to (?) over here and she moved back to Germany, said "Just like English, like 'tell history' it's not natural, but it works. The same thing happens in the German." Because you've got "zählen" and "erzählen." Count time, account history. So in that case it's fine. We'll always check it with a native speaker.

In Example 7, the client has come up with a suggestion that appears to be rather useful in the given context. What is more, the manager responsible for the project asks the relevant in-house staff – in this case, native German speakers – for help. These people are most likely not involved in this specific project, but as colleagues and experts who work in the same building, they serve as valuable advisers. In the end, the manager chooses to follow the advice of two copywriters based in Germany, one of whom apparently used to work at the agency and is considered a trusted colleague.

In the following part of the analysis, I will go through a couple of small narratives, i.e., stories that relate particular events from my own perspective. In these narratives, my role as a researcher is much closer to that of a participant in the activities of the transcreation managers. Moreover, the narratives in Examples 8 and 9 serve as an illustration of how transcreation can unfold as a teamwork effort.

Example 8

> It is Wednesday afternoon, and I am shadowing one of the account managers.[6] I have only been with the agency for a few days. At some point, Jill from the Teazer account comes along. Earlier that day, I spent about an hour shadowing her, so, at this point, we have already been introduced to each other. She has been asked to take a look at a Danish text. It is the voice-over text for a TV commercial for a skin care product. She knows I am

6. Person in charge of contacts with regional clients.

> staying with the Francis account that day and comes to ask for my opinion on one particular phrase that is causing a lot of trouble. Jill is not working for that particular brand, but the transcreation manager in charge of the TV commercial thought it would be a good idea to ask Jill what she thinks about the phrase. When she comes over to me, she has already given the copy some thought and has come up with a couple of suggestions that she thinks will improve the copy. She asks me what I think about the matter, and we also discuss the initial suggestion from one of the writers. I express my opinion, and then Jill moves on with the project.
>
> A couple of months later, after my return to Denmark, I see the commercial on Danish national television, and as this particular phrase is spoken by the voice-over artist, and the key term pops up on the screen, it reminds me of the struggles we had finding a good solution.

To a certain extent, the narrative in Example 8 resembles Example 7, where a client suggested a solution for a transcreation in German. We have a manager consulting other colleagues – in this case, myself – about a possible solution for a transcreation. Using the knowledge and competences of fellow in-house members of staff is not uncommon. In this case, the fact that I was a Danish native speaker made it possible for the manager to come to me and ask what I thought about a given linguistic matter. However, these kinds of interactions can also exceed mere linguistic scope as the narrative in Example 9 shows:

Example 9

> It is a Wednesday afternoon. I am following Sharon from the PlayCo account, who is working on a script for a TV commercial for the Italian market.[7] As she talks to me about her work, she is contacted by the editorial department, which is located just a bit further down the hall on the same floor. She goes there, and I follow her. The 'edits', as she calls them, have asked her to take a look at some legal disclaimers in a TV commercial for a specific toy.[8] The edits are working on adding three more dolls in a frame, and the question then is how to place these dolls in relation to the legal disclaimers. Sharon suggests that they move the names of the dolls so they are not too close to the legal disclaimers or 'legals'. The editorial workers then follow Sharon's advice.
>
> Less than an hour later, the same people contact Sharon again and want her to take a look at another TV commercial. The issue is more or less the same.

7. Sharon is a transcreation manager.

8. In many commercials, there will be some information that has to appear on the screen. For toy commercials, this could be something like "Each product sold separately" or "Batteries not included".

> They want her suggestion on how to place some text fragments in relation to the depiction of the product. And so the interaction between Sharon and the editorial staff goes on for a while.

This is the first time that the technical staff have been mentioned. As it turns out, TagLine does a lot of its production work in-house, which means that the transcreation managers often only have to walk down the corridor to meet the staff responsible for the production of the material they are working on. In this case, the transcreation manager helps out with the visual aspects of a TV commercial. She is in close contact with the editorial staff, and together they find a way to edit the final commercial. Thus, this narrative shows that, in addition to linguistic and cultural expertise, a transcreation professional is also expected to have certain design skills.

All in all, the phrase "it's very much a collaborative thing" captures many of the aspects of the transcreation process. At each step in the process, collaborative elements shine through, and the transcreation professional can even be present in the post-production phase.

5. Results

Several different agents are involved in the transcreation process. These range from the initiating client and creative agency to the transcreation managers and writers. The creative agency can probably be seen as belonging to the periphery of the transcreation process. But as the creator of the campaigns that will later undergo a process of transcreation, the creative agency does still merit a mention. This study shows that the client can also play a very prominent role in the transcreation process, one in which direct intervention is not uncommon. The results of this intervention can have various degrees of success, and the transcreation professionals will always try to make sure that client changes do not compromise the intended meaning of the transcreations.

The transcreation managers are also in close contact with the writers. Before a transcreation project is sent off to the client for final approval, the managers will have gone through all aspects of the suggestions provided by both the first and the second writer, who will have both had the opportunity to explain and justify all their choices.

Last, but not least, the transcreation managers consult each other in cases of doubt. Although each project is usually assigned to one specific manager, involving others in the process is far from uncommon. The study even showed examples of me being consulted, despite the fact that I was an external researcher with only a temporary attachment to the agency.

6. Perspectives for translation

In research on the translation of advertising material, several voices have spoken in favour of a more involved translator. According to Séguinot (1994, 249), translators working with advertisements "need to understand the basics of marketing". De Mooij (2004, 196) suggests that "if advertising is translated at all, the translator should closely co-operate with the copywriter/art director team and not only translate but also advise about culture-specific aspects of both languages." Perhaps it is worth asking if transcreation is a domain in which these suggestions are materialised.

Katan (2015) advocates a transcreational turn that not only empowers translators and interpreters but, more importantly, offers them a way to survive as language professionals. Others have also discussed the subject of empowering translators. For example, Simeoni (1998, 12) definitely does not see the translator as an empowered being, and raises the following point in his observations on the state of affairs for translators:

> To become a translator in the West today is to agree to becoming nearly fully subservient: to the client, to the public, to the author, to the text, to language itself or even, in certain situations of close contact, to the culture or subculture within which the task is required to make sense. Conflicts of authority cannot fail to arise between such masters but, in the end, the higher bidder carries the day. The translator has become the quintessential servant: efficient, punctual, hardworking, silent, and yes, invisible.

Simeoni emphasises the subservient role and the invisibility of the translator. Translator invisibility has been treated from many different angles, perhaps most prominently by Lawrence Venuti (2008), who encourages translators to take on a much more visible role. Visibility can be achieved within the translations by retaining foreignizing elements. In transcreation, however, this kind of strategy would probably be inadequate given that transcreations should generally resonate with the target audience and appear as originals created in the target market. In other words, transcreation primarily uses domesticating strategies (e.g., Venuti 2008). Accordingly, this kind of visibility is scarcely relevant for transcreation. However, there is also another kind of visibility: the one that encourages the translator not be subservient, but to take on an active role in the text production and to be involved throughout the process. The present study provides examples of how transcreation professionals can be involved throughout the process of creating marketing and advertising materials.

7. Conclusion

Translation does not take place in a vacuum, and translators are social actors who play certain roles in society. These are statements that resonate within translation studies. This study has shown how these statements are manifested in a specific context, namely marketing and advertising transcreation.

In Section 1, it was indicated that studies on transcreation have mainly focussed on the theoretical conceptualisation of the phenomenon. This study, however, opted for an empirical, sociological approach – with transcreation providers and their actions as the main focus of attention. Consequently, the analysis provided examples of how transcreation professionals interact with each other and their clients, and how continuous dialogue and collaborative effort ultimately shape the final products.

The present study looks at the transcreation process mainly through the eyes of in-house transcreation managers. However, as mentioned, there are other agents involved in the process. To achieve a broader understanding of the transcreation process, these agents – creative agencies, clients, transcreators, and copyeditors – should be given much more attention in future studies.

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This paper is based on Pedersen (2016) and contains extracts from this work.

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Experiencing the interpreter's role

Emotions of involvement and detachment in simultaneous church interpreting

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This paper proposes an affective approach to examining the interpreter's role. More specifically, it suggests that, by considering the interpreters' subjective feelings of involvement and detachment related to an interpreted event, we can examine the ways in which their role is constructed, within and through a combination of personal, social, and material factors related to the setting and the interpreter's working conditions. As an example, I take the case of simultaneous interpreting in two religious settings, which I have studied with autoethnography. Thus, I analyze my experiences of interpreting in two religious settings and contrast these experiences to an "ideal" model of the interpreter's role in such settings: that of the fully involved participant. The analysis indicates that, while an internalized ideal model of role may provide a point of reference for reflection, the actual experience of role emerges in a complicated interaction between personal, social, and material aspects.

Keywords: affect, interpreter involvement, detachment, interpreter's role, church interpreting, simultaneous interpreting, autoethnography

1. Introduction

The role of the interpreter in different settings has been a continuous topic in Translation and Interpreting Studies literature. Often, the focus has been on the performance of role as it emerges in interpreted interaction. Thus, researchers such as Wadensjö (1998), Diriker (2004), and Angelelli (2004a) have shown that through their communicative choices, interpreters tend to be involved participants, and not passive 'translation machines', despite the imperative in professional codes of conduct to remain impartial or even 'non-involved'. Many studies on the interpreter's role, such as those mentioned above, have traced the manifestation of

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role in interpreters' performance, by analyzing their output and behavior in interaction with the primary speakers.

In this paper, I propose an additional perspective to the examination of the interpreter's role, one that does not put as much weight on the performance of role nor on the perception of role, but rather on the subjective experience of role. More specifically, I focus on feelings of involvement and detachment. Through this affective lens, my aim is to demonstrate the embeddedness of the interpreter's role in the interpreter's subjectivity, in the social context in which the interpreting takes place, and in the material working conditions affecting the interpreter's work. The discussion in this paper draws on research I have conducted on simultaneous interpreting in religious settings. In religious contexts, where interpreting is usually carried out by volunteers instead of professionals (e.g., Karlik 2010; Balcı Tison 2016), the interpreter's ideal role seems to be that of a fully involved participant (including social, interactional, and spiritual involvement; see Section 2), drawing this type of interpreting into sharp contrast with many other, professional interpreting practices. However, my aim is to demonstrate that 'ideal' models of the interpreter's role, whether depicting a more or less involved interpreter, are only one factor among many that influence the actual experience of role in a given interpreting event.

The religious settings investigated in this paper are the Pentecostal Church of Seinäjoki, Finland, and a summer conference organized by an Evangelical Lutheran organization which I call here "The Finnish Lutheran Community". I have studied these settings with autoethnography, performing in a dual role of simultaneous Finnish-to-English interpreter and researcher. Thus, I have conducted an ethnographic examination of my own experiences as a volunteer interpreter in these settings. Autoethnography focuses on the interplay of social understandings and subjective experiences, which makes it a useful tool in the study of the ways in which personal, social, and material aspects come to bear on the experience of the interpreter's role. Autoethnography is seldom the explicit methodological framework employed in studies of translation and interpreting as of yet. Nevertheless, many researchers have made use of their personal positions and experiences as practitioners in a variety of research designs.[1]

In the remainder of the paper, I first review some of the earlier approaches to the study of the interpreter's role and detail my proposal for an affective approach in Section 2. Section 3 explains in more detail the methodology I have employed and the research materials investigated for the purposes of this study. Section 4

1. In the study of interpreting, recent examples of such studies include Camayd-Freixas (2013) and Ortiz Soriano (2015), both focusing on interpreters' codes of ethics and impartiality in legal interpreting. See also Napier (2011) and Hale and Napier (2013, 114–115).

describes the two religious settings I have studied as well as their simultaneous interpreting practices. Section 5 moves on to a discussion of my experiences of the interpreter's role in terms of feelings of involvement and detachment in these two settings, and the concluding section summarizes the contribution provided by this affective scrutiny.

2. Interpreter's role from an affective perspective

As stated above, the aim of this paper is to propose an affective perspective with which to examine the interpreter's role.[2] In this section, I discuss some of the earlier work conducted in Translation and Interpreting Studies on the interpreter's role, giving some emphasis on interpreting in religious settings. In addition, I contrast these earlier findings with my proposal of the affective perspective on role and attempt to point out the benefits of such an approach.

Previous studies focusing on the interpreter's role have paid attention to the intersubjective and social realities that give shape to how interpreters perform their role in interpreted interactions (e.g., Wadensjö 1998; Roy 2000; Bot 2005) and how interpreters themselves and the other communication participants perceive and negotiate the interpreter's role (Berk-Seligson 1990; Angelelli 2004b). As these and other studies have shown, interpreters in a variety of settings tend to assume a participatory role, taking part in guiding the flow of communication, despite the prevalence of the 'conduit model' in professional discourse and training that ascribes a non-involved, even invisible role to the interpreter (e.g. Diriker 2011). As Dickinson (2013, 136) points out for British Sign Language interpreters, this notion of "the interpreter as a neutral and detached 'passer on' of information" remains "deeply embedded" also in interpreters' self-perception.

Questions around the interpreter's role have also been considered in studies on interpreting in churches and other religious settings, even though this area of research is still relatively new. The studies conducted to date indicate that interpreters in religious settings are often expected to be involved, and in these mostly volunteer interpreting practices, the imperative of any professional distance, impartiality, or non-involvement does not seem to have had much influence. Rather, interpreters in religious settings have been observed to be involved on at least three levels: (1) socially, by having kinship and other close relations to the other

2. Throughout the paper, I use the concept of *affect* largely synonymously with *emotion*. Furthermore, my discussion of affect is decidedly sociological, as opposed to cognitive or physiological. For a more detailed theoretical discussion on affect from a sociological perspective in Translation and Interpreting Studies, see Hokkanen and Koskinen (2016).

participants (Karlik 2010) or by being members of the religious community in which they interpret (Kaufmann 2005; Hokkanen 2012; Balcı Tison 2016); (2) interactionally, by being involved in the co-construction of the interpreted sermon or other speech act (Vigouroux 2010; Downie 2014); and (3) spiritually, by personally receiving and supporting the religious messages they interpret (Balcı Tison 2016; Hokkanen 2016).

The studies conducted on the interpreter's role to date seem to have not concentrated much on the subjective experience of role, even though the conceptualization of role through *involvement* or *detachment* lends itself readily to an examination of affect. Indeed, Grbić (e.g., 2010) suggests that the negotiation of interpreters' social roles unavoidably generates subjective and affective experiences, such as "feelings of similarity and difference" (Grbić 2010, 114). In other words, whenever interpreters, together with the other communication participants, negotiate role, it triggers affective responses: different levels of familiarity, sympathy, foreignness, or even repulsion. Furthermore, the notion of involvement is regularly used in definitions of emotion. For example, sociologist Jack Barbalet (2002, 1) defines emotion as "an experience of involvement", which can be either positive or negative and varying in its intensity. On a similar vein, anthropologist Michelle Z. Rosaldo (1984, 143) maintains that "[e]motions are about the ways in which the social world is one in which *we* are involved" (emphasis in the original).

Approaching the interpreter's role from an affective perspective provides not only a more rounded view of the realities of interpreting (Barbalet 2002, 6; see also Furmanek 2006), insofar as one acknowledges the presence and influence of emotions in all human life, but such a perspective also allows for an examination of the ways in which both subjective and social aspects come to bear on the negotiation of the interpreter's role. Indeed, emotion has been described as "a necessary link between social structure and social actor" (Barbalet 2002, 4), because emotions are not only subjective and somatic but also fundamentally relational and social (Lutz and White 1986; Parrott and Harré 1996; see also Hokkanen and Koskinen 2016). In other words, emotions are dependent on subjective experiences and an individual's physiology, on the one hand, and on patterns of enculturation and an individual's material and relational environments, on the other. Furthermore, affect should not be seen in opposition to reason or cognition, but as an embodied mechanism of meaning-making by which individuals interpret their lived experiences (Wetherell 2012). Thus, along the lines of embodied cognition (e.g., Muñoz 2010; Risku 2010), an affective perspective combines internal processes to external realities and thus allows for the investigation of subjective, social, and material aspects as they come to bear on the phenomena relating to translation and interpreting, including the interpreter's role.

3. Method and research material

This section provides a brief introduction to the methodology I used and then discusses the research materials that I analyzed in the light of the interpreter's role. The materials were gathered in connection to my doctoral study on simultaneous church interpreting (Hokkanen 2016).

Autoethnography can be understood as ethnographic research that uses the experience of the researcher as a main component of the research design (Ellis and Bochner 2000). Thus, the position that researchers already have as social agents is not seen as a possible source of bias to be controlled, but as a source of data to be explored and examined (cf. Angelelli 2015). In autoethnography, then, researchers' subjective experiences are investigated in light of the social contexts within which they are embedded, commonly through a combination of introspection and cultural analysis (Chang 2008). Because autoethnographers are, by definition, involved in their object of study, their studies demand high levels of reflexivity: "constant (and intensive) scrutiny of 'what I know' and 'how I know it'" (Herz 1997, vii–viii). The researchers' involvement in their objects of study also highlights the situated nature of the knowledge produced in autoethnography; since the study is rooted in the experience of the participant-researcher in a single or a limited number of actual settings, the results are particular rather than generalizable (see also Tracy 2010 on the lack of generalizability in qualitative methods).

Similarly to affect, then, autoethnography also combines subjective experience and social understanding, which is why the methodology is often used to study emotional, even traumatic experiences (e.g., Ellis and Bochner 2000). To take an example of an autoethnographic study on interpreting, albeit not explicitly conducted within Translation and Interpreting Studies, Hurd (2010) provides an autoethnographic account of his emotional journey of negotiating his role as a part-time in-house interpreter with very little interpreting training at "Centerville" Hospital, USA. Using excerpts from his "translator's log", Hurd traces his painful experiences of wanting to belong to the "professional elite" represented by the medical staff, but being denied that sense of belonging due to the transient nature of his work. Thus, Hurd's study connects the emotions related to the precarious role of a (part-time and untrained) medical interpreter to the rigid hierarchies prevalent in the social setting of the hospital.

In keeping with the ethnographic tradition, the main method for gathering data in autoethnography is often the field journal, even though it is often complemented with other research materials. In my doctoral study, the field journal was the main source of data, and I also analyzed a document and a website produced by the church, as well as audio and video recordings of my own interpreting practice.[3] Taking fieldnotes is essentially a narrative practice (Emerson, Fretz, and Shaw 1995), in that it entails the verbalization and storying of experiences in the field, even if in fragmented form. Fieldnotes, then, do not offer a direct window into experience, but rather present expressions of experience (Bruner 1986) and, as such, they are socially conditioned in that they draw on social vocabularies and culturally available storylines with which to make sense of experience (Polkinghorne 1988; see also Hokkanen and Koskinen 2016).

The research materials I have analyzed for the purposes of this paper include two sets of autoethnographic fieldnotes. The first set is a field journal which I collected for my PhD research when interpreting in the Pentecostal Church of Seinäjoki (PCS), my home church, between 2011 and 2014. This journal included notes on my own experiences of interpreting in church and comments on other church interpreters' work (covering a total of 28 church services), as well as reflections, observations, and comments on the discussions I had with church interpreters and members (a total of 20 entries). During the PhD research, I also happened to be invited to interpret for another Christian organization within the Evangelical Lutheran Church of Finland, which I call here "The Finnish Lutheran Community" (FLC), and decided to write fieldnotes about my experiences there. This second set of fieldnotes analyzed here are those collected from the summer conference of the FLC in 2012 and 2013, during which I interpreted in a total of 10 services or other events. These notes were excluded from the doctoral study, because it focused on interpreting within Pentecostalism. However, for the present paper, I have analyzed these entries from the perspective of the interpreter's role and contrasted them with the rest of my research materials.

4. Social settings: Simultaneous interpreting in two religious contexts

In this section, I offer a brief description of the two social settings in which the interpreting experiences I examine in Section 5 below emerged. Since the present paper draws on an autoethnographic study, the discussion in this section not only describes the two settings from a general perspective but also from a personal viewpoint. Therefore, both my position in these social settings and my personal background come to bear on the phenomenon that I have studied. As a researcher of interpreting, I have been part of an academic community of Translation and Interpreting Studies, but I have also completed Master's-level studies in English translation and interpreting at the University of Tampere and worked as a freelance

3. Details on the research materials used in my PhD research in Hokkanen (2016, Chapter 5).

translator and interpreter for almost a decade, mostly part-time due to my Master's and doctoral studies, family life, and other work.

The first social setting that I analyze is the Pentecostal Church of Seinäjoki (PCS), my home church. The PCS offers simultaneous interpreting to visitors, exchange students, and recent migrants who cannot otherwise participate in the weekly Finnish-language services. I have functioned as an English interpreter, along with some four to eight other volunteers, who do not have professional interpreting training. In addition, the church has offered simultaneous interpreting into other languages, such as Russian and, more recently, Farsi and Arabic. In order to provide simultaneous interpreting, the main hall of the church has two built-in interpreting booths together with conference interpreting equipment. Upon request, the English interpreters are sometimes provided with the preacher's notes on the sermon, which include references to the Bible the preacher intends to make. If these notes are available to interpreters, they are provided shortly before the service; otherwise, the interpreters do not have access to any preparatory materials. Furthermore, the simultaneous interpreters in the PCS work alone, interpreting an entire service lasting from 90 minutes to two hours and including a variety of speech genres, such as announcements, prayers, songs, and the sermon.

As a Pentecostal church, the PCS exhibits certain typical features of Pentecostalism that affect the church culture and, therefore, the interpreting practice in the church. One such feature is the emphasis given to personal religious experience, which can be understood as an encounter with God that manifests itself either in the inner experience of the believer or in his or her outward circumstances (Nelson 2005; see also Stark and Glock 1968). In church life, this emphasis on experientiality can be said to have led to a preference for spontaneity, when believers have wished to leave room for the Holy Spirit to move freely in services without the perceived rigidity of formal liturgies (see Kärkkäinen 2001). This has clear implications on the types of speech that are interpreted in the services. First (apart from direct quotes from the Bible), the prayers, sermons, and other forms of speech are spontaneous and not prewritten word-for-word. Thus, while there is a lack of written materials for interpreters to prepare with, spontaneous speech tends to pose fewer challenges for interpreting than speeches read from paper. Second, the emphasis on personal experience also affects the volunteer interpreters' attitude when interpreting; even when providing a service to the church and to God, they may expect to have personal religious experiences during and through simultaneous interpreting in church (Hokkanen 2016). Naturally, the realization of this social expectation may vary across individual interpreters, but I would argue that it may nevertheless color their experience of interpreting in this church, because the interpreters are members of the church and, as such, highly familiar with such social meanings.

To return to the levels of church interpreters' involvement mentioned in Section 2 above, my position in the PCS covers all three levels: social involvement, interactional involvement, and spiritual involvement. I have been an active member of the PCS for some 15 years, apart from the few years I lived elsewhere. I have volunteered as a simultaneous interpreter in this church since 2009, but I have also been involved in many other volunteer activities there, such as singing in and leading a worship team, giving a few sermons, and overseeing the roster for the English simultaneous interpreters. I met my husband in the PCS and we have found several close friends among fellow church members. Furthermore, I continue to perceive the PCS as my spiritual home.

The second religious setting that I analyze in this paper is "The Finnish Lutheran Community" (FLC) and, more specifically, the national summer conference of the FLC, which is organized yearly. The FLC is part of the Evangelical Lutheran denomination, which, apart from single greater points of disagreement such as infant vs. adult baptism, adheres to a largely similar doctrine as does Pentecostalism. However, it differs most notably in terms of its somewhat more subdued church culture. For example, spontaneity in church services may not be perceived as equally valuable, as evidenced by an adherence to formally agreed-upon liturgy and the custom of having both sermons and prayers prepared in written form in advance.

The FLC summer conference is organized yearly and it gathers several thousands of Christians to services, panel discussions, seminars, and concerts over a weekend. In the years that I was involved in the English interpreting of the conference (2011–2013), the conference venue was situated in a different town in Finland each year, usually in a large indoor sports arena or tent. For simultaneous interpreting, the conference organizers provided a mobile conference interpreting system, including a transmitter and microphone for the interpreter and headset receivers for the listeners, who were mostly guests from abroad. However, there were no booths, and the organizers had not prepared to provide headsets for the interpreter, who interpreted each event alone. In one venue, the interpreter was provided with a table; in another, I was able to request a table, but in one of the venues, there was no possibility for a table to be provided for the interpreter. In all three years, the interpreters were volunteers, and none of the other interpreters I was in contact with had professional interpreting training. Since most of the speeches requested to be interpreted into English were pre-written, the conference organizers provided some of these for the interpreters in advance. Furthermore, the services during the conference followed the liturgy of the Evangelical Lutheran Church of Finland, of which the church has published an official English translation on their website.

My relationship with the FLC differs greatly from that with the PCS, described above. I have family members who are actively involved in the FLC, and I was initially recruited to interpret their summer conference through one such family member who was a member of the organizing committee in 2011. The doctrinal emphases of FLC are not unfamiliar to me, and I have occasionally attended their services, which has given me some notion of their church culture. However, even though I respect the community as a fellow Christian denomination, it is not my spiritual home, nor have I volunteered in its activities aside from the simultaneous interpreting of the summer conferences. I initially agreed to volunteer as an interpreter from an ecumenical spirit, wishing to serve our mutual Lord with the skills He had provided me with (see Hokkanen 2016). Nevertheless, as described in the analysis in the following section, my experience of interpreting for the FLC was not as deeply personal and spiritual as that of interpreting for the PCS.

5. The affectivity of involvement and detachment in simultaneous church interpreting

This section discusses the affective experiences of involvement and detachment related to simultaneous interpreting in the two religious settings described above. The discussion covers social factors, specifically as regards the religious nature of the settings, and material factors related to the working environment, and the ways in which the interaction between them and my personal history come to bear on my experience of the interpreter's role when interpreting in these settings.

5.1 Involvement (and detachment) when interpreting in the PCS

The portrayal of the interpreter's role that I derived from my autoethnographic study within Pentecostalism (Hokkanen 2016) is that of a deeply involved interpreter, covering all three levels of involvement discussed in Section 2 above (social, interactional, and spiritual). Thus, the normal expectation for me when interpreting in the PCS is that of feeling involved. The people whose speech I interpret, such as the pastors, are familiar to me and I am to them. I recognize and often exchange a few words with those listening to my interpreting. I come to church to interpret with an attitude that closely resembles how I would feel about coming to church on a regular Sunday: with an expectation to encounter God and be built up in my faith while hopefully being able to contribute to building up the faith of others.

