

Jenni Virtaluoto

TECHNICAL
COMMUNICATION AS AN
ACTIVITY SYSTEM:
A PRACTITIONER'S
PERSPECTIVE

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UNIVERSITY OF OULU,
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JENNI VIRTUALUOTO

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AN ACTIVITY SYSTEM:
A PRACTITIONER'S PERSPECTIVE**

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Abstract

The quality of technical communication, for example the user guides created for various high-technology products, is often criticized. The information is not available when it would be needed, or it is not presented in a way suitable for our purposes. However, in the increasingly technology-based society of today, we are expected to operate a range of technical devices and software programs daily, at work and at home. The current re-structuring of the IT industry in Finland, on the other hand, has affected technical communication profoundly: cost pressures and outsourcing have led to narrow job descriptions, job losses and diminished wellbeing at work. Companies do not seem to appreciate the impact of high-quality technical communication on user experience. The work environments of technical communicators are also challenging: their background is typically in the Humanities, but they work with highly technical products. In many cases, they have learned the needed skills independently and in practice; very few experienced technical communicators have training in the field. In this study, some of the central contradictions in the technical communication activity are explored by applying activity theory on autoethnographic interview data. This study provides new information about technical communication as a profession, but the issues it raises are not limited to technical communication only: the restructuring of the IT sector is a phenomenon affecting a variety of fields.

The aim of this dissertation is twofold: 1) to investigate and describe the current status of the field in Finland, and 2) to suggest solutions to some of the problems we are facing using the tools offered by activity theory.

Keywords: activity theory, autoethnography, developmental work research, technical communication

Virtaluoto, Jenni, Tekninen viestintä toimintajärjestelmänä: ammattilaisen näkökulma

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Tiivistelmä

Teknisen viestinnän, esimerkiksi erilaisten teknisten järjestelmien käyttöohjekirjojen, maine ei ole kovin hyvä. Tietoa ei ole tarjolla kun sitä tarvitaan, tai se esitetään tavalla joka ei vastaa toiveitamme. Nykypäivän tietoyhteiskunnassa pärjääminen kuitenkin vaatii tietoteknisiä perustaitoja niin kotona, koulussa kuin töissäkin. Suomessa tällä hetkellä käynnissä oleva IT-alan murros taas on vaikuttanut suuresti teknisen viestinnän ammattikuntaan: kustannuspaineet ja ulkoistukset ovat johtaneet työnkuvan kapenemiseen, työpaikkojen menetyksiin ja työviihtyvyyden vähenemiseen. Yrityksissä ei nähdä laadukkaan teknisen viestinnän merkitystä käyttäjäkokemukselle. Teknisten viestijöiden työolosuhteet ovat myös haastavat: he ovat usein humanistitaustaisia henkilöitä, jotka työskentelevät vaativien teknisten tuotteiden parissa. He ovat tyypillisesti opetelleet vaaditut tekniset taidot omatoimisesti työn ohessa, ja hyvin harvalla pidempään alalla olleella on teknisen viestinnän koulutusta tukena. Tutkimuksessa tarkastellaan teknisen viestinnän keskeisiä ristiriitoja tulkitsemalla autoetnografista haastatteluaineistoa toiminnan teorian kautta. Tutkimus luo uutta tietoa teknisestä viestinnästä ammattikuntana, mutta esiin nostetut ongelmat eivät liity pelkästään tekniseen viestintään: IT-sektorilla käynnissä oleva rakennemuutos vaikuttaa useisiin aloihin.

Tämän tutkimuksen tavoitteena on 1) selvittää alan nykytilanne Suomessa ja 2) tarjota ratkaisuehdotuksia alan haasteisiin toiminnan teorian tarjoamien työkalujen avulla.

Asiasanat: autoetnografia, kehittävä työntutkimus, tekninen viestintä, toiminnan teoria

Acknowledgements

In 2011, I was on care leave with my daughter. This was my second break from work since 1998; I had gotten a job as a technical writer on my second year of English studies and had not looked back since. When I finally managed to complete my Master's in 2005, I vowed never to open another study-related book ever again. I had moved from company to company and ended up at Nokia – a situation quite common to most, if not all, Finnish technical writers – where I had the most understanding boss on the planet, along with brilliant co-workers.