Continuing from the description of the setting of the PCS in Section 4 above, certain social aspects in the church facilitate my feeling involved as an interpreter: specifically, aspects relating to church culture and displays of emotion. As mentioned, Pentecostalism highlights the importance of personal religious experience, and religious experience can be said to involve both "an internal narrative and an external performance” (Bowie 2003, 56). Both the internal and the external levels of religious experience are socially conditioned, because the narratives with which we understand the experience internally are drawn from culturally available stories (Nelson 2005), and the ways in which we learn to display emotions are learned in our enculturation into certain social groups (Parrott and Harré 1996). In the PCS, a musician, a preacher, or a consecutive interpreter standing on the platform next to the speaker may cry, evidently due to a personal religious experience, or a speaker may raise their voice in agitation or excitement. Such displays of emotion are processed by the simultaneous interpreters, as well, as they render those messages into English. However, being enculturated into that church environment, simultaneous interpreters may incorporate such emotional displays into their experience of God during interpreting, which further fosters their feeling of being personally involved.

As an example of an experience of feeling involved while interpreting, the following excerpt from my field journal shows how the roles of interpreter and participant coexist. The entry is dated on 27 June 2012.[4]

Example 1

> Pastor Hannu talks about how love preaches the gospel louder than anything else we do and how we need more of it. At the beginning of his speech, he asks people to stand up and pray for someone next to them for a few minutes and just bless them, showing love for them that way. During the prayer time, nobody prays in the microphone or speaks, so I mute my microphone and pray, myself. I see an old Romani lady standing outside the booth window and lift my hand towards her as I bless her. After the prayer, the sermon continues.
> […] During the last few songs, I’m silent as no-one seems to have their headphones on. I’m in prayer and even though I could join my husband in the hall, I just want to stay here. I felt that God spoke to me today, especially through the sermon, and I want to live closer to Him again. I feel joyful and grateful.

As illustrated by Example 1, my experience of the interpreter’s role in the PCS is one of involvement; I participate in the service through prayer and I personally receive the messages I interpret. Thus, my role as an interpreter is intermingled with my role as a participant, and this deeply involved stance allows for a personally meaningful and emotional experience to take place during the simultaneous interpreting act.

4. This and subsequent excerpts are my translations of the original Finnish field journal entries. The names of participants have been changed.

Indeed, the prevalence of accounts of feeling involved in my fieldnotes from the PCS is as striking as the absence of those of feeling detached. The closest resemblance to a feeling of detachment in the field journal from the PCS is recounted below in Example 2, the original entry dated on 15 August 2014.

Example 2

> Ever since the passing of a close relative a few weeks ago, I've felt a little paralyzed. When I went to interpret in church on Wednesday, I felt kind of exhausted, because I've had so many shifts lately. It turned out that interpreting wasn't needed until the last twenty minutes or so of the service, when an Indian lady I had talked with before came to ask for a headset. But still, I sat in the booth for the whole service and didn't go out to sit in the pew. I guess I enjoyed the solitude and peace, even though I would've liked to sing along during the worship. But even in the booth, God encountered me. We prayed together after the sermon and I felt the Holy Spirit work on my heart. It was a fresh start of sorts. But I was left thinking about the booth and the feeling of solitude and isolation it provides. Maybe it allowed me to feel like an observer. Or rather, it allowed me to spend time with God in the middle of the congregation but without feeling observed.

Even though it does not depict positive and engaged experiences, Example 2 is not a good example of a feeling of detachment. True, it describes my feeling detached from the social gathering in the service, but it also strongly links personal and spiritual experiences to the practice of church interpreting. The church's interpreting booth did not represent to me a place of work, first and foremost, where I would have needed to detach myself from personal issues in order to perform my duties as an interpreter. Rather, the material surroundings of the booth provided a place for a personal moment with God, a setting for a personal religious experience, which allowed me to continue working on personal issues instead of pushing them aside in order to fulfill the role of the interpreter.

5.2 (Involvement and) detachment when interpreting at the FLC summer conference

Unlike in the PCS, when I interpreted at the FLC summer conference, I entered a new working environment and a less familiar church culture and had to negotiate my role as a volunteer interpreter with the conference organizers. For example, before the first event in the 2012 conference, I came in contact with three of the organizers as I arrived at the venue. I introduced myself as the interpreter and asked where the interpreting equipment was. We also discussed my background as a church interpreter and as a professional translator/interpreter, which seemed to impress my conversation partners. However, our discussion mainly focused on the material set-up of the interpreter's working environment, rather than personal, let alone spiritual matters. Among other issues, I raised a question about the interpreter's microphone having a broken clip and the interpreter not having a table, in addition to requesting a receiver headset (which eventually could not be arranged). One of the organizers asked if I would like to have any of the speeches in printed form and I explained that it would facilitate my work greatly. During our interaction, I drew on the knowledge I had gained from negotiating with clients from professional interpreting events, and therefore experienced my role more as that of a service provider than a fellow participant.

However, I not only had to negotiate my role as an interpreter with the organizers of the FLC summer conference, but also with myself. Facing a slightly differing and, to me, less familiar religious setting in which to volunteer as a simultaneous interpreter, I found myself repeatedly reflecting on my feelings of involvement and detachment, as the model of the entirely involved interpreter that was most familiar to me in religious settings did not seem to fit into this new setting. In the following, I begin with social aspects pertaining to the church culture and then move on material aspects of the working environment, discussing their influence in this continuing negotiation of the experience of role.

As mentioned in Section 4 above, the church culture in the FLC differs from that of the PCS in that it may be described as somewhat more subdued and as not promoting the open display of emotions to an equally high degree. This difference in church cultures and my reactions to it as the interpreter were a recurring theme in the fieldnotes I gathered when interpreting in the FLC summer conference. Example 3 below is derived from a field journal entry dated on 7 July 2012.

Example 3

> In this and previous events I've noticed how different prayers are here than in a Pentecostal church. They are short and dispassionate, many of them even pre-written. I don't feel the same kind of spirit of prayer when I interpret these. And it also feels different to pray here – somehow cooler and more rational. It seems no-one's getting excited in these events. I still don't interpret in a monotone, but use a lively intonation in order to make the message clearer. But it's not like I would get excited myself or get any religious experiences here.

This entry shows not only a contrastive analysis of some characteristics of the source text that I interpreted, but also my feeling of detachment from the interpreted genre. The difference in church culture, evident in the more subdued style of public prayer, and the ensuing feeling of unfamiliarity led me to feel less involved in the prayer. It may be argued that I still participated in the prayer while interpreting it, even if it felt "more rational", but the experience certainly seemed to be engaging to a lesser degree.

As I mentioned, the working conditions in the 2012 FLC summer conference for simultaneous interpreting were not optimal, and they raised repeated feelings of irritation and distraction throughout the conference weekend, which further contributed to my feeling of being detached from the social event. Despite my request, the organizers were unable to arrange for me a headset, which meant that I had to sit among the audience in the large indoor sports arena, listening to the source text from the main loudspeakers in the hall. Example 4 below describes the final event that I interpreted at the 2012 summer conference, dated on 8 August. By this third and final day of the conference, after trying two other spots in the arena, I had found a place at the front row of the balcony on the long, wooden pews that did not have a backrest.[5] This part of the arena provided me with a good view of the platform and it was situated directly in front of a loudspeaker. In addition, there were not many people walking back and forth near me, like they had elsewhere in the arena. However, some people came to sit quite near me, which created somewhat of a distraction, as described in the example below.

Example 4

> This was a family service, so the arena was full and there were a lot of children. Luckily, not many people came to sit right next to me. I still had to constantly monitor my surroundings, and once I turned to ask for a family with three small kids to maybe try to keep it a little quieter. I tried to do it as politely as I could, because I don't think the people around me realized what I was doing there. I spoke in English into this small microphone taped to my cheek, but otherwise there wasn't anything that separated me from a normal attendant, by appearances at least. This being the third day of interpreting in less than perfect conditions, my voice seemed to be a little strained, but otherwise the interpreting went fine. Somehow it all felt external to me, though. All the phrases and the vocabulary were familiar, but it didn't feel the same as interpreting at my home church.

As illustrated by Example 4, in the process of trying to make the best of the material working conditions I faced in this setting, I felt that I had to take initiative and protect my role as the interpreter, so that I would be able to render the service asked of me. Thus, I created a distance between myself and the other participants, both socially (by pointing out to the other participants that I was trying to interpret the service) and internally – by taking on the role of a service provided

5. My husband was with me at the conference and he saw to the receiver headsets on the ground level.

with expert knowledge as regards explaining the optimal working conditions in simultaneous interpreting for the conference organizers. This distance increased my feelings of detachment and externality.

The feelings of detachment and externality were also evidenced by my lack of participation in the religious practices at the FLC summer conferences. Example 5 below describes one such instance of non-participation at the 2013 conference, dated on 7 July.

Example 5

> I ended the interpreting of the service as the Holy Communion started, like I had agreed with the conference organizers. There were hundreds of people lining up to share in the bread and the wine and there wouldn't be much to interpret during it. As I was heading out from the venue, passing the long lines of people and thinking about lunch, it occurred to me that maybe I should've also joined in the Holy Communion. I hadn't even considered it. It's not like there were any theological or spiritual reasons for why I couldn't do it, but I somehow felt aloof. Kind of like being somewhere else.

The fact that my consideration to participate in a fundamental Christian practice such as the Eucharist was somewhat of an afterthought indicates that, in this setting, I had internalized more of a detached interpreter role instead of the fully involved co-participating interpreter role that I would usually assume when interpreting in a religious setting. However, as the discussion in this section has attempted to suggest, the experience of the interpreter's role in a religious setting is affected by personal, social, and material aspects that together contribute to varying feelings of involvement and detachment, leading to varying levels of the interpreter's participation.

6. Conclusions

The purpose of this paper was to propose an additional, affective perspective to the examination of the interpreter's role. The analysis focused on the experience of the interpreter's role, more specifically, on feelings of involvement and detachment. The discussion was based on autoethnographic fieldnotes that were collected in connection with my experiences of volunteer Finnish-to-English simultaneous interpreting in two different religious settings.

The analysis presented in this paper indicates that while an internalized ideal model of the interpreter's role in a certain setting may provide a point of reference for reflection, the actual experience of role emerges in a complicated interaction between personal, social, and material aspects. In the first religious setting analyzed here, my experience of role was that of a completely involved participant-interpreter, which is also the most prevalent role model mentioned in the literature on church interpreting to date (see Section 2). Having internalized this 'default' role model, my experience of the interpreter's role in another, less familiar religious setting was perplexing in terms of the feelings of detachment it generated; I felt less like a fellow participant and more like an outside service provider. It is important to note, however, that the analysis focused on the subjective experience of role, not on the performance of role. Therefore, despite the positive, even if scant, spontaneous feedback I received from listeners in both religious settings, the discussion in this paper cannot provide evidence of audience expectations or satisfaction related to the interpreter's role in these settings.

The discussion in this paper, nevertheless, points to the research potential provided by emotions; far from being merely expressions of personal idiosyncrasies, emotions and their ethnographically oriented scrutiny allow for an examination of translation and interpreting phenomena that takes into account the embeddedness of agents and their activities in social and material realities. The purpose of this paper was to suggest an additional perspective to the study of the interpreter's role, and I hope that by combining this affective perspective, which focuses on the subjective experiences and emotions of interpreters, with perspectives on role that highlight role expectations and performance, we may arrive at a more holistic understanding of interpreters' roles in different social settings.

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Investigating the cognitive ergonomic aspects of translation tools in a workplace setting

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This paper reports on an empirical study that investigates the translation process in the workplace from a cognitive ergonomic perspective. In particular, the interaction between ten translators employed by a language service provider and the tools they deploy are examined. To that end, we recorded the translators' workplace activities using keystroke logging, screen recording and eye tracking, combined with short retrospective interviews. We analysed their behaviour in terms of how they switched between the two screens on their desks, how they used different tools and where they invested their visual attention. Data related to productivity and quality are also presented. Among other findings, our data reveal that validation searches for terms and general expressions lead to considerable tool and task switching among professional translators.

Keywords: translation technology, CAT tools, memoQ, cognitive ergonomics, human-computer interaction, terminology search, workplace study, eye tracking

1. Introduction

1.1 Cognitive ergonomics

In 2011, an entire volume of the online journal *ILCEA* was dedicated to translation and ergonomics.[1] Lavault-Olléon (2011, 19) explains the notion of ergonomics in these terms: "*Dépassant largement la conception restreinte qui la limite à l'étude de la hauteur des tables ou à la forme des boutons, l'ergonomie mise d'abord sur la prédominance du facteur humain et sur le besoin d'adapter le travail à l'homme et non le contraire*" [Far exceeding the restricted notion that limits it to the study of

1. *Revue de l'Institut des langues et cultures d'Europe, Amérique, Afrique et Asie* (http://ilcea.revues.org/)

https://doi.org/10.1075/bct.105.05tei

table heights or button shapes, ergonomics focusses primarily on the prevalence of the human factor and on the need to adapt the work to the individual and not the opposite].[2] By the same token, ergonomics has a double goal of bringing together two (often opposing) rationales ("*logiques*"): on the one hand, a rationale based on the well-being of the individual (safety, health, comfort, job satisfaction and user-friendliness of objects and products); on the other, a rationale based on system performance (efficiency, productivity, reliability, durability, etc.). The cause-effect relation between those two rationales is expressed in the formulation of the ergonomic compromise: we perform better when we feel better (*"on est meilleur quand on est mieux";* Lavault-Olléon 2011, 21). Finally, the author (2011, 23) highlights that "the translator's activity involves a set of complex cognitive operations ("*L'activité du traducteur comporte un ensemble d'opérations cognitives complexes*") and she calls for further studies to:

> *montrer quelles stratégies de remédiation sont mobilisées par les sujets pour s'adapter à leur nouvel environnement (que ce soit la traduction de segments sans contexte ou l'utilisation d'outils peu conviviaux, par exemple). Elles peuvent aussi mettre en évidence le besoin d'adapter les outils à leurs utilisateurs, et donc la nécessité pour les concepteurs de logiciels de consulter les traducteurs, ce qui n'est malheureusement pas toujours le cas.*
> [show which coping strategies are mobilised by the subjects to adapt to their new environment (be it the translation of segments without context or the usage of tools that are not very user-friendly, for example). Those studies could also highlight the need to adapt the tools to the users, and hence the need for software developers to consult with translators, which is unfortunately not always the case.]
> (Lavault-Olléon 2011, 37)

Brunette and O'Brien (2011), in that same *ILCEA* issue, describe how current workflows require that translators "alternate, in the same text, between repairing fuzzy matches [from translation memories], repairing machine translation output, searching for terminology and often also translating texts from scratch" (2011). This switching between different activities or translation subtasks is expected to increase the cognitive load of translators/post-editors, especially when the tools present translation memory (TM) matches, machine translation (MT) suggestions and terms using different methods (e.g., inclusion of metadata for TM vs. virtually no metadata for MT; translation suggestions and terms displayed in different places within the tool). The authors call for increased research on this topic and for placing the translator and the concepts of cognitive ergonomics at the centre of tool development efforts.

2. Our translation here and throughout.

Dragsted (2006) describes the translation done with the aid of TM systems as an instance of distributed cognition, whereby a translator interacts with an artefact (a translation tool), and possibly with other translators (who might have helped build the translation memory), through the artefact. Although her study focusses on TM, the notion of distributed or collaborative cognition that she borrows from Harnad (2005) could certainly be extended to embrace workflows that include MT, as an MT engine is created by other humans and is based on corpora produced by yet other humans.

TM and MT are forms of computer-aided translation (CAT) and should be designed in such a way that they aid cognition and do not become a potential source of *cognitive friction*, a concept initially proposed by Cooper (2004) in the context of software design. Cooper (2004, 19) originally defined it as "the resistance encountered by a human intellect when it engages with a complex system of rules that change as the problem changes". In translation studies, the term was instated by O'Brien (2012, 110), who suggested that it would include "the tension between translators and computers." It was then further explored in Ehrensberger-Dow and O'Brien (2015, 102), who defined it as a disturbance of the translation process "flow".

1.2 Workplace studies

Risku (2014, 349) proposes to widen "the scope of cognitive research to translation […] from mental to socio-cognitive aspects". Her idea is to complement the "mainstream" TPR approaches – based on the "behavioural sciences, especially [on] psychology" (Risku 2014, 331–333) – with developments in the area of cognitive sciences, which consider "the interaction between translators and their environments and the resulting dependencies" (Risku 2014, 336). This approach entails the need to conduct empirical research in the workplace, as opposed to in a laboratory setting. The issue with the laboratory setting is that: "we wish to observe what professional translators 'normally' do, but we remove them from their 'normal' work environments in order to do so" (O'Brien 2010, 253–254). Ehrensberger-Dow reinforces the importance of workplace-based studies when she states that "[u]nderstanding the situated activity of translation obviously requires investigating professional translation activity *in situ*" (2014, 358, italics in the original).

Notwithstanding those stances in favour of workplace studies, there are also many challenges related to studying the translation process in a relatively uncontrolled environment. Some of those challenges involve the technical complexities of eye tracking (O'Brien 2010), the need to find a balance between ecological validity and data accuracy when connecting research equipment to the translators' computers (Teixeira 2014a), and the ethical issues that arise when recording the translation of real data from commercial companies (Ehrensberger-Dow 2014).

1.3 CAT tools

The study presented here hopes to fill a gap in existing research in our field, which was indicated by Ehrensberger-Dow and Hunziker Heeb (2016, 70): "Despite its obvious importance, the impact of the physical conditions of the translation workplace, including language technology, on the cognitive aspects of the process is still relatively under-researched". One aspect of the translation process that we will look at is the translators' interaction with different software and hardware. This is deemed to be of relevance because "external representations are not simply inputs and stimuli to the internal mind; rather, they are so intrinsic to many cognitive tasks that they guide, constrain, and even determine cognitive behavior" (Zhang 1997, 180, cited in Dragsted 2006, 445).

1.4 Expected contribution

The current study is an attempt to address two main topics mentioned in the previous sections. First, the need to take translation process research to the workplace, in order to analyse some of the factors involved in translators' extended cognition (cf. Risku, Windhager, and Apfelthaler 2013). As such, one of the goals of the current paper is precisely to engage in the "discussion of good practices of applied translation process research", suggested by Ehrensberger-Dow (2014, 359).[3] Second, Brunette and O'Brien's (2011) call for increased research on (cognitive) ergonomics, as the cognitive aspects of the interaction between translators and technology constitute the background to our exploration here.

In the following sections, we start by describing the setup and the conditions of our study, as it would not be possible to report on workplace research without mentioning the methodological challenges involved. Then we explain how we collected and processed the data from different sources. Some of the resulting data and corresponding analyses are presented next, followed by a discussion of our findings and ideas for future research in the concluding section.

3. Ehrensberger-Dow's (2014, 378) own recommendations for best practices include choosing the partner company correctly, spending some time at the company premises before the project begins to anticipate problems and complications, allowing enough time for the installation of research equipment and software, and making all the necessary arrangements to guarantee confidentiality and the anonymity of research participants.

2. Study setup

Though there is increasing attention in recent years on observing translators' practices in the workplace, there are still only a few studies with published results, as outlined in Section 1. The aim of the study described here was to extend that research and to focus specifically on professional translators' interactions with computer-aided translation (CAT) tools. This was a first stage in a longer-term project that seeks to investigate the cognitive ergonomics of CAT working environments, with a view to developing recommendations for optimising the tools.

As a first stage, the nature of the study was more exploratory than controlled. Ecological validity was of high importance, so the study was conducted with translators in their normal workplace at a language service provider (LSP), in collaboration with a consistent client of that LSP. The translators were working on their usual computers, using text and tools that would normally be used for that client. Language-specificity was not relevant, so while the source language was always English, the target languages varied.

2.1 Participants

Ten translators took part in our study, seven female and three male, with ages ranging from 26 to 64 (median 33.5). They had worked as translators for 2.5 to 35 years (median 7.5) in total, and for 1.5 to 20 years (median 5) for Alpha CRC, the LSP where the study took place. They all had experience translating material from Intel Security, the client that provided the material for the study, and using memoQ, the main translation environment tool used during the observed task. They had also had previous experience post-editing MT or translating files that combined MT and TM. The translators worked from English into their native language, which was one of the following: Brazilian Portuguese (BR), German (DE), Spanish (ES), French (FR, two translators), Italian (IT), Dutch (NL), Polish (PL) and Swedish (SV, two translators). They were paid their regular hourly rates – comparable to rates for a typical translator in that area – for performing the tasks in the study.

Table A.1 in the Appendix shows the demographics of the study participants. In order to ensure the anonymity of participants when reporting our results and considering the size of our sample, we will not establish a correspondence between any of the demographic data and the participant numbers, which will be the only method we will use henceforth to refer to the translators in our study.[4] For this reason, we will not be able to mention information that would have been useful otherwise, e.g., the target language corresponding to the results we are reporting.

4. Ethics approval for the research was awarded by the DCU Research Ethics Committee.

The information in Table A.1 was sorted by the language code and does not correspond to the order in which participant numbers were attributed.

2.2 Translation tasks

Each translator was asked to translate a document containing 759 words (58 segments), which was included as a file in a memoQ project together with other files.[5] The source file was partially pre-translated (around 70% of the segments) using machine translation. For the remaining segments, there was either a match from the translation memory (around 25% of the content) – ranging from 75% fuzzy matches to exact matches – or there were no translation suggestions at all. The exact proportion of MT and TM content varied slightly depending on the target language. The source files, the machine translated content and the translation memory were authentic and provided by Intel. The machine translations were generated using Intel's commercial implementation of a statistical engine that had been trained with product-specific terminology and was used in production for regular projects in the company. In addition to Intel's pre-translated MT, the translators were allowed at their will to switch on an in-house MT plug-in developed by Alpha CRC's MT team, which provided MT suggestions for every segment. Participants were also allowed to add any glossaries and to consult any references during the translation, as they would normally do for Intel assignments.

The source text used for the translation tasks was the documentation of a smartphone application called Intel Battery Optimizer. Translators were given around 30 minutes to complete the task, but were not obliged to finish translating the entire file by that time. This period of 30 minutes was established as a compromise between minimising the interruption to the translators' regular work during office hours while at the same time providing enough data for the purposes of our study.

2.3 The translation tool

memoQ is the main tool used at Alpha CRC and therefore was chosen as the focus of our recordings. In fact, the only instance when memoQ was not used in the company was when a client explicitly requested that a different tool be used.

5. One participant was given a file containing 356 words instead, before we realised that file did not have a reasonable distribution of fuzzy matches that would allow us to analyse the use of MT and TM in a comparable way. Although the file she translated was shorter than the file translated by the other participants, this translator was not eliminated from the study.

memoQ had been in use in the company for around two years, replacing an alternative mainstream CAT tool used up until that point.

Figure 1 shows the tool interface with its default configuration. At the top, there is a 'ribbon'-style toolbar. Then there is an area for displaying the source segments, an area for editing the target segments, an area for displaying the translation suggestions for the active segment (called 'Translation results') and an area for displaying the metadata related to the active suggestion (below the translation suggestions). Additional metadata about the segments are displayed in different areas of the tool, as will be explained later (see Figure 3). Finally, memoQ also includes a View pane, a multi-purpose, dynamic area that can be deactivated completely, leaving more room for the source and target columns.

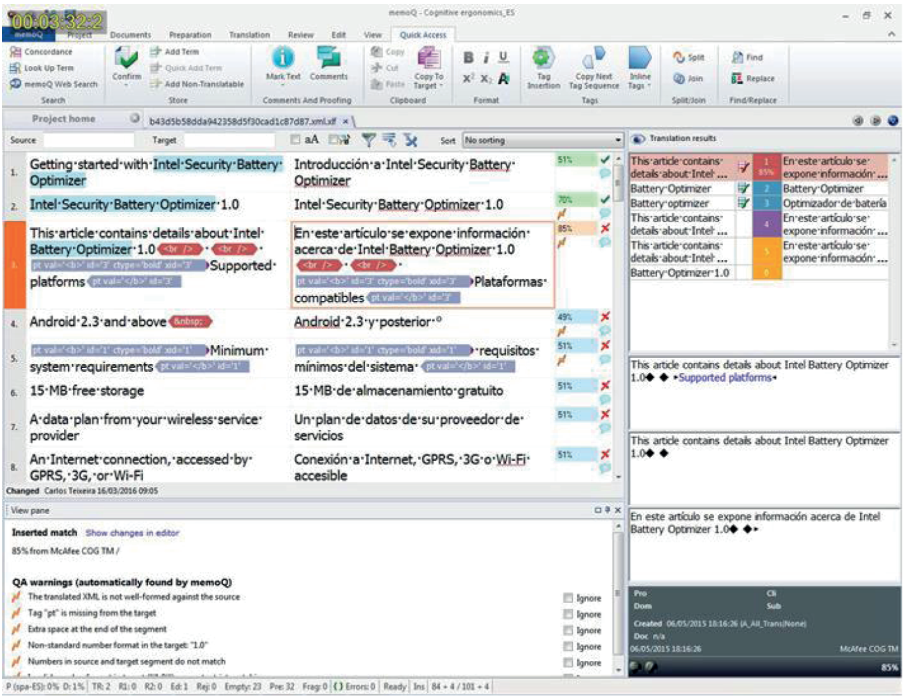

Figure 1. The memoQ interface with its multiple panes.

3. Data collection and processing

The translators' activities were recorded with BB FlashBack (Teixeira 2014a, 272–273), Inputlog (Leijten and van Waes 2013) and SMI Experiment Center, the recording software for the SMI mobile eye tracker used during the task. This allowed us to record most of the key presses, mouse movements and clicks, facial expressions, ambient sound and gaze behaviour on one of the screens. Since the translators were using their usual setup of two screens, and our eye-tracker model – like most eye trackers – was only capable of recording gaze data on one of the screens, we chose to eye-track the screen where memoQ was installed. BB FlashBack was used to record both screens, so that we could keep a record of the activities performed by the translators on the second screen. Figure 2 illustrates the study setup with the data collection equipment connected to one of the translators' computer.

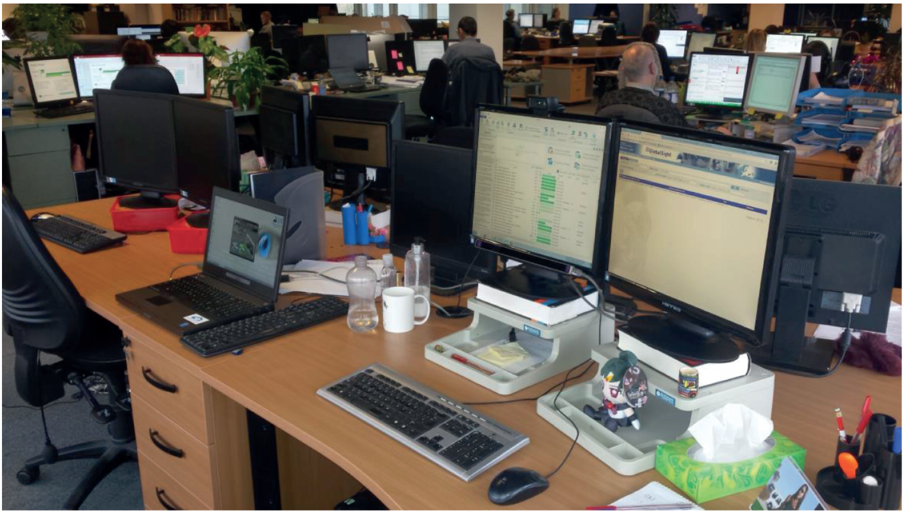

Figure 2. Image of one of the translators' desk, showing the two screens, the eye tracker under the left screen – where memoQ was used by this translator – and a webcam above that screen to record the translator's body movements, facial expressions and sounds.

The eye tracker model we used was a REDn Scientific from SensoMotoric Instruments (SMI) operating at 60Hz. BB FlashBack Express 5 Recorder, Inputlog 7 and SMI Experiment Center 3.6 were running on the participants' computers, but in order to alleviate the processing load on their computers, SMI iView was running on a dedicated laptop, which communicated with the eye tracker through an Ethernet connection (one of the standard configurations recommended by the manufacturer).

After the main translation task, the translators were interviewed for 8–16 minutes, to help understand how familiar they were with the task they had just completed, how they could tell apart the different types of suggestions offered by the tool, whether they changed any configurations in the tool and if they were unsatisfied with any particular aspect of the tool. The interviews were done in English and followed a semi-structured script. Although we do not present an explicit analysis of the interview data here, we use those data as background to help understand and interpret some aspects of the translators' interactions with the tools.

4. Results and analyses

4.1 Basic hardware and software

The first step in our analysis was to map how the translators used the hardware and software at their disposal. As far as the hardware is concerned, all translators were using desktop computers with at least 4 GB of RAM and quad-core processors with varying processing speeds. All translators had two screens, each of them 19 inches in size with a resolution of 1280 × 1024 pixels. They had different mouse and keyboard layouts according to their personal preferences and input languages. As for the software, all the computers were running Windows 7 Pro or Enterprise in English as their operating system.

4.2 Use of tools

memoQ was the main tool used by the participants in our study, both for producing their translations and for searching for terms and expressions through the memoQ *Concordance* feature. Most of the times, the feature was accessed by highlighting text in the source segment and pressing Ctrl+K, which would bring up a window with the matches in the memory that contained the selected expression.

The motivation for using other tools outside of memoQ during the recordings was primarily the same: to consult external resources to check the translation of terms, phrases and general words. A complete list of the tools is presented in Table 1. The 'primary' tools are those directly related to the translation task and actively used by the translators. The 'secondary' tools were open during the task, but were either not directly related to the task or were not deliberately invoked by the translators (e.g., Skype and email notifications, system messages such as those from Windows Update). The table does not include programs that were open on the computer but with which the translators established no interaction.

Most translators used a web browser (either Chrome or Firefox, as shown in Table 1) to consult different websites: GlobalSight, Microsoft Language Portal, WordReference.com, Linguee and TAUS Data Cloud Search. In addition to that, Participant 7 (P07) used Excel, P01 used Xbench and P04 used Babylon.[6]

6. P03 had also used Excel for terminology management in a previous task, but the translator did not interact with the tool during our entire recording although it was visible on the secondary screen.

Table 1. List of tools used by the translators during the recording in addition to memoQ

Primary tools	**P01**	**P02**	**P03**	**P04**	**P05**	**P06**	**P07**	**P11**	**P13**	**P15**
Firefox	•		•					•		•
Chrome						•	•			
Excel			•				•			
Babylon				•						
Xbench	•									
Secondary tools	**P01**	**P02**	**P03**	**P04**	**P05**	**P06**	**P07**	**P11**	**P13**	**P15**
Skype				•						•
Windows Explorer		•		•		•				
MS Outlook (email)				•		•		•	•	
MS Outlook (calendar)		•				•				
Notepad								•		
(OS system messages)									•	•

4.3 Consultation of information resources

Since the consultation of information resources emerged as the main task performed by the translators in addition to translation 'proper', we proceeded to analyse the actions related to this task. We excluded the data for P05 from this part of the analysis, as P05 worked on a different file, so her consultation needs were different from those of the other translators.

Table A.2 in the Appendix presents all the items searched for by each translator. It shows that 21 items were searched for two or more times while 22 items were searched for only once. Although the distinction between terms and non-terms is not without its difficulties, the table shows that at least some of the searches were performed for apparently common words and phrases (non-terms), such as 'and above', 'be controlled', 'controlled automatically', 'major' and 'referred (to)' (P11), or 'Overview of major' (P13 and P15). Even when the items were more specific (terms), in general the search behaviours indicate that the translators' motivation for consulting external resources were more related to identifying the client's preferences than to understanding the meaning of the expressions (e.g., 'Location', 'Vibration', 'Data connection', etc.).

Table 2 shows the number of searches per tool per translator. The first observation is that *all* translators used the memoQ Concordance feature for their term searches. In addition to this feature, many translators used GlobalSight and Microsoft Language Portal. There were also six additional tools that were used by only one translator each.

Table 2. Number of searches performed by each translator in different tools

	P01	P02	P03	P04	P06	P07	P11	P13	P15	TOTAL
memoQ Concordance	6	6	2	5	4	4	12	10	15	64
GlobalSight	–	–	4	–	7	–	5	–	–	16
Microsoft Language Portal	1	–	–	–	–	2	1	1	8	13
Xbench	10	–	–	–	–	–	–	–	–	10
Excel	–	–	–	–	–	6	–	–	–	6
Babylon	–	–	–	1	–	–	–	–	–	1
WordReference.com	–	–	–	–	1	–	–	–	–	1
Linguee	1	–	–	–	–	–	–	–	–	1
TAUS Data Cloud Search	–	–	–	–	–	–	1	–	–	1
TOTAL	**18**	**6**	**6**	**6**	**12**	**12**	**19**	**11**	**23**	**113**

The data in Table A.2 and Table 2 also indicate different search styles among the translators, not only in relation with the tools used for the searches, but also in terms of the amount and the type of expressions that were searched for. The majority of translators used one or two tools in addition to memoQ Concordance, although P02 used only memoQ Concordance and P01 used three additional tools. Some translators repeated the same search across multiple tools while others seemed to choose the tool according to the type of term, or at least they showed a sense of priority among the tools. At the same time, the recordings also show that the tool used for a new search tended to be the tool used for the previous search, as this strategy seems to reduce the need for switching between different windows.

Finally, we measured the time spent with the searches according to the different tools, as presented in Table 3. In the case of GlobalSight and Microsoft Language Portal, there is a challenge involved in calculating the time spent with an individual search, due to the long response time of the tools in certain cases. While waiting for the results to load, some translators performed other tasks (e.g., they continued to translate in memoQ or performed the same search in other tools). In some instances, because the translator had already moved to a different segment, the search results were not even looked at. Those cases were not included in the table.

Table 3. Average time per search on each of the search tools (in seconds)[7]

	P01	P02	P03	P04	P06	P07	P11	P13	P15	Avg.
Xbench	1.6									2
memoQ Concordance	1.3	3.5	4.2	4.2	3.1	3.4	2.2	3.4	2.7	3
Excel						7.0				7
GlobalSight			10.2		10.3		7.5			9
TAUS Data Cloud Search							11.2			11
MS Language Portal	12.9					9.1	12.3	19.2	12.9	13
Linguee	12.9									13
WordReference.com					21.4					21
Babylon				23.7						24

Table 3 shows that the searches performed with Xbench and memoQ Concordance were by far the fastest ones, whereas the searches performed with GlobalSight and Microsoft Language Portal – the two tools used the most often after memoQ Concordance (see Table 2) – lasted around three to four times longer. However, the results in Table 3 should be viewed with caution. First, because some tools were used only once and by only one translator, so it is not possible to identify general trends. Second, because other tools such as Xbench were used by only one translator, so even if they were used multiple times, the results reflect individual behaviour. Finally, because the time displayed for the on-line tools such as GlobalSight and Microsoft Language Portal does not include the periods during which the translators moved to other navigator tabs and application windows (while waiting for the results to load). In general, we suggest that the response delays in cloud-based technology could increase cognitive load, since the translator has to temporarily abandon the task and current context, move to a new segment and then return to the previous task when the online search is complete (if they remember to do so).

4.4 Use of screens

Another aspect that we analysed was the distribution of tools according to the screen where they were displayed by the translators and what was being done within the tools (e.g., sites for external consultation in the browsers), as shown in Table 4. In the table, the 'main screen' is defined from the operating system point of view, i.e., it refers to the screen where Windows displays the task bar (where

7. The numbers shown are for the harmonic mean, from the moment a translator activated the search to the moment s/he closed the results window or proceeded with the translation.

Table 4. Software elements used by translators on the two screens

	Main screen (Left)	Secondary screen (Right)	Eye tracking
P01	memoQ main window, memoQ Concordance, memoQ Term lookup, memoQ dialog boxes	Terminology (Xbench, Firefox browser for Microsoft Language Portal, Linguee), Firefox browser for project allocation	Left
P02	memoQ main window, email notifications	memoQ Concordance, Windows Explorer, calendar reminder	Left
P03	memoQ main window, memoQ Concordance, Terminology (Firefox browser for GlobalSight), memoQ dialog boxes, email notifications	Excel (with info not pertaining to the recorded translation task)	Left
P04	memoQ dialog boxes, Windows Explorer, Terminology (Babylon dictionary), Skype	memoQ main window, memoQ Concordance	Right
P05	memoQ main window, memoQ Concordance, memoQ dialog boxes	[Nothing]	Left
P06	memoQ main window, memoQ Concordance (sometimes moved to the secondary screen), memoQ dialog boxes	memoQ Concordance (sometimes), Terminology (Chrome browser for GlobalSight, WordReference.com), memoQ dialog boxes (some), email notifications, Windows Explorer	Left
P07	Terminology (Excel spreadsheet, Chrome browser for Microsoft Language Portal), memoQ Concordance, memoQ dialog boxes (some)	memoQ main window, memoQ dialog boxes (some)	Right
P11	memoQ main window, memoQ dialog boxes	memoQ Concordance, Terminology (Firefox browser for Microsoft Language Portal, GlobalSight, TAUS), Outlook main window, email notifications, Notepad	Left
P13	memoQ main window, email notifications, Windows Update	memoQ Concordance, Outlook main window	Left
P15	memoQ dialog boxes (some), memoQ Concordance, Terminology (Firefox browser for Microsoft Language Portal), Skype notifications, Windows system messages	memoQ main window, memoQ dialog boxes (some)	Right

the Start button is located). It is worthwhile noting that all translators had the left screen set as their main screen. This might be explained by the fact that the left screen is the default main screen when you choose to 'extend' your desktop in Windows, although this setting can be changed.

Seven translators worked with memoQ on the left/main screen, while three translators worked with memoQ on the right/secondary screen. Since we were interested in the interaction between the translators and their main CAT tool, we always installed the eye tracker under the screen where memoQ was used, as indicated in the fourth column in Table 4.

The subsequent step in analysing how translators used the two screens was to look at how frequently they switched between the two screens and how much time they spent on each of the screens. This information was obtained by combining data from eye tracking and screen recording and is summarised in Table 5.

Table 5. Number of shifts between the two screens and time spent on each of them

	Shifts between screens*		**Time on ET screen†**		**Time on NET screen‡**	
	Total shifts	**Per hour**	**(min)**	**%**	**(min)**	**%**
P01	26	49	31:14	*97*	00:53	*3*
P02	12	22	32:09	*97*	00:59	*3*
P03	0	0	26:30	*100*	00:00	*0*
P04	14	30	25:40	*93*	01:56	*7*
P05	0	0	21:35	*100*	00:00	*0*
P06	30	63	26:04	*92*	02:17	*8*
P07	33	43	44:34	*96*	01:55	*4*
P11	38	64	34:11	*95*	01:43	*5*
P13	27	47	28:28	*97*	01:02	*3*
P15	51	105	26:38	*91*	02:33	*9*
MEDIAN	–	45	–	*96*	–	*4*

* Includes shifts away from one of the screens then back to one of the screens
† ET screen is the screen that was eye-tracked
‡ NET screen is the screen that was not eye-tracked

Table 5 shows a great variation in the way translators used the two screens: on the one hand, some translators used only one of the screens during the entire recording; on the other hand, translators such as P15 and P11 switched between the two screens very often, with almost two shifts per minute in the case of P15. Looking at the data in more detail, we see that the number of shifts tends to decrease over the duration of the recordings, i.e., the shifts are more frequent at the beginning than at the end of the translation. This might be due to the fact that translators become more familiar with the terms after doing some initial searches, or it could be due to some accommodation strategy, where translators tend to avoid breaking the flow of the translation task, even at the risk of not confirming some uncertain terms or expressions. Further investigation would be necessary in order to explore those hypotheses, e.g., by looking at the occurrence of new terms towards the end of the file and the occurrence of translation errors.

Focussing on the time spent on each of the screens, two observations are worth making. First, that translators tend to spend most of their time on just one of the screens, as the translator who spent the longest time on the screen other than the one where memoQ was used (P15) still spent only 9% of her time on that screen. The second observation is that the frequency of shifts between screens and the time spent on the other screen do not correlate; for example, P11 shifted her attention twice as often as P04, still P11 spent less percentage time than P04 on her second screen.

Further analysis of the data reveals that the number of shifts depends on how many terms the translator searched for, on how many reference tools s/he used and on what screen that tool was located, while the duration of the shifts depended on the type of tool used, as explained in the previous section.

4.5 Gaze behaviour

As we have mentioned, one of the purposes of this study was to assess the cognitive ergonomics of CAT tools, and we used memoQ as a use-case. Figure 3 shows an example of how we defined our areas of interest (AOIs) in SMI BeGaze according to the different functions of each pane in memoQ, as described earlier: Source, Target, Suggestions, Metadata, Toolbar, View.

The AOIs were defined based on the recorded data; they were not defined prior to the recordings. We drew the same AOIs pictured above for all the participants, but the areas had to be resized depending on how those panes appeared for each of the participants, as translators tended to resize and customise those panes according to their preferences. Furthermore, only half of the participants chose to display the View pane.

Figure 4 shows how the ten translators distributed their visual attention on the memoQ interface according to the different AOIs.[8] Figure 4a shows that the Source, Target, Metadata and Toolbar AOIs covered virtually the same percentage of the screen visible area (around 18 percent on average). However, Figure 4b shows that most translators spent roughly half of their time looking at the target segment and

8. In the current discussion, only a descriptive method is applied, therefore no statistical analysis of the results is presented.

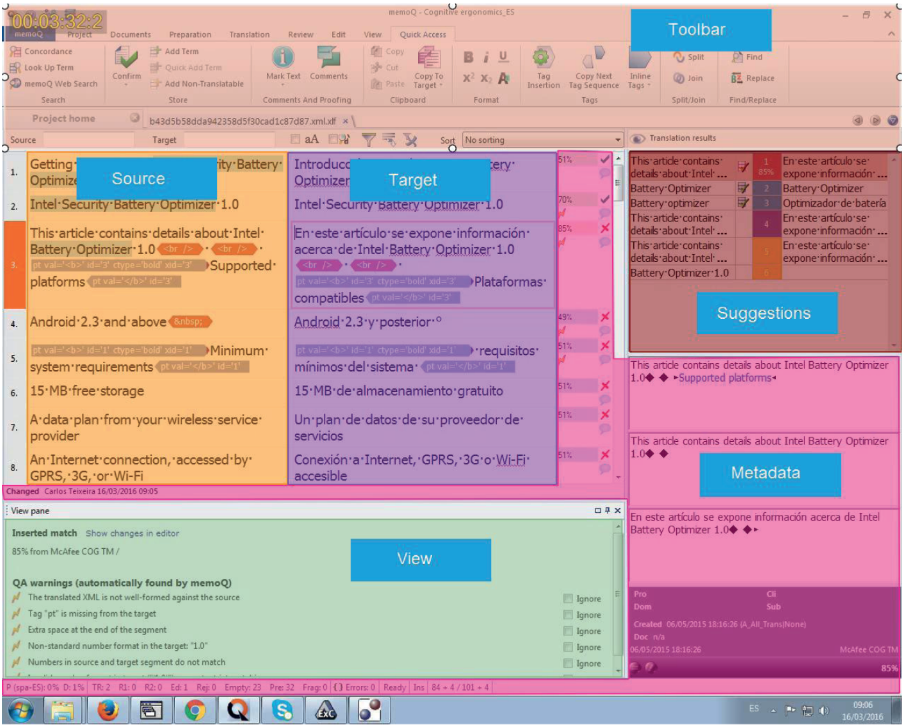

Figure 3. Areas of interest on the memoQ interface, drawn according to the different functions of each pane: Toolbar, Source, Target, Suggestions, Metadata, View.

less than 20 percent of their time looking at the source segment. Another quarter of their time was mostly spent outside of any of the AOIs ('Other'), including away from the screen, e.g., when they looked at the keyboard or at their second screen. The AOIs that include the translation suggestions and their corresponding metadata received a relatively low proportion of fixations (4 percent on average), even though those areas covered 25 percent of the screen when combined. Figure 4d shows that the average fixation duration was relatively similar across the different AOIs, with slightly longer durations on the target text and shorter durations on the View pane.[9]

9. The fixation threshold was defined at 80 ms, the default configuration suggested by SMI. For the purposes of the general analysis presented here, no eye-tracking data was discarded, as we deemed reasonable to assume that any data losses affected all AOIs evenly.

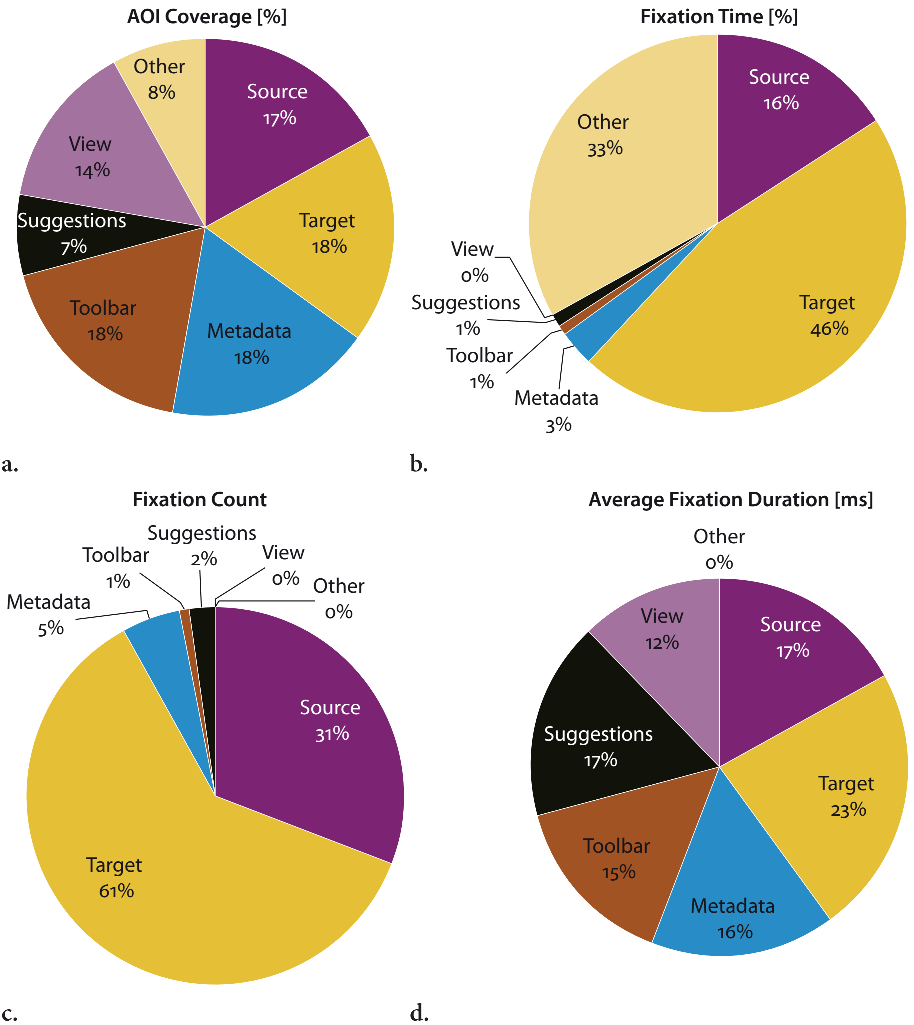

Figure 4. Eye-tracking data according to the areas of interest (mean values).

An interesting finding that emerges from the results in Figure 4 concerns the role of metadata. In the interviews, the translators consistently said that the metadata are very important information, especially when dealing with translation memory matches. If this is really the case, then the combination of a small number of fixations (Figures 4b and 4c) and 'normal' fixation duration (Figure 4d) on the Metadata AOI might indicate that translators pay attention to the metadata for long enough to make a decision, but the nature of the information in the metadata is such that translators do not need to fixate on it many times.

4.6 Productivity and quality

For calculating the translators' productivity, we divided the number of source words actually translated during the recording by the time spent on the task. The exact recorded time was different for each translator as it depended on several factors, including the translators' availability for exceeding the 30-minute goal. Time spent with interruptions and distractions were *not* discounted from the calculation, as we assumed that those events would also happen during normal work assignments.

Productivity rates ranged from 636 words per hour (P11) to 1299 words per hour (P13), which corresponds to a difference of 104 percent between the fastest translator and the slowest translator. The differences between the translators did not seem to depend on the language pair, the running of quality assurance (QA) checks and the use of the in-house MT plug-in (see Section 2.2), although our data are not extensive enough to make any definite claims about those variables.[10]

Productivity rates from all translators as a whole were very high compared to the standard average reported in the industry of around 400 words per hour (based on a hypothetical daily throughput of 3,000 words over a period of seven to eight working hours for translation done without CAT tools). In order to check whether the much higher speed achieved by our participants had an impact on the translation quality, Translation Quality Assessment (TQA) tests were performed on the translated material by an LSP other than the one where the translations were done. This second LSP was the regular vendor for this type of assessment for Intel and all the communication regarding the TQA process was handled by Intel themselves.

The evaluation resulted in low quality scores (FAIL) for all translators except two (P05 and P07). When interpreting this apparently unexpected result, it is important to remember that we recorded a snapshot of a translation process, which did not always include the complete translation of a file. P05 and P07 were the only translators who had the time to translate an entire file *and revise it*, which might explain the much better quality of their translation (PASS score). This is not surprising if we take into account the results from previous studies that have shown that professional translators tend to draft quickly and then come back to their translation and revise it (Jakobsen 2002). In this sense, the results we obtained might be just a confirmation of this strategy and of the importance of self-revision and QA for the final quality. This also points to the possibility that post-editing MT output still requires a revision pass in order to achieve acceptable quality.

10. In order to preserve the anonymity of our participants, we cannot make individual observations related to language pairs, as there were only one or two translators per target language.

5. Discussion and conclusion

Running a relatively uncontrolled experiment, as was the case in our study, has the advantage of capturing the translation process in a form that is closest to how it happens in the real world. Another advantage of a workplace study is that it lets participants feel more comfortable than they would be in a laboratory setting. We had some indication of this when analysing our recordings, given the relaxed way in which some of the participants were sitting, some yawns and intentional interruptions. For example, one of our participants spent seven minutes (divided into four breaks) interacting with her smartphone. She might have had to respond to some urgent matters, or she might have decided to install the mobile app being translated on her own phone to check how the texts would appear in context. Rather than delve into the reasons why she used the phone during the translation, we highlight this phenomenon as a good illustration of natural behaviour that is unlikely to be found in recordings done in a lab.

To our knowledge, this is the first study to include a setup that has become more and more prevalent among translators, i.e., the use of two computer screens. Standard eye-tracking technology can only track one screen at a time, but we needed to know what the translators were doing when not fixating on the eye-tracked screen. The solution we employed was to complement the one-screen eye tracking with screen recording of both screens. This certainly complicated the data analysis, but we considered it a better solution than the alternative of asking translators to use only one screen (even if of a bigger size to compensate for the loss of screen real estate). The alternative would have entailed a change in their working habits that we considered to be too significant for our purposes, i.e., it would have compromised the naturalistic conditions we were trying to preserve.

Our data indicate that the consultation of information resources accounted for a considerable number of shifts between different areas, tools and screens. If we hold to the assumption mentioned in the introduction that switching attention between different activities or translation subtasks increases the cognitive load of translators, then our data indicate that consultation is one of the activities where this load is highest. Delays in search results through online resources also contribute to the need for attention switching and, potentially, to cognitive load. This is also valid if we see the switching between activities as interruptions of 'cognitive flow', which would again place those as potential causes of cognitive friction. Of course, task switching may not necessarily be disruptive and may in fact be facilitative of the cognitive process. Nonetheless, one of the main advantages of CAT tools is that previously translated material is available in the translation memory and glossaries are integrated into the user interface. As such, it should not be necessary to check resources as extensively and in so many tools as we have observed here. The fact that 70% of the segments were machine translated may account for this extensive search behaviour and points to the fact that terminology quality control and validation is even more important when MT is being deployed.

The data presented here is a subset of the data we obtained in our recordings, and our selection illustrates the wealth of information that can be obtained from multiple sources in such a study. A further analysis of the data could, for example, explore the evolution of search patterns as the translation progresses (as we have noted, translators tended to search more during the initial minutes) and consider how tools could better support terminology lookup in general and the historical data on term lookup (e.g., the tool could display the solution selected by the translator in a previous search for the same term).

Although we do not perform an analysis of the translation process at the textual level at this stage, we acknowledge the importance of studying TM and MT operating together to understand the potential cognitive impact posed by working with those different types of suggestions (cf. Brunette and O'Brien 2011, as mentioned previously). This is another area that is in need of more research, as only a few studies have looked into how professional translators work with TM and MT in a commercial CAT tool under real-world conditions (cf. Federico, Cattelan, and Trombetti 2012; Teixeira 2014b). The data we collected allow for such analysis as well, but this remains outside the scope of the current paper.

Some other questions have also emerged from our findings. For example, despite the time spent jumping between areas of interest, tools and screens, the translators were nonetheless very productive, so a question that remains to be answered is whether it is reasonable to expect the translation process to become any faster. Or should tool development efforts focus on making the tools and processes more ergonomic? For example, our eye-tracking data indicated that the translators spent the most time on the target text box in memoQ, so should translation tools have a bigger target area by default? We also identified different individual behaviour in most of the aspects we analysed, so should the tools include more personalisation possibilities?

Additional avenues to be explored include the role of pauses and interruptions, the amount of tool customisation, measurements of cognitive load from the eye-tracking data or even an ethnographic analysis (cf. Risku 2014) of tool usage and of the translators' perception of technology from the data in the post-performance interviews.

From an organisational point of view, it is interesting to note that translation tools can have different impacts within the organisation and that tool selection is influenced by organisational constraints. While translators mentioned the many advantages of memoQ for the individual translators in terms of functionalities and ease of use, the lead MT expert at Alpha CRC said the reason why the company chose memoQ as their main tool was because of its project management capabilities, not because of the translation interface. The process gets streamlined over the server, without the need to move files around. This kind of data allows us to consider the role of the organisation and its impact on cognition at the translator's desk(top).

As mentioned, the study reported on here is the first stage of a larger project. The main purpose of this stage was to describe tool usage and explore different angles of data analysis. These results will inform the design of a more controlled study in the second stage, where we plan to experiment with specific tool features in order to identify how tools can be made to better facilitate cognitive processing.

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Appendix

Table A.1 Demographic data about participant translators

Language code	Age (years)	Gender (male/female)	Experience as a translator (years)	Experience at the LSP (years)
BR	35	M	5	2
DE	27	F	7	3
ES	32	F	8	7
FR	30	M	7	7
FR	26	F	5	2
IT	57	M	35	10
NL	45	F	20	20
PL	32	F	9.5	1.5
SV	64	F	20	8
SV	37	F	2.5	2.5

Table A.2 List of all terms and expressions searched for per translator

Terms	P01	P02	P03	P04	P06	P07	P11	P13	P15	TOTAL
Screen timeout	2	1			2	3	2	1	4	15
cloud intelligence	4	1	1	1	1		1		2	11
Auto Rotation	1	1	1				1	1	2	7
Location	2	1			1	2	1			7
timeout			2				1	1	2	6
Data Sync	1	1		1	1		1			5
Data Connection	1					1			2	4
power-consuming	1					1		2		4
referred to							4			4
Volume level	1	1	1		1					4
CPU usage								1	2	3
Intel Security Battery Optimizer						2			1	3
battery life							1		1	2
Close apps and extend					1	1				2
floating								2		2
intelligence					1				1	2
NFC	2									2
Overview of major								1	1	2
referred				1			1			2
Vibration	1		1							2
wireless service provider			1					1		2
accessed by								1		1
and above							1			1

Table A.2 (*continued*)

Terms	**P01**	**P02**	**P03**	**P04**	**P06**	**P07**	**P11**	**P13**	**P15**	**TOTAL**
be controlled							1			1
cloud service						1				1
controlled automatically							1			1
data plan									1	1
deplete					1					1
Extend more					1					1
floating notification							1			1
free storage						1				1
Getting started with									1	1
Intel Battery Optimizer				1						1
local apps									1	1
major							1			1
Minimum system requirements									1	1
Reports on									1	1
Screen brightness							1			1
sensors					1					1
Supported				1						1
Supported platforms				1						1
top power consuming					1					1
wireless service	1									1
TOTAL	**17**	**6**	**7**	**6**	**12**	**12**	**19**	**11**	**23**	**113**

Socio-technical issues in professional translation practice

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According to the International Ergonomics Association, a focus on organizational ergonomics recognizes that people work within socio-technical systems that encompass tools, equipment, and computer interfaces as well as other actors in their professional environment and networks. In recent research, we have started investigating such socio-technical factors from an ergonomic perspective. Observations at professional workplaces, responses to questionnaires, and in-depth interviews with translators suggest that their perceived self-determination is more important to the success of socio-technical change than the technological developments themselves. A lack of involvement in decision-making at the workflow level may explain why so many translators have been resistant to taking new technology on board. We discuss how a feedback culture could mitigate many socio-technical issues by giving translators a voice in change and empowering them to contribute to organizational learning and growth.

Keywords: organizational ergonomics, socio-technical systems, translation practice, translation constraints, workplace, situated cognition.

1. Introduction

Viewing translation as a situated activity involving embodied, embedded cognition within a network of mutually interdependent 'actors and factors' allows a better appreciation of the socio-technical issues that can impinge on professional practice. These can range from the micro level of irritating or missing features in the language tools that translators have to use to the macro level of the societal status of machine versus human translation. Potential socio-technical issues at the translation workplace also include organizational structures, processes, and policies related to equipment and software procurement, teamwork, communication, feedback, and quality management.

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Optimizing socio-technical systems, including "organizational structures, policies, and processes", is covered by the International Ergonomics Association under *organizational ergonomics*.[1] Over the past few decades, the dramatic developments in technologies, communication speed, and the availability of information sources have had a huge impact on the translation profession. The entrenchment of language technology in the industry has forced language service providers (LSPs) to develop and integrate processes and organizational structures in order to remain competitive while maintaining quality standards for their clients (see, for example, ISO 17100 2015). Increased use of computer-assisted translation (CAT) tools has resulted in impressive productivity gains, but it has also substantially changed the activity of translation itself (e.g., Pym 2011; 2013; O'Brien 2012; Bundgaard, Christensen, and Schjoldager 2016). One inevitable consequence has been pressure on translators to continually upgrade their information and communication technology skills to keep pace with a rapidly changing workplace environment. Another consequence is the increased influence of technological and organizational factors that can constrain translators' agency and affect their decision making.

In this paper, we explore the constraints and issues related to organizational ergonomics that emerged in two recently completed workplace projects, both of which had initially pursued other objectives: identifying differences in the translation processes of students and professionals in order to inform translator training, in the first case; and exploring the physical and cognitive ergonomics of professional translation, in the second one. We draw on the theoretical framework of situated or embedded cognition to contextualize our workplace projects before describing the methodology, sources of data, and findings. The concerns and issues voiced by the translators who participated in these projects form the basis for our conclusion, which indicates some directions for change suggested by the issues identified in our research.

2. Translating as an activity situated in a socio-technical system

Translation process researchers have made substantial contributions to our understanding of problem solving, resource use, and decision making during the act of translating. Nevertheless, there has been a growing realization that most process models are essentially too limited in scope to adequately explain an activity that is situated in a temporal, spatial, and discursive context (e.g., Muñoz 2010; 2016; Chesterman 2013). For this reason, the theoretical framework of situated

1. http://www.iea.cc/whats/index.html

cognition (e.g., Robbins and Aydede 2009) has started to have an impact on translation studies (Risku 2002; 2010; Krüger 2016).

In essence, situated cognition assumes an extension of human cognition from the mind to the physical and social situation in which individuals find themselves (e.g., Hutchins 1995; Clark and Chalmers 1998/2010; Menary 2013). As such, it can help explain and, in some cases, predict how humans and machines interact (e.g., Nardie 1996; Riegler 2002; Hollnagel and Woods 2005). Pym (2011) reasonably maintains that the technologization of the translation profession has led to the extension and externalization of human memory. For example, CAT tools and editing software can free up valuable cognitive resources for decision making and higher order problem solving by decreasing the load on working and long-term memory, and intuitive interfaces and functionalities make it easier for translators to bring their expertise to bear. Among other things, good ergonomic conditions should allow translators to make the cognitive effort required to evaluate risks and take appropriate decisions (cf. Canfora and Ottmann 2015; Pym 2015).

The centrality of technology to the modern translation workplace is amply demonstrated by the latest European language industry report (Elia 2016). A survey of 445 LSPs from 35 countries shows 93% of them using CAT tools, and 84% having a workflow management system. A number of LSPs have also incorporated machine translation (MT: 41%), quality control automation (38%), and voice recognition (10%) into their translation workflows. Nevertheless, some noticeable differences persist in the degree and ways in which technologies are implemented across the various types of LSPs that constitute today's translation industry.

Despite the undisputed importance of technology and workflow management to the translation profession, a number of translation scholars have expressed concern that the industry has yet to address properly key technological and organizational aspects of the socio-technical systems in which translators are employed. They claim that failing to do so can disempower and alienate such professionals, potentially undermining their commitment, their concept of agency, and their sense of responsibility for the decisions they make (e.g., Kinnunen and Koskinen 2010; Karamanis, Luz, and Doherty 2011; Toudic and de Brébisson 2011). By adopting an ergonomic perspective on translation as an activity embedded in a variety of technological and organizational environments, we seek to shed more light on the interplay between the cognitive and situational aspects of the work done by present-day translators.

3. Constraints on the situated activity of professional translation

In this section, we present evidence of socio-technical issues that seem to have a constraining influence on the situated activity of professional translation. The data and results are derived from corpora of professional translators' processes collected during two of our workplace projects, *Capturing Translation Processes* (CTP) and *Cognitive and Physical Ergonomics of Translation* (ErgoTrans).

3.1 Constraints identified in commentaries and interviews (CTP project)

In our first large-scale workplace project *(Capturing Translation Processes)*, the activities of English-German and German-English staff translators employed by a Swiss commercial LSP were captured using screen recording software over several months.[2] After an acclimatization period of at least two months, an appointment was set with each of the participating translators for them to view and comment on a 20–30 minute screen recording of a translation they had done earlier that day. The translators were encouraged to comment on what they saw happening on the screen but were not asked any questions or interrupted during the commentary. After viewing their processes, they answered a number of questions in a semi-structured interview about their usual translation routines and tools. The commentaries were transcribed as retrospective verbal protocols (RVPs) using an extension of the Text Encoding Initiative (2008) to code all of the screen activities, and the responses obtained in the semi-structured interviews were transcribed using a simplified version of the conventions described in Selting et al. (2009). The screen recordings of the translation processes, the RVPs, and the interview transcripts comprise what is referred to below as the CTP corpus.

In Ehrensberger-Dow and Massey (2013) we considered how self-concept seemed to be reflected in similar commentaries from the same translators obtained under the controlled setting of our institute's usability lab. In addition to mentioning the importance of ensuring accurate transfer and target text quality, which they did both in the lab and workplace commentaries, almost all of the translators at the workplace also referred to their role as part of an organization within the language service industry. Many of these comments, which we categorized as "accountability", referred to the translators' responsibility to their clients and to their colleagues, and to other aspects of professional accountability such as the reliability and consistency of translation memory input (e.g., Ehrensberger-Dow 2014; Ehrensberger-Dow and Massey 2014a, b). Our findings suggested that

2. More information on the *Capturing Translation Processes* (CTP) project and related publications is available at www.zhaw.ch/linguistik/ctp.

such accountability to the socio-technical system that they were embedded in was constraining translators' decision making and self-determination.

Since translation is a situated activity, the setting can be expected to have an influence on the degree of such constraints, so it was decided to reanalyze the RVPs in the CTP corpus from the workplace and the controlled setting of the lab (all of which were conducted in the translator's target language) for linguistic indicators of accountability. Deontic modality in the form of auxiliary verbs of possibility (e.g., *can*), advice (e.g., *should*), or obligation (e.g., *must*) provides a simple indication of degree of constraint because they serve to qualify the strength of the following verb. Although the average length of the lab RVPs was shorter than of those at the workplace (i.e., 19:52 min vs. 28:04 min), there was far more use of these types of auxiliary verbs in the workplace setting than would be predicted from duration alone (see Table 1). For both the English-German ($n = 8$) and German-English ($n = 6$) groups, the proportion of auxiliary verbs of obligation was much higher in the commentaries of the workplace processes than those at the lab (i.e., 44% vs. 24% and 33% vs. 14%, respectively).

Table 1. Use of modal auxiliaries in workplace and lab RVPs (CTP corpus)

English-German ($n = 8$)	**Workplace (count)**	**Lab (count)**	**Workplace (%)**	**Lab (%)**
Possibility (e.g., *kann*)	110	52	40	37
Advice (e.g., *soll*)	47	56	17	39
Obligation (e.g., *muss*)	121	34	44	24
TOTAL	**278**	**142**		
German-English ($n = 6$)				
Possibility (e.g., *can*)	66	*26*	55	*74*
Advice (e.g., *should*)	14	*4*	12	*11*
Obligation (e.g., *have to*)	40	*5*	33	*14*
TOTAL	**120**	***35***		

Many of the comments with auxiliaries of obligation were directed towards client-related issues such as accommodating client needs and wishes. The RVPs and interview transcripts were re-examined for comments that reflected constraints on the translators' autonomy. The most frequently mentioned constraints were client-related: eleven of the 14 translators mentioned something about the client they were doing the translation for (and many of them did so several times). This category can be differentiated into additional effort and stress associated with meeting clients' requirements (see Table 2 for sub-categories and examples).

Table 2. Client-related constraints mentioned in RVPs and interviews (CTP corpus)

Client-related	Sample comment (code)
Different clients	*mal hier eine halbe seite und dort eine, ist es ein bisschen, ist es ein bisschen stressiger. muss man sich immer wieder auf einen neuen kunden einstellen* (Pro103) [half a page here and another half there is a bit, a bit stressful. one always has to adjust to a new client]
Client terminology	*i'm just doing a concordance search to see if there is any specific usual way that the client would want that term* (Pro203)
Client guidelines	*i didn't look at any guidelines, because i'm quite familiar with the client* (Pro203)
Client wishes	*bei diesem kunden ist es jetzt so, dass wir es in zwei wörtern schreiben* (Pro104) [with this client we have to write it out in two words]
Previously translated segments	*i know that it's been translated before* [for this company] *and there's usually a specific translation for it, so i'm just checking it in the memory* (Pro210)
Poor quality STs	*das schlimmste ist aber für mich immer, wenn deutsch muttersprachige, die [sic] englisch schreiben müssen* (Pro107) [the worst for me though is always when german native speakers have to write in english]
Language varieties	*as this is for a us-client* (Pro210)
Consistency	*to make sure i'm consistent, because that is what the client will be looking for* (Pro211)

Perhaps unsurprising for staff translators working for the same LSP, several of the comments related to colleagues and resources that seemed to be affecting the ability of the translators to focus on their job or to be impinging on their autonomy. These included noise, interruptions, and expectations triggered by colleagues (see Table 3 for examples) as well as temporal, organizational, and even spatial constraints (see Table 4 for sample comments).

The LSP where the translators worked was large enough to have its own IT personnel to support staff and trouble-shoot if problems arose with their computers, TM interfaces, etc. Nevertheless, some of the comments in the RVPs and interviews reflected constraints imposed by the tools they were using (see Table 5 for sample comments). These can be grouped into those that slow down the process (e.g., interruptions and responsivity) and those that make translation work more complicated (e.g., usability, functionalities, and reliability).

Table 3. Colleague-related constraints mentioned in RVPs and interviews (CTP corpus)

Colleague-related	Sample comment (code)
Noise	*people will stop outside and talk and, for me, i need quiet when i'm translating* (Pro211)
Interruptions	*ganz klar ist eine unterbrechung, wenn jetzt jemand ins büro reinkommt oder vielleicht auch, wenn eine kollegin mich anspricht* (Pro103) [it's definitely an interruption when someone comes into the office or maybe also if a colleague talks to me]
Consistency	*ich habe dann aber festgestellt, bei ihr kommt es nicht vor, also muss ich auch nicht mit ihr noch absprechen, ob wir jetzt die oder das schreiben, sondern ich kann eigentlich selber einen entscheid fallen* (Pro102) [but then i noticed that it isn't in her part, so i don't have to consult with her whether we write this or that now, instead i can actually make a decision myself]
Trust	*hier schaue ich immer, von wem dieser match ist* (Pro106) [here i always check to see who this match is from]

Table 4. Resource-related constraints mentioned in RVPs and interviews (CTP corpus)

Resource-related	Sample comment (code)
Temporal	*a lot of the time, you'll get a job that will come in at 12, it's three hours' translation and it's got to be done by 4* (Pro211)
Organizational	*sehr schwierig ist für die kapazitätszuteilung* […] *wir machen das, ich mache das zusammen mit der kollegin* (Pro107) [it's very difficult for capacity management … we do that, i do that with a colleague]
Spatial	*der kunde eigentlich vorgeschrieben hat, dass man die währungen ausschreiben soll, aber rein aus platzgründen habe ich* […] *immer die iso-norm verwendet* (Pro105) [the client actually specified that currencies have to be written out but just because of space limitations i … always used the iso norm]

3.2 Constraints identified in survey responses (ErgoTrans project)

From the comments in the RVPs and interviews, it became clear that the staff translators at the LSP were well aware that they were operating within a socio-technical system that was constraining them in various ways. A follow-up project (ErgoTrans) was therefore designed to investigate whether these constraints, which we consider to be the consequence of non-optimal ergonomic conditions, are typical only of these translators or whether they are common to translators in

Table 5. Tool-related constraints mentioned in RVPs and interviews (CTP corpus)

Tool-related	Sample comment (code)
Interruptions	*i have my mail set, so that every mail that comes in i get a warning and it jumps into the mail application as soon as a new mail comes, so i'm continually switching backwards and forwards* (Pro205)
Responsivity	*wenn ich recherchen mache und der browser sehr langsam ist* (Pro103) [when i do research and the browser is really slow]
Usability	*das multi term, so von der handlichkeit, hätte vielleicht schon noch optimierungspotential* (Pro104) [multi-term, with respect to handling, would probably have potential for optimization]
Functionalities	*i'm not entirely happy with the way that microsoft have changed their office products*, […]. *i'm getting used to it, because i have to* (Pro203)
Reliability	*every second time i try to print something out, the printer isn't working* (Pro206)

other types of employment.[3] Among other methods, the ErgoTrans project included ethnographic observation and ergonomic assessments at the workplaces of translators working on their own account (i.e., freelance), at LSPs and other companies (i.e., commercial), or for governmental organizations (i.e., institutional). An online survey focusing on the ergonomics of professional translation was initiated in order to validate the results of the first workplace project as well as the observations and assessments at the workplaces in the first phases of the ErgoTrans project. The survey was prepared in six languages and sent to translation associations and other multipliers around the world. During the four and a half months that the survey was available online, a total of 1,850 professional translators from almost 50 countries completed it. The findings from the survey particularly relevant to socio-technical issues and constraints are summarized below (for a more comprehensive presentation of the other survey results, see Ehrensberger-Dow et al. 2016).

With respect to the physical conditions at the workplace, the responses from the freelancers indicated that their furniture and other aspects of the setting were less ergonomic than those of their commercial and institutional colleagues. This, however, seemed to be compensated to some extent by their self-determination over their environment. About half of the commercial and institutional translators reported that they had little control over the room temperature and almost as many said the same about the airflow. For the commercial translators, this can be explained by the fact that over 70% reported sharing their office space with at least

3. For additional information about the *Cognitive and Physical Ergonomics of Translation* (ErgoTrans) project and related publications, see www.zhaw.ch/linguistik/ergotrans.

one other person, but it is more difficult to understand for the institutional translators, since fewer than 30% of them did so. Despite the differences in office situation between them, the commercial and institutional translators shared a concern with distractions such as inside noise and people moving around. These differences between the freelancers and the other groups are probably a simple reflection of some of the issues related to working in close physical proximity to other people.

A difference was noted with respect to the proportion of each group that worked with two computer screens: the freelancers were much less likely to do so than the commercial and institutional translators (25% vs. 47% and 45%, respectively). This suggests that proportionately more employers than freelancers were aware that the number and complexity of computer tools being used during translation deserved more screen space. Another noticeable difference was in the higher proportion of freelancers who reported using an ergonomic keyboard (23% vs. only 14% and 8% of the commercial and institutional translators, respectively). One explanation could be that the freelancers try to compensate for otherwise poor ergonomic conditions (e.g., small desks, non-adjustable chairs) by making less expensive investments. Other possibilities are that employers do not recognize the importance of this option or even that employed translators are unaware that they would be entitled to more ergonomic peripherals. The latter explanation emerged in a small MA study carried out recently at a medium-sized LSP in Switzerland (Lukumbu 2016) and indicates how closely socio-technical issues are tied to organizational communication.

With respect to software aspects of their work, the majority reported that they used CAT tools (73% overall) and shared an appreciation for the benefits that CAT tools can provide: in fact, 97% of those who used them reported that they are helpful at least sometimes. However, about 40% of the freelancers and commercial translators reported having to sometimes switch between CAT tools (vs. less than 25% of the institutional translators), and over half of those translators found switching tools to be disruptive to their work at least some of the time. Unfortunately, the survey responses provided no information about why different CAT tools had to be used, but the fact that institutional translators had to do this less often suggests that clients in the free market demand this type of flexibility from freelance and commercial translators. In an optional comment field that opened if the respondents said that they found some CAT tool features irritating, the most frequently mentioned sources were specific to those tools (e.g., user interface and functionalities), but their irritation extended to more general technical issues such as compatibility with other tools, software versions, files or languages as well as to organizational issues such as user support, cost, training, and imposed usage (for details, see O'Brien et al. 2017).

When taken together, these findings make it clear that professional translators are feeling constrained in their decision-making and translation activities by task and client requirements as well as by their physical setting and the tools they are using. As discussed in the following section, the survey results and interviews in the ErgoTrans project also reveal that translators can be impacted, whether intentionally or unintentionally, by the organizational ergonomics that they are subject to.

4. Organizational ergonomics of professional translation

The situated activity of translation involves not only the physical setting in which the translators find themselves and the tools they work with. It also extends to multiple organizational factors. These cover virtual and actual human interactions in the form of professional and social actor networks, including contact with clients and colleagues, the modes and channels of communication used to access these, and translators' integration in business processes, organizational workflows, and their timelines. In the ErgoTrans project, we purposely included translators from three different profiles with respect to their working conditions (freelancers, commercial translators, and institutional translators) in order to draw comparisons related to their networks, workflows, and self-determination. Whereas some potential organizational ergonomic issues were addressed explicitly in the online survey and later confirmed in interviews in the final phase of the project, others only emerged during the interviews themselves. The key findings about organizational ergonomic issues identified in the survey are presented in Section 4.1 and those from the interviews in Section 4.2.

4.1 Organizational ergonomic issues identified in the survey (ErgoTrans project)

Practically all of the translators who responded to the international survey in the ErgoTrans project were supported in their work with adequate communication tools and a good Internet connection.[4] More than three-quarters of all of the respondents used email as a means of communication to deal with translation problems. However, the survey responses support the image of freelancers working in isolation. Compared with the commercial and institutional translators, relatively few of them reported using workflow software, having access to resources provided by the client, or discussing their work with others in person. As a counter-balance,

4. Complete details and significance levels of the summarized differences can be found in Ehrensberger-Dow et al. (2016).

about half of them reported discussing work on forums, which commercial and institutional translators, perhaps for confidentiality reasons, seemed much less inclined to do.

Almost the same proportion of institutional translators and freelancers worked in a room alone, but the former were much more likely to discuss translation problems with other people in person. They were also more likely than the freelancers or the commercial translators to discuss translation problems by phone, suggesting that they were embedded in networks that shared a low threshold for reaching out to share expertise. Consistent with this, institutional translators were slightly more likely than the other two groups to receive feedback about the quality of their work (although these differences were not statistically significant).

The translators shared a keen awareness of task deadlines, which were mostly or always clear for practically all of them, yet the groups differed in their perception of the degree of time pressure. More than half of the freelancers reported experiencing time pressure never, rarely, or only sometimes, whereas about 60% of the commercial and institutional translators said that they were mostly or always under time pressure. This perception might have to do with the amount of control the translators had over their workflow. The freelancers were much more likely than the other two groups to report being able to decide on their own which translation jobs they would do and when they would work. The commercial and institutional translators indicated a level of autonomy similar to that of the freelancers only with respect to the order that translation jobs were done and the timing of their breaks.

4.2 Organizational ergonomic issues identified in interviews (ErgoTrans project)

In order to obtain more detailed information about some of the issues that had emerged from these and other survey results, focus group and in-depth interviews were carried out with a number of freelancers ($n = 11$), institutional translators ($n = 7$), and commercial translators ($n = 4$) in a location that was convenient for them. The interviews were recorded and subsequently transcribed using Dresing and Pehl (2011) conventions. Some of the responses to questions and spontaneous contributions from the translators are particularly relevant to socio-technical and organizational issues, as explained below.

4.2.1 *Positive, negative, and stressful aspects*

In the interviews, the translators were asked which aspects of their daily work they found to be positive, which negative, and which if any were potential stress factors.

Their responses to this question can be grouped into aspects related to colleagues, clients, time management, communication, task, and technology.

On a positive note, the commercial and institutional translators identified co-operation with their colleagues as a rewarding aspect of their job. The commercial translators tend to work with a colleague or in small teams whereas the institutional translators are more likely to have contact with colleagues in team meetings or working groups. The freelancers mentioned that they found spontaneous interruptions by people to be a positive aspect in their otherwise rather isolated work routines, but they added that scheduled, regular contact would probably take too much effort and be too time-intensive.

With respect to clients, the most negative aspects for all three groups of translators concerned time pressure and tight deadlines. Especially for freelancers, the time pressure extended to being expected to react very quickly to translation requests so as not to miss out on opportunities or clients. They felt that this increased the risk of them accepting jobs for which they are not qualified or of them underestimating the amount of work a particular job would require. Several said that they enjoyed contact with clients, yet also referred to a lack of recognition of their work.

Several translators mentioned that organization and planning took a disproportionate amount of effort and valuable time away from actual translation work. For the institutional translators, fluctuations in the amount of work were also an issue because very quiet phases alternated with periods in which exceptional commitment was expected in the form of working overtime. Others found it stressful to try to fit in unforeseen translation tasks at short notice. As a counter-note to this dissatisfaction with these organizational aspects, several commercial translators mentioned that they had the possibility of working from home and flextime.

An essential organizational aspect considered in both positive and negative terms was email: it was recognized to facilitate work, communication, and social contact, but also to distract attention from the task at hand. The flood of messages from their own organizations not directly related to translation work (referred to rather disparagingly as 'staff spam') was considered especially problematic by the commercial and institutional translators because they felt obliged to interrupt their work to read them. The freelancers, who said they were dependent on email as the primary channel for communication with and commissions from clients, had even more trouble ignoring it.

Working with language, keeping up with developments and current events, producing target texts, and improving source and target linguistic competence were all considered positive aspects of the translation task itself (see also Dam and Zethsen 2016). The only negative aspects related to the task were poor-quality source texts and multiple revision cycles for previously translated texts (both mentioned by the institutional translators), which can also be considered the result of organizational issues.

Technical problems related to the use of computers in general and CAT tools in particular were mentioned as negative aspects of daily work that cause these translators stress (see O'Brien et al., 2017, for details about irritating CAT tool features mentioned by the professionals who completed the online survey). The increasing deployment of CAT tools was also seen as a factor that limited translators' decision making and what they referred to as creativity (see also the quotation in footnote 5). Some of the institutional translators expressed concern about a lack of any consultation process before new translation technology and document management software, which they happened to find non-optimal, were introduced and implemented.

4.2.2 *Self-determination*

In general, the freelancers saw freedom as the basic reason for working on their own account, yet they recognized that this came at the cost of being relatively isolated. They claimed that a lack of personal contact could be compensated only partly through interactive tools such as video conferencing or email. Nevertheless, the advantages of not having to share a workspace, and the freedom to organize the daily workload and workflow, seemed to outweigh the disadvantages of working alone.

Frequency and timing of breaks were explicit examples of freelancers' greater self-determination compared with the other groups. Freelancers were less likely to take breaks at regular intervals and more likely to use them to reward themselves once they finished a task. In contrast, the commercial translators were more likely to feel under collective pressure to take breaks at regular intervals and at pre-set times. Several would prefer to take more frequent, shorter breaks than the infrequent, longer coffee and lunch breaks that quickly become the norm for people in shared office settings. Perhaps this is part of the reason that many of the translators said that they often take breaks at their desk, in front of the computer screen. The other reason might be that the intense concentration of translation work precludes them from perceiving signals that breaks away from their desks would benefit both their physical and their mental well-being.

It emerged from the discussion that the primary reasons for unscheduled breaks were frustration about poor organization and technical problems. Specifically, the institutional translators found that they had too little influence on decisions about matters of concern to them, such as software procurement and workflow design, and they regretted a lack of flexibility in their work. This was also true for most of the commercial translators, the sole exception being a translator who was also in a management position. Indeed, the negative effects of organizational control seemed to extend beyond the infrastructure, with translators commenting that their creativity was restricted not only by the prescribed use of language tools but also by other requirements. As one translator put it: "very often your brain is not working anymore and you are kind of on autopilot […] you rely too much on given things. Technology is an opportunity and on the other hand it is a threat" (Exp09).

4.2.3 *Motivation and feedback*

All of the translators agreed that linguistic challenges and interesting subject matter were motivating aspects of their work. However, the sobering reality of some of the translation tasks was captured by one of the institutional translators when she complained that their work was no longer as demanding or creative as it once was and that 'boreout' (cf. Rothlin and Werder 2008) was becoming an issue.[5]

Personal contact with clients and the agencies they worked for was motivating for the freelancers, although in their case it seemed to be relatively rare. Other motivational factors mentioned by the institutional and commercial translators that were directly related to organizational ergonomics included employment conditions, a steady income, and working environment. The institutional translators commented that a good salary, flextime, and public recognition were very important. The institutional and commercial translators also said that they regularly received feedback from their superiors and clients. In contrast, both recognition and feedback seemed to be in rather short supply for the freelancers.

5. Directions for change

The lack of involvement in organizational decision-making that our study identifies is partially consistent with other findings (e.g., Olohan 2011) and may explain a resentment of technology that might have been arbitrarily imposed by the client or the organization. Freelancers reported satisfaction at being able to make their own decisions at various levels. For example, the survey results showed that proportionately more of the freelancers were happier with their equipment than the other two groups, although the physical ergonomic conditions were actually better

5. *D[urch d]ie Tatsache, dass man mit diesen CAT-Tools alte Dinge wieder neu benutzen kann*, […], *hat die Kreativität sehr gelitten. Früher hat noch niemand vom Boreout gesprochen, das Wort gab es wohl auch noch nicht, was ich aber inzwischen sehr oft bei uns höre. Es ist irgendwie nicht mehr anspruchsvoll genug.* [Because of being able to reuse old stuff with these CAT tools, creativity has really suffered. Previously nobody talked about boreout, the word probably did not even exist then, but I hear it used very often at our place. It is somehow not demanding enough any more].

at the commercial and institutional workplaces. And whereas the survey results make it clear that translators who use CAT tools find them useful, proportionately more of the freelancers do not use them at all. Since freelancers decide how they spend their time, they can choose to avoid what many perceive to be CAT-imposed constraints on their decision-making and problem-solving activity, albeit at the potential cost of efficiency.

The comparatively greater autonomy of freelancers to determine the tools they use may account for why they seem less likely to find them irritating, a complaint frequently expressed by their commercial and institutional counterparts. In the case of the latter, we can assume that if commercial and institutional translators were given more of a voice in the timing of updates or the procurement of the software and equipment so crucial to their work, this could facilitate the uptake of new technology. Indeed, we might even conjecture that more involvement in these organizational decision-making processes might well have the knock-on effect of reducing workplace stress and increasing motivation.

The greater self-determination enjoyed by freelancers comes at the price of their relative isolation. Above all, it appears to impact negatively on the frequency and quantity of the recognition and feedback they receive. Given the centrality of both recognition and feedback for self-concept and the development of expertise (cf. Shreve 2006; Muñoz 2014), greater efforts should be made by all types of LSPs to institutionalize more effective, enduring feedback systems embracing the staff and freelance translators who work for them.

To conclude, an inter-group comparison of our results suggests that the institutional translators seemed better off with respect to organizational ergonomics than the commercial and freelance translators. They have stronger networks with colleagues, have more opportunities for face-to-face and remote contact in both formal and informal contexts, and are more likely to receive feedback on their work. Although they are exposed to stress caused by organizational workflow and technical problems, these are counteracted by job security, flexible working-time arrangements, and institutionalized breaks of variable lengths. Finally, when all three groups are taken together, we see that the interview data in particular indicate that heightened client and organizational awareness of what translation involves could alleviate stress from unrealistic deadlines, workflow inefficiencies, and technological issues. Multi-directional channels for feedback and exchange among clients, LSPs and the translators they employ can provide a ready means to address these and other problems as yet unforeseen. We firmly believe that the willingness to talk, listen, and learn, and to involve translators in the decisions directly affecting their work, will empower them to make a more active, positive contribution to organizational development and growth.

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Expertise acquisition through deliberate practice

Gauging perceptions and behaviors of translators and project managers

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In his influential 2006 publication, Shreve, in citing Ericsson (1996, 21), outlines a series of fundamental conditions that must be met in order for the translator to acquire expertise. While expertise research on professional translator performance in authentic contexts has only recently started to gain traction in earnest, these conditions for expertise acquisition, while well-suited for academic contexts involving formal translator training, may not be as readily realizable within the language industry. In an attempt to complement recent workplace studies on translation (Risku and Windhager 2013; Ehrensberger-Dow 2014), our questionnaire-based explorative study sets out to gain a better understanding of how expertise in translation is conceptualized and fostered from within the language industry. By gauging how professional translators, as well as the project managers for whom they work, regard expertise from the perspective of the requisite conditions outlined by Shreve, we hope to establish greater clarity as to how expertise is envisioned, practiced, and valued along emic lines.

Keywords: expertise, deliberate practice, TPR, cognitive translatology, professional translators, project managers

1. The elusiveness of expertise in translation

Expertise in translation has been a focal point within the translation process research (TPR) community for the past twenty years, starting in earnest with Shreve's (2002) initial exploration of Ericsson and Charness' conceptualization of "superior performance" (1994, 726) from the perspective of directly observable translator indicators. Despite this relative longevity, the concept of expertise still remains a fuzzy topic of debate (cf. Muñoz 2009), not unlike another legacy

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concept, *competence*, with which it is often interchanged (for better or worse). Perhaps this lack of consensus suggests that holistic research on expertise, to date largely restricted to experimental endeavors in controlled lab settings, is still in its infancy twenty years on. Marín (2017) highlights the incommensurability associated with legacy concepts such as expertise, starting with divergent operational definitions proposed in the literature. These definitions, when examined in the aggregate, reveal some fundamental sticking points and incongruences which may, in turn, have impeded research to advance beyond infancy stages. None of the proposed definitions and descriptions have ever truly been rejected outright, though they have been called into question (cf. Jääskeläinen 2010). The TPR community is evidently still open to (and in need of) continued brainstorming before extensive empirical observation can reap the potential benefits of more consensual thinking.

The PACTE Group, which has engaged in extensive research on translation competencies, equates translation competence with expert knowledge, and defines it as the "underlying system of knowledge needed to translate. It includes declarative and procedural knowledge, but the procedural knowledge is predominant" (2003, 58). This basic definition is a significant contribution in that, by regarding it as something required to translate, i.e., as a pre-requisite of sorts, PACTE makes it clear that expertise is not some sort of desired end product of extensive formal training. Instead, it is a dynamic skillset in a constant state of development throughout the lifespan of the translator (Muñoz 2009, 28). That is to say, expertise can be formally trained and the trainee is already in possession of some level of expertise from day one onwards. Expertise is not something that one either possesses or does not possess. Such rigid, dichotomous thinking has resulted in confusion, with the concepts of 'expert' and 'expertise' often being erroneously conflated (cf. Jääskeläinen 2010). Not all translators are experts (and most may have no aspirations of becoming one), but all translators have some degree of expertise regardless of their experience. Like Pym (1996), we question what it even means to be an expert translator (or to not be an expert for that matter). Tiselius and Hild (2017, 249) draw our attention to the important fact that the field of professional translation does not have an agreed upon screening process whereby so-called experts could be singled out and analyzed based on supposed optimal performance.

Shreve and Lacruz (2017, 129) bypass debates concerning 'competence' vs. 'expertise' and 'expertise' vs. 'expert' in describing expertise, at its very core, as the utilization of cognitive resources (i.e., linguistic, declarative, and procedural knowledge) to translate effectively and efficiently. Though perhaps not explicit in this conceptualization, effectiveness and efficiency could be seen as relating to notions of quality and productivity respectively. Both quality and productivity have been put forward as prime indicators of expertise, yet both remain somewhat elusive in relation to the concept of consistently superior performance. Is a series of error-free translations evidence of consistently superior performance within the language industry if the translator who produced them missed deadlines in the process? Is the translator who produces upwards of 10,000 words of target text a day demonstrating expertise if the quality of the translation is such that it does not meet client, project manager, or end user expectations or product specifications? These questions become highly pertinent in an industry where translation productivity has remained somewhat stagnant (DePalma 2012) and where quality is not one-size fits-all.

Muñoz's cognitive translatology paradigm (2010; 2014) moves extant descriptions of expertise more in the direction of situated cognition. In addition to declarative and procedural knowledge, his definition encompasses self-regulatory (metacognitive) skills, situational awareness, and adaptive psycho-physiological traits (2014). This notion of adaptability, first introduced by Hatano and Inagaki in their discussion of adaptive experts (1992), is interesting in that expertise has often been regarded as relatively narrow in scope and not transferrable. In this day and age where a translator needs to wear many hats, can expertise be defined in such narrow terms according to criteria such as area of specialization, or is it, in fact, tied to efficacious adaptability, just like a tennis player who successfully adapts to playing on different surfaces? At any rate, expertise studies on translation would stand to benefit from more in-depth exploration of the conditions under which expertise might (need to) be transferrable, along the theoretical lines presented by Kimball and Holyoak (2000).

2. Indicators of expertise

Over the past twenty years, research on expertise in translation has primarily taken place in a controlled lab environment using experimental methods and involving empirical documentation of the behaviors, strategies, and tendencies of professional translators vis-à-vis novices. These studies have given rise to numerous indicators of expertise. One such indicator is automaticity, where the translator is able to access task-oriented knowledge more quickly as a result of the proceduralization and schematization of routines (cf. Shreve 2006; Muñoz 2014). In the domain of problem-solving, expertise is manifest in approaches that involve deliberate bundling, such as the problem recognition, solution proposal, solution evaluation model put forward by Angelone (2010) or the cognitive rhythms discussed in Jakobsen's research (2002). Angelone (2018) is conducting new research on the conceptualization of problems by trainees as a possible avenue towards translation expertise acquisition.

Closely paralleling these problem-solving patterns as expertise indicators is well-established task awareness (Alves and Gonçalves 2007), where the translator engages in efficacious goal-setting and establishes an action plan of optimal strategies based on the situational constraints shaping the translation task at hand. As expertise increases, so too do the translator's capacities for self-monitoring and self-evaluation (Göpferich 2008; Hansen 2003; Tirkkonen-Condit 2005). The routinization of unproblematic tasks that may eventually become unconscious (Dreyfus and Dreyfus 1986; Schön 1987; Bereiter and Scardamalia 1993) often ensues. This apparent contradiction in expert behavior between conscious awareness and routinization can be explained by the fact that expertise development depends on resisting automation of any processes that could lead to lack of control over the task or over important sub-processes thereof (Davidson and Sternberg 2003). Ultimately, metacognitive dimensions of expertise foster self-confidence in a broader sense (Hönig 1995; Risku 1998), in turn tied closely to resilience (Rojo and Caro 2016) and an understanding of ethical implications (Künzli 2007).

Studies have also shown expertise to be associated with processing of text in larger chunks (Dragsted 2005; Jääskeläinen 2010) transcending beyond the level of individual words. Furthermore, as expertise increases, attention tends to shift more and more in the direction of the target text, as revealed through keystroke and eye-tracking data (Carl and Dragsted 2012). Translators with more developed expertise also tend to tap into internal resources for support, using external resources to refine meaning, as documented in the target text, rather than to inform initial interpretations of the source text.

Recent workplace studies on translation (Risku and Windhager 2013; Ehrensberger-Dow 2014) have introduced the TPR community to methods and approaches for exploring expertise in ecologically valid, authentic contexts. These approaches are largely rooted in ethnographic methods or, more precisely, cognitive ethnography, which, according to Muñoz, is "cognition as distributed through one or many human agents or objects," examining "how cognition adapts to carry out activities as they happen in real-world environments" (2014, 12). This ethnographic lens for establishing potential indicators of expertise is still very much in its infancy in translation studies. The questionnaires at the heart of our research to be described below are, first and foremost, intended as an extension of initial explorations in this area.

3. Expertise studies on translation through an ethnographic lens

If we assume that expertise is both interactional and situated, it is crucial to engage in empirical research on translators in action, that is to say, on location and as part of a larger community within the context of a translation project. As Tiselius and Hild (2017, 428) propose, "there may also be some empirical underpinning left to do on the sociological or ethnographical side of competence and expertise in our field." More specifically, they draw attention to the need for sociological research on concepts central to empirical research on expertise, such as deliberate practice. This is precisely the focal point of our research project and will be outlined in greater detail below.

As definitions and descriptions of expertise in translation have emerged over the years, an obvious gap continues to exist. While we are well-informed from the researchers' perspectives, we have relatively little understanding of how expertise is conceptualized among working professionals and from within the language industry in general. In cultural anthropology terms, an etic perspective, based on models, methods, and findings obtained in the context of lab-based experimental research, largely overshadows an emic perspective as defined from within. A sense of balance is starting to be established, however, thanks to ethnographic approaches used by Koskinen (2008), Risku (2014), and Ehrensberger-Dow (2014), among others, in gauging language industry dynamics from the inside looking out.

In the field of interpreting studies, Albl-Mikasa (2013) makes use of semi-structured interviews to gauge how professional interpreters cultivate their acquisition of expertise, and Tiselius (2013) uses in-depth interviews with the same objective. Similar to Koskinen's large-scale ethnographic research on translation within the European Union, Duflou (2016) has recently conducted an ethnography of EU interpreters, with expertise being a fundamental topic. Our questionnaire-based study, though much smaller in scale, parallels these two studies in that it seeks to document the impressions of working professionals regarding expertise. Using deliberate practice as a theoretical framework, we collected questionnaire data from not only professional translators, but also from project managers to see how they think about various aspects of expertise, such as its acquisition, its benefits, its assessment, and its indicators, to name a few.

4. Deliberate practice as a focal point

In any pursuit of expertise acquisition, practice, and the experience thereby gained, play a crucial role. Ericsson and Charness (1994) cite scientific research that shows eight to twelve years of practice are needed to reach elite levels of performance, hence the now often-mentioned 10 years/10,000 hours "rule." However, not all professional translators with ten years of experience exhibit optimal levels of expertise by default given the fact that any old practice will not suffice. Ericsson et al. (1993, 367) mention a series of "conditions for optimal learning and improvement of performance," which include performers' motivation, a task design that bears in mind performers' previous knowledge, immediate, informative feedback on performance, and reiterated practice. In the context of expertise in translation, Shreve (2006, 26) emphasizes the distinction between practice and deliberate practice, with the latter being the desired pathway to acquisition. In Shreve's application of Ericsson's conditions to the translation task, deliberate practice hinges on four fundamental conditions being met: (1) the translation task in which the translator engages must be well-defined; (2) the task must be of an appropriate difficulty level (and tasks should be incrementally more difficult); (3) the translator must receive informative feedback on his/her performance; and (4) there must be opportunities for repetition and the correction of errors. While these conditions can more readily be met in pedagogical contexts, they become more difficult to realize in professional contexts within the language industry given inherent constraints on time, money, and resources. This creates a situation where many professional translators with well beyond ten years of experience never really advance along an expertise trajectory. Stagnation sets in for these translators who engage in their work as experienced professionals (Jääskeläinen 2010, 218), likely productive and competent in their own right, yet distinct from "expert" translators who, hypothetically speaking, would have gained experience on a consistent, continual basis in line with the conditions of deliberate practice.

Numerous TPR scholars have put forth concrete ideas as to how deliberate practice can be integrated into translator training in an attempt to foster expertise from an early stage onwards. PACTE, in particular, approaches expertise training from the perspective of various translation competences (2011 and 2015). The GENTT research group focuses less on training in line with competences, but rather on hallmark psychological and situated indicators of expertise, such as stimulating automation, strengthening metacognitive mechanisms, and imitating pseudo-real environments (García et al. 2009).

The conditions associated with deliberate practice lend themselves well to expertise training in pedagogical contexts. A discussion of how and why is beyond the scope of this paper. At this stage, it is important to briefly discuss why these conditions for expertise acquisition, as trainable in pedagogical contexts, might not be as directly applicable to the same extent within the language industry. Firstly, informative, detailed feedback is much more seldom, perhaps coming from an editor or project manager upon request from the translator. There is a tendency for the translator to only hear back from others primarily if things have gone terribly wrong. Generally speaking, no news is good news, much to the detriment of expertise acquisition. Our survey sets out to determine how feedback mechanisms are conceptualized and utilized by translators and project managers in the industry in hopes of shedding light on how this facet of expertise is being addressed. Even in those situations where translators receive feedback, it might be for informative purposes only and they might not have a chance to improve upon their errors. Since being able to do so is crucial for expertise acquisition, our questionnaires hope to uncover formal or informal mechanisms that might be in place to meet this condition.

As professional translators gain experience, we might assume they eventually find their niche and work at an appropriate difficulty level. Expertise acquisition calls for working on tasks that are incrementally more difficult, and while the complexity of the tasks or texts can be controlled in the classroom or in experimental settings (Jensen 2009), it is beyond the scope of control in actual professional practice. Translators might run the risk of plateauing in this regard after a certain period of time. Our study aims at obtaining documentation of how translators and project managers define and recognize difficulty as well as of what they tend to do if a task is deemed to be too difficult. Do translators work outside of their comfort zone? Are they encouraged to do so? Finally, working with well-defined tasks is fundamental in pursuit of expertise. We seek to find out how "well-defined" is understood among participants in our study as applied to their tasks. For example, how useful or relevant is a translation brief to them? If working with a brief is, in fact, common practice, how granular does it tend to be and who shapes it? Are there conceptualizations of "well-defined" that transcend beyond what has been proposed in the TPR literature?

5. Questionnaires on facets of expertise

5.1 Methods

5.1.1 *Participants and instruments*

In order to gauge perceptions of translation expertise and its acquisition among professionals in the language industry, we created a questionnaire for translators (Appendix A) and a questionnaire for project managers (Appendix B). The questionnaires were developed around the four conditions for deliberate practice in translation outlined by Shreve (2006, 26) and adapted either to the perspectives and working realities of translators or those of project managers. In line with our objective of gaining insight into translation expertise from an emic perspective, we included questions about the importance respondents attribute to the aforementioned conditions along with other aspects of a typical professional translation setting (such as CAT tools, interpersonal interactions, etc.).

We also wanted to know whether, and to what extent, the conditions for deliberate practice were met in the workplace. Moreover, we included questions about factors that could possibly affect expertise development in a professional translation environment, such as stakeholders' expectations or translators' attrition, which can also represent a risk from the viewpoint of the project managers (Dunne 2013). We piloted both questionnaires with a professional translator of Russian and English into Spanish who had one-to-four years of experience and who had occasionally engaged in project management duties. The questionnaires were administered online via Qualtrics. We forwarded them to 69 translation agencies and received responses from 14 translators and 14 project managers currently working worldwide.[1] During preliminary analysis, we filtered out four translator questionnaires and five project manager questionnaires due to incompleteness.

As per Table 1, of the remaining ten translator respondents (six freelancers and four in-house practitioners), eight were native Spanish speakers and two were native English speakers, all of them working with the Spanish-English language pair and translating into their native language, with the exception of one Spanish speaker. In terms of years of experience, seven translators had been working between five and ten years, while three of them had been working between one and four years. Only one of the respondents had not been formally trained as a translator.

As indicated in Table 2, out of the nine project manager respondents, only two had not previously worked as professional translators, editors, localizers or proofreaders. In terms of experience, three of them had worked as project managers between 1 and 4 years, five of them between 5 and 10, and one of them between 11 and 15 years. Only one of the project managers had not received any formal training as a translator.

5.1.2 *Analytic approach*

Given that many of the questions addressing perceptions of expertise among professionals were deliberately open-ended, our primary focus involved quantifying the frequency of relevant topics in the responses and subsequent analysis. We followed a corpus-based approach to discern any patterns in the responses by tagging the data with the "topic" functionality in Qualtrics. This reveals frequency of occurrence data, where higher frequency and patterned lexical items potentially reveal thematic focal points of interest. We also made preliminary quantitative comparisons of translator and project manager responses for those questions that were not open ended in an attempt to determine where and why perceptions overlap and deviate. At this stage, it is important to emphasize that this is very much a small-scale pilot study that does not lend itself well to making generalizations

1. The translators submitted their surveys from Spain, France and Chile, and the projects managers from South Africa, Spain, France and the United States.

Table 1. Translation respondent background information

Translator	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10
Years of experience	5–10	1–4	5–10	5–10	5–10	1–4	1–4	5–10	5–10	5–10
Native language	Spanish	Spanish	Spanish	Spanish	Spanish	Spanish	English	English	Spanish	Spanish
Language pair	English-Spanish	English-Spanish	English-Spanish	English-Spanish	English-Spanish	Spanish-English	Spanish-English	Spanish-English	Spanish-English	Spanish-English
Formal translation training	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mode of employment	In-house	Freelance	Freelance	In-house	In-house	Freelance	Freelance	Freelance	Freelance	In-house

Table 2. Project manager respondent background information

Project manager	PM1	PM2	PM3	PM4	PM5	PM6	PM7	PM8	PM9
Years of experience	1–4	5–10	5–10	5–10	1–4	1–4	5–10	5–10	11–15
Previous professional experience	translator, proofreader	editor	translator, localizer, editor, proofreader	translator	translator, localizer, editor, proofreader	only as a project manager	only as a project manager	translator, editor, proofreader	translator, editor, proofreader
Formal translation training	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Formal training as PM	No	No	Yes	No	No	No	No	No	No

from quantitative or qualitative perspectives. Instead, our study is geared towards providing the research community with the kinds of questions that need to be asked and, at a much broader level, developing a validated instrument for surveying translation expertise and generating preliminary data that might warrant more in-depth exploration.

6. Results and analysis

6.1 Perceptions pertaining to expectations

In Translation Studies, the notion of expertise has tended to be intrinsically linked to performance models against which we can measure translations and the mental processes leading to them (Shreve 2002). These models are ever present, oftentimes implicitly, in the assessment of translation quality (House 1997) and certainly encompass the set of expectations stakeholders in the language industry bear in mind during the various stages of workflow. As Dunne points out,

> In the marketplace, quality is not viewed as an absolute but rather is framed in terms of customer satisfaction. Thus, 'quality' is properly understood not as *degree of excellence*, but rather as *an intrinsic characteristic, property or attribute* that influences the ability of a product to meet a buyer's requirements (identified needs) and expectations (unidentified needs). (Dunne 2012, 145, original emphasis)

Therefore, we initiated our data analysis by looking at the expectations project managers have for professional translators and the perceptions translators have for these same expectations.

In responding to the question "what do you expect of a professional translator," where we envision expectations as embodying attributes of expertise, more than a third of the project manager respondents mentioned *timeliness* in the delivery of their work (see Figure 1); *quality* and *accuracy* followed as the second most commonly mentioned features. Project managers also included *responsiveness, ownership* and *commitment*, which are fairly common desirable attributes of any professional, *linguistic proficiency* and, interestingly, ability to *communicate* with the stakeholders and *interact* with the project manager during the workflow. From an expertise perspective, the fact that timeliness outweighs quality may suggest that productivity is more desirable than an error-free translation from an industry perspective.

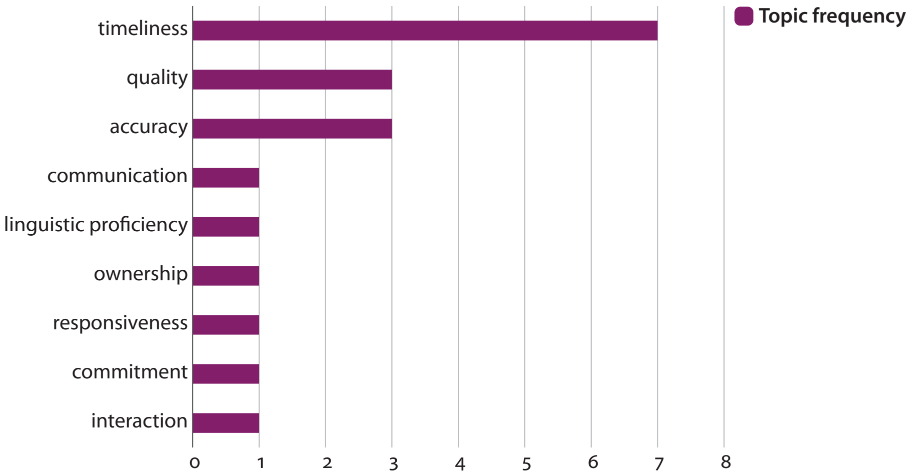

Figure 1. PM expectations of professional translators

As indicated in Figure 2, the translators also regard *timeliness* as the most important expectation, also followed by *quality*. But, for translators, *quality* (mentioned six times) is almost on equal footing with *timeliness* (mentioned seven times), and seen as significantly more important than *thoroughness, responsiveness* and *proactivity*, or *cost*, which were next highest in frequency (mentioned twice). Translators also mentioned *accuracy, professional service* and *ability to interact* in their response to this question (once each).

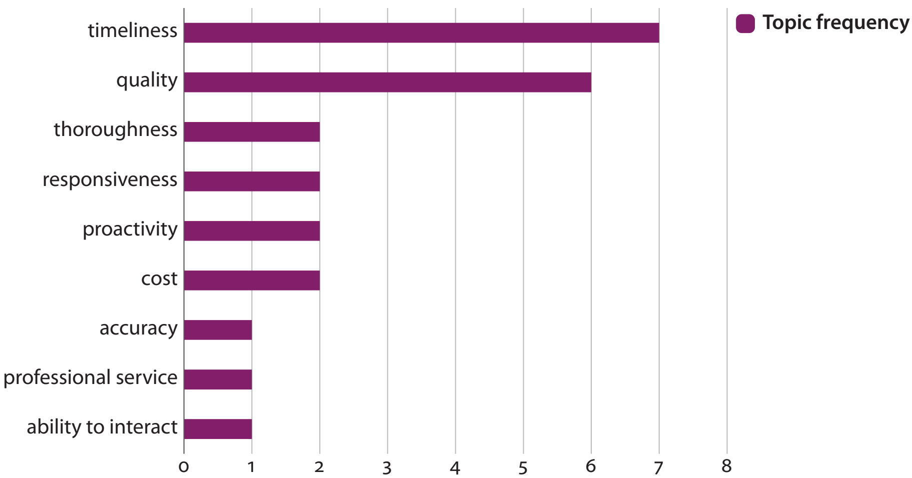

Figure 2. Translator perceptions of PM expectations

There seems to be an alignment in expectations in terms of what both project managers and translators regard as being most important, namely timeliness, which is possibly related to market productivity demands. It is worth noting, however, the differences with regards to quality, with translators mentioning it twice more often than project managers. Perhaps project managers have a more nuanced understanding of variation in what is regarded as sufficient quality based on the somewhat fuzzy notion of "professional service." Expertise in translation, then, might involve a capacity to cater to different levels of quality demands based on task awareness, while remaining optimally productive in the process. If we relate the data obtained for this question with responses to one of the closed questions, namely a hierarchical ranking of deliberate practice conditions deemed most important in the acquisition of expertise, we see the translators often rating the condition of having a well-defined task as most important. Perhaps notions of quality expectations should therefore be folded into the translation brief. At any rate, both project managers and translators seem to regard task awareness as an important aspect of expertise along the lines described here.

In terms of expectations, we also see divergence between the expectations of project managers in our study regarding productivity and the translators' documented actual performance. The majority of project managers, five out of nine, expect translators to translate somewhere between 1001 and 2000 words per day, three of them expected between 2001 and 3000 words, and one of them expected between 3000 and 5000. With the exception of one translator (who translated up to 500 words per day), all of the others translated between 2001 and 3000 words per day. On the one hand, this variation might be related to asymmetries in market demands across countries. Four of the project managers expecting between 1001 and 2000 are located in South Africa and the fifth one is in France, while the project manager expecting between 3000 and 5000 is based in the US. On the other hand, this variation might highlight different conceptualizations of what productivity implies. While translators focus on generated output first and foremost in number of words, project managers might define productivity in terms of situational (task) awareness, more independent of ultimate output.

6.2 Expertise and its assessment

The language industry professionals in our study were often not familiar with the Ericssonian definition of expertise as "consistently superior performance." Three translators acknowledged not understanding the concept and two project managers who had otherwise responded to all the questions left this question blank. This is not surprising, considering that the definition of a scientific construct such as expertise is not usually part of the typical training of translators or project managers. A possible alternative to gain insight into professionals' notion of "consistently superior performance" may be to address it indirectly with specific questions about optimal performance in concrete aspects of the task. Nevertheless, their attempts at describing it certainly parallel their perceptions of expectations as outlined in the preceding section. Five translators and four project managers linked consistently superior performance to timely deliveries. While also linked to notions of quality (by two translators and four project managers respectively), it is interesting to note that timeliness is rendered as a stronger indicator by both participant profiles. The project managers also included responsiveness and the capacity to interact with stakeholders, accept changes and being proactive as indicative of consistently superior performance. Here again we see aspects of situatedness coming to the fore as manifestations of expertise in their opinion.

Beyond timeliness and quality, two translators mentioned receiving good feedback, and another continuous training in their descriptions of what constitutes superior performance. Since feedback is relatively scant (provided on average for less than 25% of translations according to our study based on both PM and translator responses), perhaps it is regarded as a golden key to superior performance. This echoes the tendency for professional translators to rank feedback as the most important deliberate practice condition in acquiring expertise. We will return to this notion in greater detail in the following section.

In discussions of what distinguishes the 'expert' from the 'professional,' beyond notions of quality, translator respondents more frequently refer to specialization in a particular field, advanced use of CAT tools, and years of experience. As far as area of specialization is concerned, half of the translators said they are somewhat or very comfortable translating outside of their area of specialization while the other half are not. Our questionnaire did not ask translators whether or not they regard themselves as being experts, yet this 50–50 split is interesting. It reflects market realities (at least as far as our participants are concerned), bringing into question just how narrow expertise can be when it comes to area of specialization. While the translators in our study are, in fact, working outside of their subject areas of specialization, seven out of the nine project managers stated they never assign translation projects outside of the translator's area of specialization, or are very/slightly uncomfortable in doing so.

In distinguishing the expert from the professional, project manager respondents once again stress the capacity to interact, to establish good communication channels and a dialogue for queries as indicators above and beyond quality and timeliness. This focus on contextual environment and interaction further indicates an overarching tendency for the project managers in our study to perceive expertise and expert behavior within a situated cognition paradigm. This outlook is also present in the questionnaire responses where all of the project managers regard their impact, as well as that of editors, proofreaders, and fellow translators as moderately or very important in the translator's development. They also see the role of translators as moderately or very important in their own development. Based on our obtained data, the feeling does not appear to be mutual. Seven of the ten translators stated that project managers were not important or only slightly important in their professional development. However, they unanimously stated that fellow translators were very important in their professional development and seven out of ten feel editors are very or moderately important. A further exploration of why fellow translators in particular are held in the highest regard in this capacity from a situated cognition perspective is certainly warranted.

Our questionnaire also inquired as to how project managers and translators feel expertise in translation can be assessed. In both sets of responses, a third of the participants answered that years of experience is a good indicator of expertise, aligning with Ericsson and Charness' (1994) 10-year/10,000-hour rule. The project managers in our study proposed ideas such as *having translations reviewed by other competent translators* and *having translations go through subject experts in the target language*, but there is no corresponding discussion of what these parties would be assessing. The translators proposed *knowledge of theory, years of training, knowledge of CAT tools, and academic qualifications*. What is noteworthy here is that there is no direct mention by either population of concepts frequently mentioned in the TPR literature on expertise, such as automaticity, peak performance, metacognitive capacities, processing texts in larger chunks, and emotional regulation. There seems to be a noticeable disconnect between the ways in which researchers assess expertise and the ways in which language industry professionals envision how this might be done.

6.3 Deliberate practice

The translation brief is a good starting point for discussions on conceptualizations of well-defined tasks. In our study, seven out of ten translators said they either receive a brief or establish it in conjunction with the project manager or client. Seven out of nine project managers give their translators a brief or create it with them. While rates and deadlines tend to be established, avenues of communication among stakeholders in the translation project are not, according to eight out of ten translators and five out of nine project managers. Furthermore, six out of ten translators mention that recipient expectations are either not at all or only slightly clear. This is somewhat surprising, particularly given the emphasis that project managers place on efficacious communication as indicative of expertise. Perhaps such avenues should be incorporated as a standard component of the translation brief or commission.

Perceptions of 'well-defined' can also be examined in terms of degree of specificity associated with the task involved. Here, we see relatively little evidence of the project managers and translators in our study describing their respective designated professions alone. Among the ten translators, nine also proofread, seven also edit, and five also localize. Among the nine project managers, eight also proofread, seven also edit, and six also translate. Both translators and project managers wear different hats as language industry professionals at large. Perhaps expertise research could examine efficacy of switching hats rather than adhering to approaches that suggest expertise is not transferrable.

Working at an ever-increasing, appropriate level of difficulty is among the most important conditions for translator respondents, with six out of nine ranking it as most important or second most important among the four conditions. It is in the domain of this condition where we see the greatest perceptual discrepancies between translators and project managers. Five out of nine project manager respondents regarded this condition as being least or second to least important in the acquisition of expertise. Inherent financial and temporal constraints might stand in the way of project managers taking greater risks along these lines. It is quite likely that this condition of working at an appropriate, ever-increasing level of difficulty is least feasible from an industry perspective for multiple reasons. This starts with a potentially narrow understanding of what difficulty is and how it is indicated. The project managers attribute difficulty to things like difficult terminology, a high degree of subject field specificity, a lack of clarity in the ST – all text attributes. The professional translators, while also mentioning things like poorly written STs, terminology, and degree of specificity as text attributes expand on notions of difficulty by also mentioning triggers such as poor work conditions and clients not answering questions. These translator perceptions seem to closely parallel some of the recent work on cognitive and organizational ergonomics (Ehrensberger-Dow 2014) and could serve as a call for expertise research on difficulty to move beyond text attributes and translator attributes in isolation and examine things like translation working environments and interactional dynamics from an "appropriate level of difficulty" lens.

In terms of feedback, both the translator and project manager respondents concur that feedback, both from project managers and editors, but also from peers, is essential for translators. However, two thirds of the project managers in the sample provide feedback only for 1–25% of the translations they receive, and two thirds of the translators who answered our questionnaire receive feedback only for that percentage of their work. Given the fact that project managers emphasize efficient use of lines of communication and interaction, this is surprisingly low. Six out of nine project managers provide translators with feedback without them having to ask for it; and this feedback, according to the project manager responses, takes the form of emails and comments from clients, praise (with one project manager stating he/she never gives negative feedback), the basics (with one project manager stating too much feedback is overwhelming), and errors. Only once do we see mention of something more systematic or robust such as an evaluation spreadsheet. At the surface, it would seem as if this feedback is shallow insofar as a necessary condition for expertise acquisition is concerned. Our question, in asking what form feedback takes, was deliberately open-ended. Project managers gravitated towards notions of medium of exchange in their assessment and we are left in the dark as far as content is concerned. Nevertheless, it is interesting to note that all of the project managers surveyed engage in dialogue with their translators in discussing the feedback. It would be interesting to know the scope and contour of these dialogues, as it is perhaps in this context that expertise acquisition is fostered. An empirical research project of dialogic feedback exchanges between project managers and translators would be most useful.

According to translator responses regarding feedback, five out of ten get it from project managers without having to ask for it, while the other five have to ask. Nine out of ten find the feedback to be moderately or very useful, which would seem to suggest information is being conveyed above and beyond shallow emails. In terms of forms of feedback, the translators mention project manager emails frequently. However, they also mention comments from third party reviewers as well as from fellow translators/peers. One states that feedback rarely comes from an editor or proofreader and another states that it rarely comes from the project manager. In light of this, from the translators' perspectives the most useful feedback perhaps comes not from clients or project managers, but from fellow translators. This likely also explains why they feel fellow translators are more important than other stakeholders, such as project managers and editors, in their professional development. The research community would benefit from more in-depth ethnographic or discourse-based research on interactional dynamics between fellow translators in terms of feedback. It could be, for example, that peer-to-peer feedback exhibits particular features, such as deep task awareness, that are a more conducive route to expertise acquisition. These features might be beyond the scope of what usually appears in project manager-to-translator or editor/proofreader-to-translator exchanges.

Since the translators in our study received formal feedback on their translations from others 25% of the time or less, discussions of feedback as a condition needed for expertise acquisition need to turn in the direction of self-feedback. Eight out of the ten translators mention engaging in self-assessment in the context of their translations. An analysis of topics in a subsequent question, as documented in Figure 3, reveals how translators go about doing so.

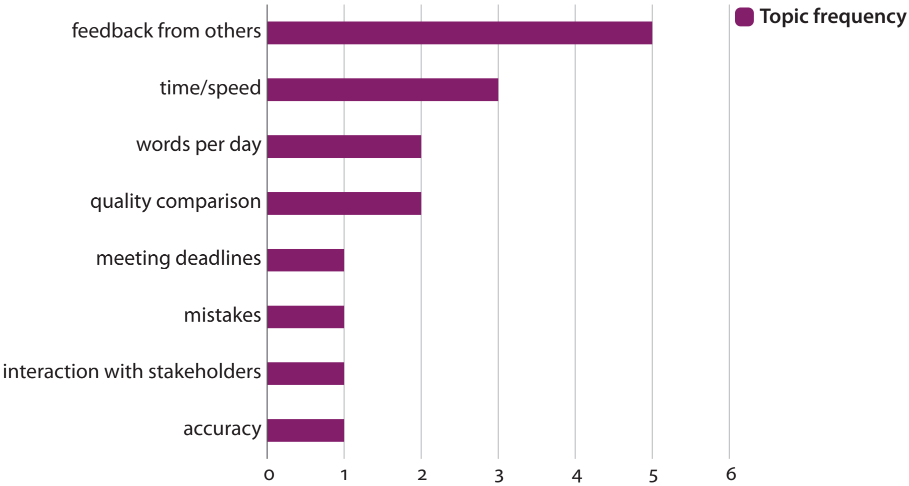

Figure 3. Prompts for translators' self-feedback

We see here that for the translators in our study, self-feedback hinges on receiving input from others. Reportedly, due to time and infrastructure constraints, this is not always feasible. Somehow, translators need to be in a position to provide feedback on and self-evaluate their own performance without such external input. Examining time-on-task intervals in conjunction with words per day output is a potentially conducive way to assess productivity, and even overall adaptability to stakeholders' expectations, but will likely not reveal any information on potential problem areas. Retrospective screen recording-based analyses of one's work (Angelone 2012; 2014) might provide feedback that is more in this direction of autonomy, yet also cuts into already precious time. This represents another example of where academic literature has yet to have an impact on shaping industry practices. However, none of the translators have a screen recording application as part of their standard translation environment and project managers do not expect them to either.

Seven out of nine project managers feel the translators with whom they work should self-assess their own performance. In terms of how this should be done, once again, the focus seems to be on retrospective self-evaluation based on the feedback with which they or others provide them (see Figure 4).

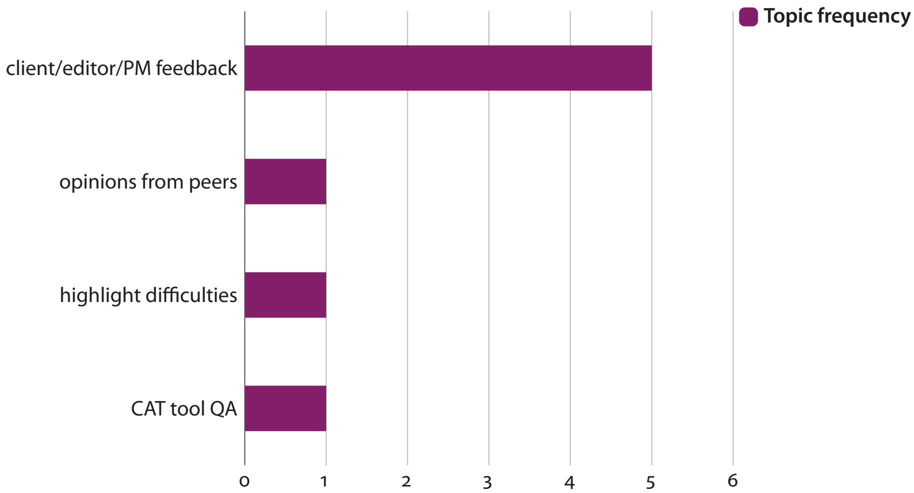

Figure 4. Project manager ideas on how translators should self-assess their performance

The idea of highlighting difficulties, while definitely a form of self-assessment, does not necessarily foster translator autonomy in expertise acquisition in that, ultimately, if it is not accompanied by another feedback loop actively involving the translator, this highlighting will likely be used by an editor to make potential changes without the translator ever knowing what was changed or why. It is not entirely clear what CAT tool QA implies, though this would seem to potentially hold promise as a more autonomous form of self-feedback.

Our focus on deliberate practice concludes with questions geared towards opportunities for correcting errors. Only five out of nine project managers provide translators with this opportunity. In other words, they have a greater tendency to provide them with feedback where errors are indicated, but there really is not much of a chance for the translator to correct errors and resubmit. The project managers, at times, seem to equate giving feedback with giving translators an opportunity to self-correct errors for resubmission. In answering this question, one PM says "make edits and send them back" as an opportunity for self-correction. But if things are already edited in a delineated fashion, there is no real room for growth through error self-detection and revision.

Nine out of ten translators deliberately seek out opportunities to correct and resubmit their errors, citing reasons such as improving quality, finding out what is wrong, and even professional pride. With the exception of improving quality, we do no not see a direct connection between these translator responses and how opportunities to correct answers can enhance expertise. Simply knowing what is wrong can be regarded as feedback, but not as an opportunity to correct errors per se. Perhaps ideal feedback could take the form of someone external identifying errors in the translation, but not explaining why they are errors, let alone what types of errors they are. This would be up to the translator to determine in the context of correcting errors for resubmission. Time and financial constraints would likely prevent this from becoming a standard practice for all translation projects, but perhaps it could be used intermittently or for only parts of translations or, given its proximity to a teaching method, as part of the assessment rubric for translation internships.

7. Concluding remarks and future directions

Our small-scale questionnaire-based study was carried out with two fundamental objectives in mind, namely (1) to document emic perspectives on various facets of expertise based on the perceptions of professional translators and project managers; and (2) to obtain evidence as to how the four conditions of deliberate practice as outlined by Shreve (2006) are practiced within the language industry. While there is undeniably overlap, it seems like there still exists a noticeable disconnect between expertise as conceptualized ethically within the TPR community and as conceptualized emically among project managers and professional translators. Instead of seeing project manager or translator discourse on automaticity, peak performance, working memory retrieval, metacognitive regulation and so on, we see them talking about timeliness, being able to interact and ask the right questions of the right people, and responsiveness as fundamental indicators of expertise. This is not to say that the theoretical foundations of expertise derived from cognitive science do not ultimately shape these conceptualizations. In fact, this is likely the case given that cognitive science theoretical constructs, such as metacognitive regulation or automaticity, model the cognitive processes that underlie respondents' concerns, such as being able to deliver timely translations. What the project manager and translator perceptions on expertise do highlight is what they find to be most relevant based on industry needs and this, it would seem, is strongly rooted in situated cognition. Productivity, for example, is not necessarily the end result of automaticity, episodes of peak performance, or processing/generating text in larger chunks, but rather making the most of available resources, such as the translation brief, being able to adapt to ever-changing task demands, interacting with project managers, editors, and, it seems most importantly, fellow translators, in getting the job done. We find it particularly interesting to see how quality, in essence, takes a backseat to productivity in emic discussions of expertise. Then again, it seems the same holds true in a great deal of recent TPR experimental research on expertise.

The documented evidence of both project managers and translators wearing different hats and working concurrently in multiple language industry tracks is also interesting from perspectives of the specificity and adaptability of expertise. While most of the translators in our study are working into their L1 only, and most of the project managers would not have it any other way, both participant groups expressed some level of comfort in translating texts outside of the translator's area of specialization. So we see a need for adaptability at multiple levels, not to mention the need to adapt to different quality expectations, output media, and various additional situational constraints. If we are to make a distinction between an expert as an idealized end result and expertise as a dynamic, constantly evolving skillset, expertise studies on language industry realities might benefit from exploring efficacy in adaptability to a greater extent than what we have seen to date. Furthermore, it might be advisable to also underscore the relevance of adaptability in translator training as a much required attribute in the industry. If, as Pym (2009) and Angelone (2012) demonstrate, experimental TPR has the added value of being a powerful training tool, we may find that the emic study of the language industry may be a pertinent tool to gain insight into expertise as a phenomenon highly dependent on "personal and interpersonal dispositions" (Kiraly 2015, 27–28).

In terms of the deliberate practice conditions, we found feedback to be relatively scant, yet when it does occur, it tends to involve dialogue exchanges between provider and recipient and the translators were all of the opinion that this feedback was either moderately or very helpful, particularly when coming from fellow translators. This raises the question of what exactly it is about these translator-to-translator feedback sessions that is so conducive.

In revising our questionnaires for future iteration and further validation, we might benefit from broadening the spectrum of questions beyond the conditions leading to expertise stated in the literature. We might include more open questions about the nature of peer-to-peer feedback and interaction, such as: What kinds of feedback are being provided, how often, and to what extent? Can fellow translators provide insight that other stakeholders cannot? We see these as important questions in the context of expertise research using a cognitive translatology paradigm. These types of questions might have been asked if the method for obtaining insight involved face-to-face interviews rather than strictly online questionnaires, as was the case in our study.

We found the condition of having opportunities for correcting errors to be understood in a rather fuzzy fashion by the project managers and translators alike. When the project managers expressed an interest in providing translators with this important opportunity and were asked how they would go about doing so, they often mentioned giving translators feedback from clients or errors as documented by editors. In other words, there seems to be a tendency to fold the conditions of feedback and having an opportunity for repetition and the correction of errors together.

Another condition of deliberate practice that seems to be shallowly understood within the language industry is that of working at an appropriate, ever-increasing difficulty level. The project managers, in particular, expressed hesitation at giving translators projects at the periphery of their comfort zones, i.e., tasks that are increasingly difficult. It is only natural that they want their translators to submit the best possible translations to ensure client satisfaction. That being said, we see a tendency for 'difficulty' to be defined and described based on text attributes alone. Perhaps it would be more conducive for project managers (and translators) to regard working at an ever-increasing level of difficulty as involving tasks that require more efficacious interaction with other stakeholders, the utilization of CAT tools to enhance productivity and mitigate disruption in workflow while not sacrificing quality, the optimization of cognitive (and physical) ergonomics – all current trends, sure enough, in translation process research.

In summary, our respondents' answers indicate that not all the conditions for deliberate practice are met in the industry, that those met do not necessarily take the same form as in academic settings, and that emic conceptualizations of expertise are often rooted in aspects of situated cognition. As indicated in Table 3, in terms of "well-defined" tasks we see that, while a brief or set of translation acceptance criteria is established, both respondent groups indicate a dearth of clear channels of communication among stakeholders, which is critical if we consider the great relevance respondents attributed to interaction. We also see evidence of both project managers and translators working in multiple language industry domains in multiple roles simultaneously, pointing towards a need to place more attention on exploring adaptive facets of expertise in future TPR research. Feedback, considered as a particularly relevant facet of expertise acquisition by translators and project managers alike, is provided for only a quarter or less of the projects in which our respondents were involved. The most conducive feedback tends to be that generated by peer translators or prompted by translators' self-assessment, an approach signaled as a best practice both by translators and project managers in the sample. Both groups underscored the importance of clear communication vis-à-vis feedback, with project managers tending to engage in dialogue with translators. We found a divergence between sample groups with regards to the condition of appropriate, increasing level of difficulty, which translators consider highly relevant and project managers negligible. For both groups, however, this condition was not met, due to industry demands and constraints. It is interesting to note that the translators conceptualize difficulty from the perspective of situated cognition, putting poor working conditions and unresponsive clients on equal footing with

Table 3. Deliberate practice conditions according to translator and project manager responses

	Well-defined task	**Appropriate level of difficulty**	**Informative feedback**	**Opportunity for repetition**
Translators	Brief established; communication channels not clarified; expectations not clear; wearing many hats	Considered highly relevant; not in place due to industry constraints; difficulty includes poor working conditions and not receiving answers to questions	Provided for less than 25% of projects; the most important facet of expertise acquisition; self-assessment; feedback from fellow translators particularly important	Sought out by translators; no clear link to expertise development
Project managers	Brief established; communication channels not clarified; wearing many hats	Considered not at all or only slightly relevant; not in place due to industry constraints; defined according to text attributes alone	Provided for less than 25% of projects; dialogic; self-assessment	Information about errors in feedback loops without opportunity to repeat; conflation of feedback and opportunities to correct

text attributes in their descriptions. Finally, the opportunity to repeat the task and correct errors is deliberatively sought out by translators as a way to improve their performance, but something not commonly a feature of their translation projects. Both translators' and project managers' responses indicate that this condition is subsumed under feedback iterations.

The limited scope of this pilot study does not allow for generalizations or all-encompassing statements about translation expertise, but certainly leaves us with a thought-provoking set of data that might lead to more questions and research. It is clear that the working dynamics between fellow translators are essential for language industry professionals' expertise, and so this merits further research, perhaps in the form of observational studies in the workplace. The emphasis in respondents' conceptualizations on adaptability and interaction certainly fit the situated dimensions of expertise as a research construct (Muñoz 2014), a kind of data that other approaches to translation cannot easily elicit. It might be interesting to pursue this line of research to test the scope of 'expertise' as well as of other legacy concepts as a way to discern which ones better suit our purposes in the light of empirical data (see Marín 2017).

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Appendix A. Survey for Translators

For how many years have you been working as a professional translator?

❍ Less than one year
❍ 1–4 years
❍ 5–10 years
❍ 11–15 years
❍ 16–20 years
❍ 21–25 years
❍ 26–30 years
❍ 31+ years

What is your native language?

Into which language(s) do you regularly translate?

Out of which language(s) do you regularly translate?

From the options below, select all that apply in your case:

❑ I have a certificate in Translation
❑ I have an undergraduate degree (i.e., a bachelor's degree) in Translation
❑ I have a master's degree in Translation
❑ I have an undergraduate degree in a field other than Translation (please enter field) _________
❑ I have a master's degree in a field other than Translation (please enter field) _______________
❑ None of these

If you earned an undergraduate degree in Translation, how much do you feel your formal training accounts for your current success as professional translator?

❍ A great deal
❍ A moderate amount
❍ A little
❍ Not at all

If you earned a master's degree in Translation, how much do you feel your formal training accounts for your current success as a professional translator?

❍ A great deal
❍ A moderate amount
❍ A little
❍ None at all

If you earned a certificate in Translation, how much do you feel your formal training accounts for your current success as a professional translator?

❍ A great deal
❍ A moderate amount
❍ A little
❍ None at all

If you earned an undergraduate degree in a field other than translation, how much do you feel your formal training accounts for your current success as a professional translator?

❍ A great deal
❍ A moderate amount
❍ A little
❍ None at all

If you earned a graduate degree in a field other than Translation, how much do you feel your formal training accounts for your current success as a professional translator?

❍ A great deal
❍ A moderate amount
❍ A little
❍ None at all

Are you a certified translator or do you hold any other language industry-related certification?

❍ Yes, specify ______________________
❍ No

Approximately how many words of source text do you translate on average over the course of a given day?

❍ Up to 500 words
❍ 501–1000 words
❍ 1001–2000 words
❍ 2001–3000 words
❍ 3001–4000 words
❍ 4001–5000 words
❍ More than 5000 words

From the options below, select all items that represent what you do professionally on a regular basis:

❑ I translate
❑ I interpret
❑ I localize
❑ I edit
❑ I proofread
❑ I subtitle/dub audiovisual content
❑ I work as a project manager

From the options below, select all that apply in your case:

❑ I only translate into my L1
❑ I translate into languages other than my L1
❑ I only translate texts in one given domain
❑ I translate texts in multiple domains
❑ I only translate texts involving one given language pair
❑ I translate texts involving multiple language pairs

Are you currently a freelancer?

❍ Yes
❍ No

Have you ever been a freelancer?

❍ Yes, reason for leaving ______________________
❍ No

Are you currently an in-house translator?

❍ Yes
❍ No

Have you ever been an in-house translator?

❍ Yes, reason for leaving ______________________
❍ No

What do you feel the recipients of your translations (PMs, editors, clients) expect of you as a professional translator?

Do you feel your productivity has increased since the time you first started translating? Why or why not?

Briefly describe the kinds of things you do in an effort to become a better translator.

How would you define "consistently superior performance" in translation?

How, in your opinion, might expertise in translation be assessed?

What, in your opinion, distinguishes the expert translator from the professional translator?

Rank the following in order based on what you feel is most important in the acquisition of expertise (1 = most important, 4 = least important):

_______ Having a well-defined task
_______ Getting feedback
_______ Having opportunities for correcting errors
_______ Working at an ever-increasing, appropriate level of difficulty

Rank the following in order based on what you feel is most important in the acquisition of expertise (1 = most important, 5 = least important):

_______ Efficient use of computer-assisted translation tools
_______ In-depth subject knowledge of the field(s) in which one translates
_______ Enhanced working memory capacity
_______ Being able to interact with others involved in the translation lifecycle
_______ Efficient self-monitoring of one's own performance

Which of the following are generally in place when you translate:

❑ The audience of the translation is defined
❑ The purpose of the translation is defined
❑ Deadlines are established
❑ Rates are established
❑ Avenues of communication among stakeholders are established

What are your thoughts on the concept of a translation brief?

❍ Never heard of it
❍ Not particularly useful when I translate
❍ I get this regularly from the PM or from the client for whom I am translating
❍ I create this myself and share it with others
❍ I create this in collaboration with the PM/client

How comfortable are you translating into a language other than your L1?

❍ I never do this
❍ Very uncomfortable
❍ Slightly uncomfortable
❍ Somewhat comfortable
❍ Very comfortable

How comfortable are you translating texts in fields other than your preferred ones?

❍ I never do this
❍ Very uncomfortable
❍ Slightly uncomfortable
❍ Somewhat comfortable
❍ Very comfortable

Have your professional translation tasks more or less stayed the same in terms of text topics and/or language directionality over the course of your career?

❍ Yes
❍ No

How have your professional translation tasks evolved over time in terms of text topics and/or language directionality?

Has there been an increasing level of difficulty in your professional translation tasks over the course of your career?

What, in your opinion, makes a given text difficult to translate?

How do you go about determining whether or not a given text is too difficult to translate?

Do you measure/assess your own performance as a professional translator?

❍ Yes
❍ No

How do you measure/assess your own performance as a professional translator?

Why do you choose not to measure/assess your own performance as a professional translator?

How do you know whether or not your translation was adequate? Please select all that apply.

❑ No news is good news
❑ I continue to receive work from the same PM/client
❑ Feedback from the PM
❑ Feedback from editors/proofreaders
❑ Feedback from peers
❑ Self-assessment
❑ Other (please specify) ____________________

How do you go about documenting the problems you encounter when translating?

❍ I don't
❍ I make use of a translation log/journal
❍ I highlight corresponding passages in the text
❍ I rely on feedback from the PM, editors, proofreaders, or peers
❍ Other (please specify) ____________________

Do you seek opportunities for self-correction of errors in your translations?

❍ Yes
❍ No

Why do you seek opportunities for self-correction of errors in your translations?

Why do you refrain from seeking opportunities for self-correction of errors in your translations?

For what percentage of your translations do you generally receive feedback?

❍ None
❍ 1–25%
❍ 26–50%
❍ 51–75%
❍ 76–99%
❍ All of them

Do you have to seek out feedback or is it readily provided to you without having to ask for it?

❍ I have to seek it out
❍ It is readily provided without my having to ask for it

If you receive feedback, who gives it and what form does it take?

If you receive feedback, how useful does it tend to be?

❍ Not applicable (I don't receive any feedback)
❍ Not useful at all
❍ Slightly useful
❍ Moderately useful
❍ Very useful

If the feedback you receive is not as useful as you had hoped it would be, why isn't it?

If you receive feedback, do you tend to engage in a dialogue with the person giving you feedback?

❍ Yes
❍ No

Are you given an opportunity to resubmit your work after receiving feedback and taking it into consideration?

❍ Yes
❍ No
❍ Sometimes

Has a translation recipient (LSP, PM, editor, client) ever invested in developing your skills as a professional through things like workshops, courses, or technical support/training?

❍ Yes
❍ No

Which skills were developed and which translation recipient (LSP, PM, editor, client) invested in your development?

Do you envision yourself still working as a professional translator in five years' time?

❍ Yes
❍ No

Which of the following are standard components of your translation working environment:

❑ A translation memory
❑ A terminology database
❑ Retrieved/archived parallel texts
❑ Concordancer applications
❑ Speech recognition software
❑ Corpus building applications
❑ E-dictionaries/online dictionaries
❑ Screen recording applications
❑ A dual-monitor set-up

Which of the following devices do you use to translate:

❑ A desktop computer
❑ A laptop computer
❑ A netbook
❑ A tablet (such as an iPad)
❑ A smartphone

How does your translation working environment optimize your performance?

When you translate, how clear, generally speaking, are recipient (PM, client, editors, proofreaders) expectations?

❍ Not clear at all
❍ Slightly clear
❍ Moderately clear
❍ Very clear

How important have project managers been in your development as a professional translator?

❍ Not important at all
❍ Slightly important
❍ Moderately important
❍ Very important

How important have editors been in your development as a professional translator?

❍ Not important at all
❍ Slightly important
❍ Moderately important
❍ Very important

How important have fellow translators been in your development as a professional translator?

❍ Not important at all
❍ Slightly important
❍ Moderately important
❍ Very important

Appendix B. Survey for Project Managers

For how many years have you been working as a project manager?

❍ Less than one year
❍ 1–4 years
❍ 5–10 years
❍ 11–15 years
❍ 16–20 years
❍ 21–25 years
❍ 26–30 years
❍ 31+ years

Prior to working as a project manager, did you gain any experience working as:

❑ a professional translator (please specify number of years) ______________________
❑ a professional editor (please specify number of years) ______________________
❑ a professional localizer (please specify number of years) ______________________
❑ a professional proofreader (please specify number of years) ______________________
❑ other career track (please specify career type and number of years) ______________________
❑ I've only worked professionally as a project manager

From the options below, select all that apply in your case:

❑ I have a certificate in Translation
❑ I have an undergraduate degree (i.e., a bachelor's degree) in Translation
❑ I have a master's degree in Translation
❑ I have an undergraduate degree in an academic field other than Translation (please enter field) ______________________
❑ I have a master's degree in an academic field other than Translation (please enter field) ______________________
❑ None of these

If you earned an undergraduate degree in Translation, how much do you feel your formal training accounts for your current success as a professional project manager?

❍ A great deal
❍ A moderate amount
❍ A little
❍ None at all

If you earned a master's degree in Translation, how much do you feel your formal training accounts for your current success as a professional project manager?

❍ A great deal
❍ A moderate amount
❍ A little
❍ None at all

If you earned a certificate in Translation, how much do you feel your formal training accounts for your current success as a professional project manager?

❍ A great deal
❍ A moderate amount
❍ A little
❍ None at all

If you earned an undergraduate degree in a field other than translation, how much do you feel your formal training accounts for your current success as a professional project manager?

❍ A great deal
❍ A moderate amount
❍ A little
❍ None at all

If you earned a graduate degree in a field other than Translation, how much do you feel your formal training accounts for your current success as a professional project manager?

❍ A great deal
❍ A moderate amount
❍ A little
❍ None at all

Are you a certified project manager or do you hold any other language industry-related certification?

❍ Yes, specify: _____________________
❍ No

Approximately how many words do you expect a translator who works for you to translate over the course of a given day:

❍ up to 500 words
❍ 501 – 1,000 words
❍ 1,001 – 2,000 words
❍ 2,001 – 3,000 words
❍ 3,000 – 5,000 words
❍ more than 5,000 words

Please check all of the options below that apply in indicating what activities you currently do regularly as a professional:

❑ work as a project manager
❑ translate
❑ interpret
❑ localize/internationalize
❑ proofread
❑ edit
❑ subtitle/dub audiovisual content

Please select all of the options below that apply to you:

❑ I only work with translators who are translating into their L1
❑ I work with translators who are translating into their L1 as well as languages other than their L1
❑ I only work with translators who are translating in their primary field of expertise
❑ I work with translators who might be translating outside of their primary field of expertise
❑ I only work with translators that have one language pair only
❑ I work with translators who translate in languages other than their L1 or L2

Rank the following in order based on what you feel is important in deciding on whether or not to hire a translator (1 = most important, 6 = least important)

_______ Certificate in Translation
_______ MA in Translation
_______ Years of experience
_______ The translator is a native speaker of the target language
_______ Degree in the field of the translation subject
_______ Professional internships

Are you currently a freelance project manager?

❍ Yes
❍ No

Have you ever been a freelance project manager?

❍ Yes, reason for leaving: ______________________
❍ No

Are you currently an in-house project manager?

❍ Yes
❍ No

Have you ever been an in-house project manager?

❍ Yes, reason for leaving ______________________
❍ No

What do you expect of a professional translator?

Do you feel the productivity of the professional translators with whom you work has increased since the time you first started working with them? Why or why not?

Briefly describe the kinds of things you expect professional translators to do in an effort to become better translators.

How would you define consistently superior performance in translation?

How, in your opinion, might expertise in translation be assessed?

What, in your opinion, distinguishes the expert translator from the professional translator?

Rank the following in order based on what you feel is important in the translator's acquisition of expertise (1 = most important, 4 = least important)

_______ Having a well-defined task
_______ Getting feedback
_______ Having opportunities for correcting errors
_______ Working at an ever-increasing, appropriate level of difficulty

Rank the following in order based on what you feel is important in the translator's acquisition of expertise (1 = most important, 5 = least important)

_______ Efficient use of computer-assisted translation tools
_______ In-depth subject knowledge of the field(s) in which one translates
_______ Enhanced working memory capacity
_______ Being able to interact with others involved in the translation lifecycle
_______ Efficient self-monitoring of one's own performance

Which of the following are generally in place for your translation projects:

❑ Audience of the translation is defined
❑ Purpose of the translation is defined
❑ Deadlines are established
❑ Rates are established
❑ Avenues of communication among stakeholders are established

What are your thoughts on the concept of a translation brief?

❍ Never heard of it
❍ Not particularly useful for translators
❍ I provide my translators with this
❍ I leave this for my translators to come up with it
❍ I create this in collaboration with the translator and/or client

How comfortable are you with giving translators tasks where they are translating into a language other than their L1?

❍ I never do this
❍ Very uncomfortable
❍ Slightly uncomfortable
❍ Somewhat comfortable
❍ Very comfortable

How comfortable are you with giving your translators texts to translate from fields other than their fields of expertise?

❍ I never do this
❍ Very uncomfortable
❍ Slightly uncomfortable
❍ Somewhat comfortable
❍ Very comfortable

Do you usually assign the same/similar tasks to a translator in terms of language pairs and text topics over the course of your professional relationship?

❍ Yes, why: ______________________
❍ No, why: ______________________

Do you deliberately give your translators an increasing progression of difficulty for their translation tasks?

❍ Yes, why?: ______________________
❍ No, why not?: ______________________

What, in your opinion, makes a given text difficult to translate?

How should your translators go about determining whether or not a text is too difficult to translate?

What do you feel translators should do when the level of difficulty of their professional tasks exceeds their capacities of the moment?

Should the translators with whom you work measure/assess their own performance?

❍ Yes, how? ______________________
❍ No, why? ______________________

How can translators know whether or not their work was adequate?

❑ No news is good news
❑ They continue to receive translation work from the same PM/client
❑ Feedback from the PM
❑ Feedback from editors/proofreaders
❑ Feedback from peers
❑ Self-assessment
❑ Other (please specify) ______________________

How might translators go about documenting the problems that they encounter when translating?

❑ They shouldn't. They should just work through them
❑ They should make use of a translation journal or log
❑ They can rely on feedback from PMs, editors, proofreaders, or peers
❑ Other (please specify) ______________________

Should translators have opportunities for self-correction of errors in their translations?

❍ Yes, why? ______________________
❍ No, why not? ______________________

For what percentage of the translations that you receive do you generally give feedback?

❍ None
❍ 1–25%
❍ 26–50%
❍ 51–75%
❍ 76–99%
❍ All of them

Do you readily give translators feedback without them having to ask for it, or do you only provide it upon request?

❍ I readily provide it without translators having to ask for it
❍ I only make it available to translators upon request

If you give translators feedback, what form does it take?
If you give feedback, do you tend to engage in dialogue with the translator on it?

❍ Yes, why?: ______________________
❍ No, why not?: ______________________

How useful do you perceive this feedback tends to be for translators?

❍ Not useful at all
❍ Slightly useful
❍ Moderately useful
❍ Very useful

If the feedback has not been as useful as you had hoped it would be, why might this be the case?

Are translators given the opportunity to re-submit their work after receiving feedback and taking it into consideration?

❍ Yes
❍ No

Have you ever invested in developing the skills of a professional translator (through courses, workshops, technical support/education, subject matter education, etc.)?

❍ Yes, how? ______________________
❍ No

Which skills were addressed?

Do you envision your current translators still working for you as translators in five years' time?

❍ Yes
❍ No

What do you envision them doing instead and why?

Which of the following components do you feel should be standard in your translators' working environment?

❑ A translation memory
❑ A terminology database
❑ Retrieved/archived parallel texts
❑ Concordancer applications
❑ Speech recognition software
❑ Corpus building applications
❑ E-dictionaries/online dictionaries
❑ Screen recording applications
❑ A dual-monitor set-up

On which devices do you feel your translators can work?

- ❑ A desktop computer
- ❑ A laptop computer
- ❑ A netbook
- ❑ A tablet (such as an iPad)
- ❑ A smartphone

Briefly describe what you feel is an ideal translation working environment.

How might the translator's working environment optimize their translation performance?

In general, are your translators' expectations clear to you?

- ❍ Not at all clear
- ❍ Slightly clear
- ❍ Moderately clear
- ❍ Very clear

How important do you think PMs can be in the development of professional translators?

- ❍ Not at all
- ❍ Slightly important
- ❍ Moderately important
- ❍ Very important

How important do you think editors can be in the development of professional translators?

- ❍ Not at all
- ❍ Slightly important
- ❍ Moderately important
- ❍ Very important

How important do you think translators can be in the development of project managers?

- ❍ Not at all
- ❍ Slightly important
- ❍ Moderately important
- ❍ Very important

Knowing in translation practice

A practice-theoretical perspective

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This paper addresses the relationship between practice and knowledge in translation. It employs practice theory to conceptualize 'knowing-in-practice', introducing a theoretical approach to translation studies that enables an analytical focus on the practice of translating, rather than on the cognitive processes of translators or the textual features of translations. Against this practice-theoretical backdrop, knowing is construed as an emergent phenomenon that is sited in translation practice. Drawing on an empirical analysis of translating in a research organization, the paper then illustrates how this situated and embodied knowing is materially and discursively mediated and transpires in translation practice. Through its interdisciplinary approach, this research offers new sociological perspectives on the human and material interdependencies constituting translation in the workplace.

Keywords: practice theory, knowing-in-practice, embedded knowing, embodied knowing, translation practice, workplace research

1. Conceptualizing practice and knowledge

Sociological scholarship of recent decades has seen a growth in research that addresses questions of how and why people do what they do, whether in everyday activities or professional settings. This interest in human practices *per se* is not a new phenomenon; philosophical roots of practice theory are found in works by Marx, Wittgenstein and Heidegger, with significant contributions also by Taylor, Bourdieu, Foucault and Giddens. Building on those foundations, prominent scholars in the second generation of practice thinkers, Ted Schatzki (1996; 2002) and Andreas Reckwitz (2002), provide the conceptual inspiration for many current applications of practice theory in numerous domains, from everyday practices in the home to practices within workplaces and organizations. Those studies address research questions of relevance for numerous academic disciplines, including

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organizational and management studies (Nicolini 2012), consumption studies (Warde 2005; 2016), social anthropology (Shove, Pantzar, and Watson 2012), media studies (Bräuchler and Postill 2010) and political sciences (Jonas and Littig 2017). This paper constitutes a first application of this practice thinking to translation.

As noted above, Bourdieu (1977; 1990) and Giddens (1979; 1984) wrote about practices; however, neither can be said to have developed an ontological theory of practice. It is beyond the scope of this paper to offer detailed critique of Bourdieu's or Giddens' accounts of practices (see Schatzki 1996; Caldwell 2012; Nicolini 2012; Shove, Pantzar, and Watson 2012 for in-depth discussions) but it may be noted that Bourdieu (1977; 1990) focused more on theorizing habitus and field than practice. Both scholars tended to neglect the role of non-human objects and materials in practices, and did not focus much attention on how social change can be accounted for in and through practices. As will be seen below, the theories of practice proposed by Schatzki and others owe some debt to Bourdieu and Giddens but also seek to address some of the perceived shortcomings in their work. Most sociological studies of translation thus far have drawn on Bourdieu's field theory, with a strong focus on translator habitus (Inghilleri 2005; Hanna 2016); the notion of practice, in the sense elaborated below, has not been placed centre stage in translation studies.[1]

This paper thus provides a conceptual framework for and empirical illustration of practice-theoretical research on translating practice and related practices. In particular, it uses practice theory to address the relationship between practice and knowledge in translation, conceptualized as 'knowing-in-practice'. Against the practice-theoretical backdrop, knowing is construed as an embedded and emergent phenomenon that is sited in translation practice. Drawing on an empirical analysis of professional practices in the translation department of a research organization, the paper then illustrates how this situated and embodied knowing transpires in translation practice, and sheds light on the materially and discursively mediated nature of that knowing-in-practice.

Section 1 introduces practice as the unit of analysis for this research, with reference to practice-theoretical work, particularly in sociology and organization studies. It then outlines a processual conceptualization of knowledge as embedded in specific contexts, inseparable from the knower and sustained by social interactions, termed *knowing* or *knowing-in-practice*. This contrasts with a conventional understanding of knowledge as an object that is codified and transmitted from one person and context to another. In Section 2, following an introduction to the

1. Other socio-theoretical frameworks employed by a small number of translation scholars include Latour's Actor-Network Theory (Buzelin 2006; Buzelin 2007), Luhmann's Systems Theory (Hermans 2007; Tyulenev 2012) and Giddens' Structuration Theory (van Rooyen 2013).

fieldwork site and the methodology, a series of subsections draws on empirical data to produce an account of knowing in translation practice. A key aspect of this paper is that it relates those theories of knowledge, in particular knowing-in-practice (Nicolini 2009; 2011; 2012; Orr et al. 2016), to specific sites of translation practice, studying professionals in the workplace, rather than students in the classroom or translators under experimental conditions.

1.1 Practice theory

Comprehensive accounts of practice theory may be accessed elsewhere (e.g., Nicolini 2012; Bain and Mueller 2016); this section introduces the concepts that are most pertinent for this study, by explaining what is typically meant by practices and practice theory, as a precursor to the analysis of the role of knowledge in translation practices. Practice theory is not a unified theory; there are numerous approaches to the study of practices but they share a focus on the field of practice in their investigations of agency, knowledge, power, science, and other aspects of human activity (Schatzki 2001, 13). Practices may be understood as "embodied, materially mediated arrays of human activity centrally organized around shared practical understandings" (Schatzki 2001, 3).

While scholars use a variety of terms and may focus on various components of practices, we may note, firstly, that the embodied nature of practices is key to practice theorists, as shown in Postill's (2010, 11) description of practice theory as a "body of work about the work of the body". Moreover, practice theory pays attention to the non-human objects and materials that participate in practices; hence the emphasis in the above definition on human activity as materially mediated. A shared understanding is also key to a practice being recognized as such; as defined by Reckwitz (2002, 250), a practice is "a routinized way in which bodies are moved, objects are handled, subjects are treated, things are described and the world is understood". In a similar but streamlined account, Shove, Pantzar, and Watson (2012) regard practices as comprising materials (i.e., things, tools and the body), meanings (i.e., mental activities, emotions and motivations) and competences (i.e., understandings, skills and know-how). Finally, Schatzki's (1996, 89) description of practice as "a temporally unfolding and spatially dispersed nexus of doings and sayings" highlights an interest, not only in the performance of bodily actions in particular places and points in time, but also in discursive performances or representations.

Research taking a practice approach tends to address questions about the types of practice that are prevalent, how those practices develop, how they are combined, how they change, and how practices affect other practices (Schatzki, Knorr-Cetina, and Savigny 2001). In most accounts of practice, there is a tendency for the human aspect of activities to be foregrounded; people are conceived as "carriers" of practices (Reckwitz 2002).[2] Practice-oriented research may therefore also consider how individuals position themselves within practices, how people understand practices and their roles within those practices (Warde 2005, 149). Other theoretical work focuses on how practices are organized into bundles, complexes or constellations (Schatzki 2005; Shove, Pantzar, and Watson 2012) or on how different types of practices may be distinguished; e.g., dispersed and integrative (Schatzki 1996) or compound practices (Warde 2016). Our attention, for the remainder of this paper, is on the relationship between knowledge and practice in the workplace.

1.2 Knowing-in-practice

Having introduced key practice-theoretical concepts above, we now focus on how knowledge can be understood in relation to practices. There are many diverse understandings of what constitutes knowledge, and many categorizations of forms or kinds of knowledge, perhaps starting from the Aristotelian notion of knowledge as a fusion of *epistêmê, technê and phronêsis*.[3] Key current trends in theories of knowledge are structured around divergences between knowledge as a product and knowledge as a process (Tooman, Akinci, and Davies 2016). Conceived as a product or object, knowledge is akin to an information package that is codified, can be acquired, possessed and used by an individual, and transmitted from a knower to others in different contexts. This generalizable knowledge would pre-exist the practices or contexts in which it might be used. Cook and Brown (1999, 382) refer to this conception of knowledge as an "epistemology of possession".

In organization studies, particularly when informed by practice theory, there has been a shift away from thinking about knowledge as the possession of individuals to considering knowledge in use (Rennstam and Ashcraft 2014, 5). This second perspective views knowledge as situated in specific contexts of time and place in which knowers operate (Tsoukas 2005; Tooman, Akinci, and Davies 2016, 19). Knowledge is construed as dynamically and socially produced, shared and legitimated. It is not readily separable from the knower and their interactions with people and other elements within a system or web of interdependencies, and is therefore more aptly referred to as *knowledge in practice, knowing*

2. This contrasts with posthumanist practice orientations, e.g., Latour's (2005) Actor-Network Theory (ANT), which is characterized by the principle of symmetry between non-human and human actors.

3. Note that translations of these terms are often shaped by contemporary distinctions between theory and practice and modern conceptions of science (Parry 2014).

or *knowing-in-practice*. In this regard, Cook and Brown (1999, 383) talk about knowledge as action, and an "epistemology of practice".

These different perspectives on knowledge reflect and inform understandings of the relationship between knowledge and practice (Nicolini 2011; Nutley et al. 2016). At one end of the scale, knowledge and practice may be seen as rather separate phenomena and the relationship between them may be linear, but also problematic, as exemplified by discussions of incompatibilities between theory and practice, which are also familiar within translation studies. At the other end is a view that knowing and doing are inseparably entangled; in Nicolini's (2011) "radical" terms, knowing transpires in and through sociomaterial practices.

Between these two positions are variations in thinking about the knowledge-practice relationship. Cook and Brown (1999, 394), for example, describe knowledge (possessed) and knowing (as part of action) as two distinct entities and look at the way they interact in work practices in a "generative dance" that produces new knowledge and new ways of knowing. Other conceptualizations of the knowledge-practice relationship focus on shared knowledge as an asset of communities or networks of practice (Brown and Duguid 1991; Lave and Wenger 1991). This paper draws on the work of Nicolini (2011), Gherardi (2006), Orlikowski (2002) and others to focus, not on the community of practice but rather on the "practices of a community", with particular emphasis on the contextual enactment of practices and of knowing-in-practice (Gherardi 2009, 121).

A conceptualizing shift from knowledge as product/possession to knowing in practice is not synonymous with a shift of attention from explicit knowledge to tacit knowledge, or from know *that* to know *how*, or from declarative to procedural knowledge. It is rather a reconceptualization of the nature of knowledge and how it is created and shared; knowledge is something people do rather than something people have (Blackler 1995, 1022). Taxonomies of knowledge, such as the enduring explicit/tacit distinction, are useful but also potentially problematic if treated as different forms of knowledge, or as forms that can be readily converted from one into another (Nonaka 1994). The seminal work on tacit knowledge by Polanyi (1962; 1966) examined the personal knowledge tied to bodily and social experiences that may not be articulable, but Polanyi treated both explicit and tacit as dimensions of knowledge rather than different forms. Tsoukas (1996) also argues for this more integrated approach. Blackler (1995) reviews previous research that describes knowledge as embrained, embodied, encultured, embedded or encoded, but cautions against the simplification inherent in such typologies, highlighting how knowledge is multifaceted and complex in that it can be "both situated and abstract, implicit and explicit, distributed and individual, physical and mental, developing and static, verbal and encoded" (Blackler 1995, 1033).

In recasting knowledge, or knowing, in practice terms, and formulating a research agenda, Blackler (1995, 1041) finds it useful to focus on characteristics of knowledge in practice, i.e., knowledge as mediated, situated, provisional, pragmatic and contested. Later work by Nicolini (2011, 605) similarly characterizes organizational knowing as processual, emergent, relational, dependent on connections in place and time, embodied, provisional, contestable, and mediated through specific discursive and material conditions and artefacts. It is these characteristics of knowing in translation practice that are investigated in this paper.

1.3 Knowledge and knowing in translation studies

In translation studies, debates about the usefulness of theory for practice (Chesterman and Wagner 2002) tend to reflect a traditional conceptualization of knowledge, as possessed by the individual and, often, also a linear view of the relationship between knowledge and practice, whereby knowledge is acquired to be applied (or not) in practice. Some research has used surveys to identify the knowledge and skills base to be acquired by student translators (Lafeber 2012), while other contributions develop cognitive models of competence and elaborate the nature of specific competences and sub-competences including, for example, acquisition of declarative knowledge (PACTE 2014). As in many other domains, translation theorizing and pedagogy have tended to concentrate on embrained and encoded knowledge (of languages, terminology, specialized domains) rather than the embodied, embedded or materially mediated knowing that is explored in this paper.

Although based on theories of situated and extended cognition rather than practice theory, Risku's (2010) and Risku and Windhager's (2013) papers are among the few previous theoretical contributions to conceptualize translation activity as situated and embodied. Some understanding of the embeddedness of knowledge is also reflected in approaches to situated learning in translation pedagogy, following on from Kiraly's (2000) introduction of social constructivism to translation pedagogy and his later work on a "fractal view" and a "holistic-experiential" approach to pedagogy (Kiraly 2012). Situated learning is described as helping learners to make the transition from the classroom community of practice to a professional community of practice by "reproduc[ing] the professional context" for the learner using various pedagogical methods, activities and tasks (González and Enríquez 2016). By situating learning in this way, emphasis is placed on embedded and, to some extent, emergent knowledge, with deeper consideration of interpersonal experiences, thus shifting some attention away from encoded and embrained knowledge. However, there remains scope to accommodate other dimensions of knowing that are inherent in translation practices but are seldom addressed in pedagogy or theory, namely embodied knowing and materially mediated knowing.

One of the few previous theorizations of the relationship between knowledge and translation is offered by Risku, Dickinson, and Pircher (2010) and Risku (2013). Establishing translation as a form of knowledge work, these contributions draw on the knowledge management literature and on distinctions between tacit and explicit knowledge to produce a typology of different types of knowledge for translation. Codifiable and non-codifiable knowledge is listed for each type and consideration is given to the kinds of tools or instruments available to translators to help them to develop and use both codifiable and non-codifiable knowledge. The explicit knowledge is largely characterized as encoded and accessed in databases, manuals, translation memories, etc. By contrast, most of the tools and instruments enabling non-codifiable knowledge to be developed are interactional in nature, e.g., asking others for advice, interacting with others in physical or virtual settings, participating in conferences or workshops.

Despite this welcome attention to embedded and relational knowing, there are a few key differences between Risku's discussion of knowledge management and the conceptualizations on which this paper is based. Firstly, as discussed in the next section, I proceed on the assumption that all work is knowledgeable, not just what is termed 'knowledge work'. Secondly, a practice-theoretical approach seeks to move away from the notions of knowledge acquisition and knowledge management and towards knowing as emergent. Against that backdrop, I consider knowing to be socially embedded and relational, so that it is not only tacit or non-codified knowledge that transpires through social interaction. Finally, this paper empirically investigates knowing in a specific sited practice of translation. In that regard, it also contributes to a nascent but growing body of workplace research conducted in commercial translation settings (e.g., Risku 2009; LeBlanc 2013; Risku et al. 2013; Ehrensberger-Dow 2014; Ehrensberger-Dow and O'Brien 2015; Olohan and Davitti 2017).

2. A study of knowing in and through translation practice

In studying knowledge in relation to work, most sociological attention has been paid thus far to 'knowledge workers' in the 'knowledge economy' of Western, post-capitalist societies. Studies have tended to focus on a small number of professions deemed to be (or claiming to be) knowledge-intensive and engaged in complex problem-solving (Rennstam and Ashcraft 2014). However, increasingly scholars call for a practice-based approach that sees all work as knowledgeable (Blackler 1995; Thompson, Warhurst, and Callaghan 2001) and that addresses questions about the nature and role of knowledge as it evolves in everyday work of all kinds. Despite this call, Rennstam and Ashcraft (2014, 12) highlight ongoing biases in research that tend to favour masculinized, technical and scientific fields and professions as the archetypes of knowledge-intensive work, to the neglect of other occupations, leading to a recentring on certain, elite practitioners and consequently a "highly partial understanding of knowledge in use". This point is important in the context of this paper; translation is a professional activity widely practised by women, whose knowing-in-practice has not been studied explicitly to date. Through this study we can therefore hope to begin to redress those scholarly balances.

If we understand knowing as transpiring in and through sociomaterial practices, then studying knowing in practice requires us to study the "real-time accomplishment of a specific sited practice" (Nicolini 2011, 605). The analysis of knowledge and translation practices that follows emerges from my observations of translators at work in a specific site, detailed below. It is based on a thematic coding and analysis of field notes and artefacts, and it is informed by theoretical, practice-oriented frameworks of knowledge and knowing, as outlined above, and previous empirical studies of knowing in other workplace practices, including telemonitoring in hospitals (Nicolini 2011), product development (Orlikowski 2002) and engineering (Reich et al. 2015).

The aim of this analysis is to show how knowing and practice are entangled in the translation workplace. In addressing a translation studies readership, I do not produce the thick, multivocal description typical of an ethnographic narrative or a praxiography, which would, in any case, exceed space limitations. Instead, my analysis informs a more generalized account of how knowing transpires in translation practice, illustrating, firstly, how knowing emerges as embedded and embodied, materially and discursively mediated, and secondly, how practice-oriented conceptualizations are relevant and applicable to translation. The subsections focus on different characteristics of knowing-in-practice for analytical expediency, but it should be stressed that knowing-in-practice is often all of these at once.

2.1 The site of translation practice

My fieldwork took place in the translation department of a large research organization. The research organization (henceforth RO) is divided into numerous institutes and units for different scientific and technological specializations (not specified here to preserve anonymity). By contrast with other parts of the RO, the translation department is very small, comprising three translators, for whom I use pseudonyms *Anna, Barbara* and *Caroline*, and an administrative coordinator, *Diane*. The translation department provides translation and editing services to members of the RO, working principally between English and Language A, the official language of the country in which the RO is situated. One of the three translators, Anna, is the translation department team leader. My access to the site was facilitated by approaching Anna, who secured approval for the research from her superiors and disseminated information about the project to her colleagues, the prospective participants. Following procedures for gaining ethical approval from my university and consent from all participants, I spent time in the translation department observing the four members as they worked. I also participated in team meetings and interacted with members more informally away from their desks, for example, in lunch breaks.

A large proportion of the translators' time is spent translating documents from Language A to English, with a much smaller proportion consisting of translation in the opposite direction. All translation done by any of the translators is subsequently checked by one of their two colleagues. I use the term 'revising' (British Standards Institution 2015) for this activity. In addition to translating and revising, the translators also work as English-language editors, editing texts which have been drafted in English by researchers in the RO, identifying and repairing various deficiencies, with the aim of producing the standard of academic English required or expected by the gatekeepers of international scientific publishing.

2.2 Knowing as situated in time and place

The translators, Anna, Barbara and Caroline, have varying numbers of years of experience in the RO but they all translate and they all 'know translating'. In practice-theoretical terms, they are the carriers of the practice of translating in the RO. This practice comprises sets of their activities (and activities of others), organized around shared practical understandings and mediated through bodily actions and interactions with material objects. Translating is recognized as a practice within the RO and is reproduced in a more or less stable way in the department, while also undergoing adaptations over time, as human activities, materials and practical understandings also change.

As discussed above, knowing in practice is "a situated knowing constituted by a person acting in a particular setting and engaging aspects of the self, the body, and the physical and social worlds" (Orlikowski 2002, 252). The aim for empirical research is to study how "the knower and what is known emerge together in practice" (Nicolini 2011, 605). To illustrate the emergence and situatedness of this knowing in practice, let us consider the range of materials that the translators translate. On the one hand, these are extremely specialized texts performing expert-to-expert communication with an external readership, e.g., scientific research articles and research funding applications. However, the translators also translate texts that enable communication between the RO and the general public, such as newsletters, magazines, websites and annual reports. In addition, they translate documents relating to the administration and management of the RO that are circulated internally for specific readership groups, e.g., strategy and planning documents, contracts and staff training materials. Other texts translated regularly for internal consumption by members of the RO include the daily canteen menu, staff newsletters and intranet news posts.

In their practice the translators enact an understanding of many of the complex ideas and concepts being communicated through the material they translate. They are also familiar with much of the terminology used in the RO to designate those concepts in English and Language A. This is evident, for example, when they read and produce specialized discourse without recourse to reference material, or when they use relevant reference resources efficiently to retrieve conceptual explanations or terminological equivalents. Both of these activities are observed as recurrent in their practice. Their use of Internet search strategies is fast and efficient, enacting specific practice-related knowing, for example in deciding what alternatives to use as search terms, or in knowing how Google handles certain scientific nomenclature or formulae.

The translators also reproduce in their translations the conventions of a wide range of genres such as those mentioned above, often without needing to expend much time or cognitive resources deliberating on what those genres might look like. As with concepts and terms, they also know where to find exemplars of specific scientific genres when required, and they retrieve these quickly when needed. As Anna, Barbara or Caroline start working on a new translation, they relate it to an institute and activity in the RO with which they are familiar and they consult previous publications from the same area. In addition, their actions of retrieving relevant reference documents from other ROs show that their knowing about research activities extends to the wider scientific research fields beyond their RO; they also know about the networks and collaborations between their RO and external organizations and they enact this knowing in their retrieval of relevant reference material.

Thus, the translators, not formally educated in scientific specializations, nonetheless know about the various branches of science and technology studied at the RO, and about other specialist areas, like financial, personnel or strategic management. This knowing transpires primarily through their practice of translating documents pertaining to those subjects in this context. This theoretical and abstract knowledge may be regarded as embrained. However, Anna, Barbara and Caroline do not learn about a technical subject in a context-independent way but rather predominantly in relation to the work done by their RO as it participates in national and international research fields and as it discursively constructs and communicates its research. Their knowing not only transpires through their translation practice but also shapes and structures their practice, as was observed in their conceptual and terminological research strategies and activities.

The physical and temporal co-location of the translators and the scientists, administrators and other authors of the source texts, as well as the readers of many of the translations, is also highly relevant to their translation practice and their knowing. One illustration is Caroline's participation in a tour of one of the research areas of the RO one lunchtime. On the tour, she sees and interacts with the materials and people engaged in that research practice, and hears a discursive account of the research, as constructed by a representative of this research area in the RO. Thus her knowing about that technical work also emerges through her recent embodied experience of it.

The situatedness of practice and of knowing is not confined to specialized scientific aspects of the translators' activities. Another example to consider is that the translators sometimes eat in the canteen whose menus they have translated. They therefore see and taste the food, including the national and regional specialities for which they have coined names or descriptions in English. They are familiar with how the menus are posted in Language A and English on the RO's intranet, enabling people to decide whether to go to the canteen that day, or what to choose for lunch. They experience how the dish labels are displayed on or above the serving stations. They know that the English translations are for international employees and visitors to the RO; these are people who they encounter in the serving areas or the queues, or consuming the food at tables next to them. Their knowing how to translate the menus can therefore be seen as embedded but also embodied and materially mediated.

2.3 Knowing in regimes of doings and sayings

Borrowing from Nicolini's (2011, 610) description of other practices, we can say that knowing how to translate transpires through Anna, Barbara and Caroline's "tuning in and contributing to an existing regime of doings and sayings". From my perspective as an observer, the regime of existing doings and sayings is vast, with some doings and sayings specific to the members of the translation department, and others related to the RO as a whole or other administrative units in which the department is organized. Here I discuss just a small number of examples, related to one particular aspect, namely the temporal organizing of work practices.

The translators use their identity cards to swipe in and out of work as they enter or leave their building. This builds up an institutional record of time spent at work, from which overtime is calculated. A topic of conversation during my visit is how Anna will manage to take the free days that she has accumulated from many hours of overtime, something that is quite difficult for such a small team to manage, especially during the summer holiday period. The translators then proceed to the area of the building in which their department is located. Here they also check in, in a more informal and collegial sense, by going to greet any colleagues who are already in their offices; they also check out by saying goodbye at the end of the day. During the day, the time spent on a specific job is recorded, as the translator logs into and out of jobs on her computer. This action produces electronic records of jobs and time taken; each translator can access their personal record at any time, showing their cumulative work statistics for the year, month or day, and a breakdown of jobs by time, task, commissioning RO section, etc. These are just some of the doings and sayings that form part of the regime of working in the translation department; the translators' participation in them constitutes one aspect of their knowing in relation to how working time is organized and managed, both institutionally and among their colleagues.

On arrival in the morning, a first port of call is often Diane's office, which functions as a work hub and a social hub. It contains a drinks station, and throughout the day Anna, Barbara or Caroline go there to prepare drinks to take with them to their offices. At times, their paths will cross, giving an opportunity for work-related or non-work related chat, and interaction with Diane who is often working at her desk in the same room. However, the function of this space as a work hub is also salient. Through Diane's coordinating and administrative work, the translators' new assignments are made available here, in physical form, for them to pick up and take back to their offices to complete. The assignments are stacked in an desk tray, in plastic folders containing, in hard copy, the source text to be translated with accompanying identifying documentation relating to the assignment, the client, deadlines, etc. When they have finished a job, the translators deposit the plastic folder, now also including the translation, in an adjacent tray. The trays are clearly labelled to indicate which are the assignments awaiting translation and which are the completed ones. These are further examples of where the translators enact their knowing of existing regimes of doings and sayings. Diane's practice of project management by which this coordinating and record-keeping work is done is an interconnected practice (addressed also in Section 2.7). Her knowing, transpiring through her project-managing practice, is intertwined with the knowing of the translators.

The coordination of translation assignments is a joint effort between translators and Diane. At the start of each week, all four hold a planning meeting to go through a rolling schedule of ongoing and upcoming assignments which Diane provides in hard copy for each team member. The list is updated by Diane in preparation for this meeting but also during the intervening week. The list contains one-off assignments but also indications of regular assignments that materialize in accordance with institutionally defined timetables (e.g., fortnightly or quarterly newsletters or the annual report). The knowing in practice transpires in their joint coordinating and planning efforts to set up an achievable schedule, moving and negotiating tasks when necessary. The existing regime of sayings is in evidence on the schedule, for example, through the use of many abbreviations for institutes and units of the RO and pre-defined labels for text genres. Likewise, the names of clients or commissioners evoke shared understandings for the team, for example, in the knowledge that one is a stickler for deadlines, while another is likely to deliver their source text late.

The translators and Diane seek to allocate translation time by balancing ongoing large assignments that may take several weeks, e.g., the annual report, alongside smaller ones that come in with much tighter deadlines. Most assignments on the schedule are assigned a translator and often also a reviser, though some less urgent ones remain unassigned at this point. When all three translators have extremely busy schedules, which is most of the time, and particularly if one of them has upcoming leave, they need to know which tasks to prioritize or which deadlines might be negotiable. This knowing is based on prior experience and their relations with the commissioners or other units, as well as their familiarity with the activities and needs of those other units. Allocations or reallocations are discussed, negotiated and agreed at the meeting; this also relies on familiarity with their colleagues' strengths, preferences, past assignments, ability to juggle tasks, and other knowings. The schedule and its daily updates thereby enact the dynamic processes of serving clients and mutually managing workloads.

These snapshots of some of the scheduling and organizing of work serve as examples of the regimes of doings and sayings in which the translators participate and which mutually constitute their knowing and their translation practice. The translators' knowing in translation practice transpires, not only in and through their work at their desk translating the text but also in and through these kinds of organizing activities, which are embodied but also discursively and materially mediated.

2.4 Knowing as materially mediated

As seen above, knowing transpires in and from the physical actions of the translators. However, knowing also transpires in and from the mediatory work of various objects and the translators' use of them in practice. Examples of how materials mediate the practice and the knowing are seen in the description above of how translation assignments are physically organized in folders, placed in certain locations, picked up, opened, closed, dropped off, filed, etc.

Other examples of material configurations participating in and constituting the translation practice in the RO can be observed in the translators' offices. Each translator has a main desk equipped with a computer and two monitors, as well as other work surfaces and many other material objects. Translating is done at their main desk, and the material configuration of their computer equipment is actively involved in this practice of translating. Each translator uses one monitor for their translation memory (TM) software; here they see the source text and the editing interface for inputting their translation and they have access to functions of the TM, e.g., segment matches, term retrieval or concordancing. They use the other monitor for consulting reference material and carrying out research to help them to solve problems they encounter while translating. The practice of translating involves moving their attention between these two monitors, with sustained work in the TM interrupted by bursts of research activity on the other monitor. The knowing that transpires through these mediatory artefacts relates to effectiveness of researching and translating in this way and the ability to switch, bodily and mentally, between tasks. This material configuration is shared by the three translators and can also be seen as part of the existing regime of doings – a new translator joining the team would be given similar equipment, set up in similar fashion.

TM software is used by the translators for almost all jobs. One of its mediating functions is evident in that it provides the user interface through which the source text is viewed and the target text is entered. Its main functions, to retrieve fuzzy matches and terms from previously translated work, and to allow translated segments to be stored for future retrieval, also clearly mediate the knowing-in-practice. However, the TM's mediating function in translation practice extends beyond those core functions. Even when segments are not matched in the TM and terms are not in the termbase, the translators' knowing in practice is mediated through other functions, such as the AutoSuggest dictionary (a proprietary function that suggests words and phrases as the translator types). Here, the textual material held in the TM (generated from previous translation work) is organized by the software's algorithms to provide fragmentary, contextual suggestions; these suggestions appear visually on screen in drop-down menus as the translators type. The translators manually manipulate their mouse or keyboard to move through the AutoSuggest options and choose the most appropriate one, which then appears at that point in their translation. The availability of these suggestions is something that, in turn, shapes their translation practice, for example, by providing a convenient alternative to terminology look-up and prompting them to reduce the time they spend managing their terminology in termbases.

2.5 Knowing as embodied

The examples above show how 'knowing translating' transpires in and through a combination of bodily and discursive activities that constitute the practice. Indeed, much of the embrained work of translation is facilitated by discernible bodily activity and movement, e.g., embodied knowing can be observed in the ways in which translators interact with their workplace equipment when they translate. For example, as might be expected, they constantly use mouse and keyboard as input devices. In performing recurrent functions within her TM software, I observe that Caroline favours keystroke combinations over mouse movements and clicks, increasing her speed of movement through her text. These habitual, coordinated finger and hand movements are, of course, common to regular users of keyboards and mice but are also part of the knowing that transpires in translation practice, where software-specific keyboard shortcuts can become an integral aspect of working with a TM. Likewise, the shifting of attention between the translators' two monitors, as they switch from one activity to another, inevitably involves movements of eyes, heads and other parts of the body. Other examples of knowing embodied in practice can be observed in the physical behaviour of translators as they think and concentrate, whether we observe Anna turning her head so that she can look out of her window while thinking, or Barbara's movement forwards and backwards in her chair as she reads reference material, or the tapping of her fingers on her mouse as she deliberates about the appropriateness of a translation solution.

Not all of the translators' physical movement takes place at their desks. As noted above, movement within the department, between offices and within the space of Diane's office, is integral to the translation practice in the RO. However, the physical activities are not confined to the department. For example, Caroline goes to the library in another section of the building to consult some reference material, and Barbara takes a walk around the RO's grounds during lunchtime, hoping that this will improve her concentration for a challenging task awaiting her in the afternoon. Caroline finds it cognitively and physically conducive to her work if she cycles there in the morning, particularly if she takes the scenic route. Barbara uses a standing desk for certain revising activities to avoid back ache. All of these activities involve the body and mind, but also material objects – books on shelves, the landscaped grounds of the RO, a bicycle, countryside or a standing desk, to name just some of them. Traditionally in translation scholarship, these kinds of physical actions, non-human materials and the interactions between them would be invisible, unseen, disregarded or dismissed as irrelevant to the study of translation. However, these workplace observations show that they participate in the practice and in the knowing-in-practice at this site. As argued by Brown, Greig and Ferraro (2016, 86), "if knowing emerges from practice, through participation in the activities at hand, then the whole body must be engaged, from tongue to toe, and gut to heart". Likewise, it can be argued that the material objects with which the body engages must also participate in and shape the practice and the knowing-in-practice.

2.6 Knowing as relational

According to Gherardi, "to know is to be able to participate with the requisite competence in the complex web of relationships among people, material artefacts and activities" (2009, 118). In this section I highlight ways in which interpersonal relationships participate in and shape practices and knowing. The activity of revising colleagues' translations is, for this translation department, an integral part of their practice of translating. Every translated text is printed and is read in hard copy by a colleague, with the source text in hard copy alongside it, using a ruler or a blank piece of paper as a guide to control their line-by-line reading and comparison and make sure they do not miss details. The reviser annotates the translation, in pencil. Anna, for example, uses one notation to flag up changes required and a different notation to indicate a suggestion or an issue for discussion. The revisers not only mark up the text but also note down their own suggestions or solutions.

When the reviser has completed this activity, she notifies her translator colleague and they find a time to meet to go through the corrections together. They sit together at a table in the translator's office, sharing a single, annotated hard copy, reading through the annotations, one by one, and discussing the rationale for them and the possible solutions proposed by the reviser. Observing these encounters makes clear how vital it is for the translators, as part of a very small team, to be careful and thorough in their revisions, thus being of maximum help to their colleagues, but also to be able to explain and justify their corrections and suggestions non-confrontationally and encouragingly, so that relations are not damaged through undue or harshly delivered criticism. Likewise, the translator being revised needs to know how to react constructively to errors being spotted or suggestions for improving their work.

Once this process is completed, the meeting draws to a close and the reviser returns to their office. At a convenient time, usually shortly after the meeting, the translator takes the annotated copy to her desk where she implements changes on her electronic version of the translation, using a document holder or guide to facilitate her progression through the physical document while editing on screen.

This depiction of revising activities adds to our inventory of embodied and materially mediated activities. However, it is also a useful example of the relational and emergent nature of knowing. By working separately and then combining their efforts, the translators believe that they improve the quality of their final translation output. From the perspective of knowing we can observe how new or changed understandings of the texts or new translation solutions emerge from this joint effort and discussion. The relational knowing enacted here is an instance, as defined by Nicolini (2011, 613), of "knowing with others and among others as well as knowing, to some extent, what others know".

2.7 Interconnectedness of practices and knowings

Nicolini (2011, 605) argues that an episode of knowing in practice is a locus in a broader field, with numerous connections to other knowings and practices both leading to it and radiating from it. A study of knowing in practice thus requires us to study the enactments of a specific practice but also "the texture of relationships that connects it to other practices" (ibid.). A detailed analysis of the texture of the relationships or the constellations of related practices is beyond the scope of this paper but even brief consideration of the accounts above reveals aspects of the interconnectedness enacted in the translators' and Diane's practices and knowings.

One of the most salient relationships between practices and knowings in the translation industry is the one between the practice of managing translation projects and the practice of translating. In this RO, Diane's gatekeeping of clients, administrative processing of jobs and comprehensive record-keeping is central to the work organization of the translators. Without her work and the knowing she enacts, the translation practice would be different, and perhaps more difficult for the translators to perform. I observe how the translators manage to hold the fort when Diane is absent one afternoon, but this is far from a full-scale enactment of Diane's activities, and she then focuses on catching up on her own tasks the following day, which in turn enables the translators to focus fully on their translation practice. Diane's project management practice, in turn, is inextricably linked to and shaped by the translation practices enacted by her colleagues.

The other practice that is clearly interconnected with the practices of the translators in the RO is the practice of English-language editing of scientific papers. The RO's translating and editing assignments are commissioned, in institutional and procedural terms, in the same way as translations. They are processed and prepared by Diane for the translators in the same way; they figure on the rolling work schedule alongside translation assignments, labelled as editing and assigned to one person rather than a translator and reviser. When editing, the translators draw on their specialist knowledge of scientific domains and genres, just as they do in translating. It can be argued that the shared situatedness – the physical and temporal co-location of both practices in the RO, 'carried' by the same individuals and team – means that the two practices of translating and monolingual editing and their knowings are perhaps more similar at this site than might otherwise be expected when comparing practices of this kind.

3. Conclusion

This paper has adopted the position that all work, including the everyday work of translators, is knowledgeable. Moreover, knowledge is not synonymous with information or data, acquired through transmission in some encoded form from one individual's brain to another's. Rather, knowing is construed as dynamically situated and shared. In foregrounding practices, this account shows how translators, as human actors, are 'carriers' of practices but how those practices consist of and are shaped by emergent combinations of bodily activities and material arrangements. The practices are themselves a site of knowing; in other words, knowing transpires in and through the practices. Knowing, thus conceived, does not pre-exist the practice but rather emerges in the doings and sayings that constitute the practice. Since knowing emerges in and from practice, it necessarily involves human body and brain, as well as material objects. Knowing is both individually and collectively enacted, and is embedded in a specific site of practice.

In conceptualizing the relationship between knowing and practice in this way, this contribution has shown the potential offered by practice theory for enhanced understandings of the practice of translating. In analyzing aspects of the practices observed in a translation department, the paper has illustrated some dimensions of the emergent, embodied, materially mediated, collective knowings enacted in those practices. This practice-theoretical approach thus provides a valuable alternative to text-oriented or cognition-based studies of translation or knowledge, enabling us to account for the entanglements of human activities and material objects in enactments of translating. Finally, the focus on a translation department helps to widen the range of professional practices that are studied through a sociological lens; on several dimensions, research involving professional linguists can offer a desirable counterbalance to the professions and settings typically featured in social studies of workplaces and knowledge work.

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