Nevertheless, I had grown anxious over the past few years; I felt the need to expand my horizons professionally, but the direction was not clear to me. I toyed with a variety of options ranging from becoming a Personal Trainer to a Nutritionist to a Travel Agent (no, really), until my husband suggested that returning to English Philology might be the answer. I had not really considered this option, but the more I thought about it, the more sense it started to make. As a long-time tech writer, I had, of course, noticed the trends that were shaping our profession. I knew many colleagues had lost their jobs and the ones who still were employed did not seem to appreciate the way their careers were going. I started to feel faint tingles of excitement – I felt that I was possibly embarking on something meaningful. I contacted my Master's Thesis supervisor, Leena Kuure, about enrolling as a PhD student, and stated temporary insanity as the reason behind my inquiry; becoming a Doctor of anything had not really been in the books for me. Thanks to my boss Tuija, it was eventually possible for me to switch my care leave to study leave and begin this research project. I began to work on an actual research plan, got into the University of Oulu Graduate School (UniOGS), and things took off from there quite quickly. Thank you Jere, Leena, and Tuija for being the catalysts for this entire endeavor and for supporting it throughout. I am sure you have had your moments of doubt, but here we are!

The next major turning point on my research path was the summer school on Activity Theory and Formative Interventions that I participated at the CRADLE, Helsinki University, in 2012. The summer school was led by Professor Engeström, whose opening words were:

“Activity theory is an activist and interventionist theory for people who want to change the world.”

This is it, I thought. There are still people in the world who feel that research is supposed to change things for the better, and I have found them! I am forever indebted and grateful for Professor Engeström and Dr Sannino for all their help, support and hard work in making this research project come true. Thank you, Yrjö and Annalisa, from the bottom of my heart. I would also like to thank my second supervisor, Tonja, for invaluable advice on using activity theory as a research tool.

When I got my first research grant I finally had the courage to quit my job and completely immerse myself in this research. It has been a blast, and I am almost sad this project is now ending. The Finnish technical communication community embraced this endeavor from the start, and I am eternally grateful for all the time and resources the community in general and the interviewees in particular have devoted to it. Throughout the project, I have also been blessed with brilliant colleagues and mentors. In particular, I would like to thank my Shut up and write! partners Annamari, Karoliina and Katrin, who have selflessly devoted their time to – well, shutting up and writing with me, but also chatting, overdosing on coffee, having Chinese (and the occasional carrot cake) and generally making the world a better place. Within the next 12 months, we will all be wearing funny hats to hide our pointy heads. Well done, us.

I would also like to thank the anonymous referees of my articles and the pre-examiners of this dissertation for the numerous comments and improvement suggestions I received. At times, the process was painful – and, quite frankly, egodenting – but I absolutely recognize its importance. I also learned that if you call a researcher's work idealistic or naive, it is perhaps not a good idea to later ask them to be your pre-examiner. Kiitos ja anteeksi, as we say in Finland.

In my first article, I suggested that the Finnish Technical Communications Society should take a clearer stand as an advocate of the profession. About five minutes after the publication of the article, I received a phone call from the Chair of the Society, inviting me to come and offer some concrete suggestions to the Board. It turns out that it is not very easy for a small, volunteer society to change the world, but it sure is fun trying. I recommend you join one immediately.

All of the events of my life, big or small, have come with a soundtrack; thank you, Tom Waits, Jeff Buckley, Bruce Springsteen, Tuomari Nurmio, and Nick Cave for making music that speaks directly to my soul. When I saw Bruce Springsteen live in Cardiff a few years ago, I was literally weeping with joy for the first two hours of the show. So if you were there and saw a weird crying lady, that was me. However, it was a young whippersnapper who brought this particular project home for me; thank you, Hozier, for giving me another reason to love Ireland.

Finally, none of the above would have been possible without proper funding. I would like to thank the Education Fund, the Faculty of Humanities at Oulu University, the Finnish Work Environment Fund, and UniOGS, for providing the funding for my project. Again, I have been very fortunate.

It is now time for me to close this book and for you to open it. As always, comments are welcome. It's never the end, is it?

Oulu, Finland

Jenni Virtaluoto

List of original publications

This dissertation is based on the following original publications:

- I Virtaluoto, J (2013) “It’s a strange little business” – issues in technical communication. *AFinLA-e Soveltavan kielitieteen tutkimuksia* 2013/ n:o 5: 200–213.
- II Virtaluoto, J (2014) “Death of the technical communicator” – current issues and future visions for our field. *Technical Communication* 61 (1): 38–47.
- III Virtaluoto, J, Sannino, A, Engeström, Y (In press) Surviving outsourcing and offshoring: Technical communication professionals in search of a future. *Journal of Business and Technical Communication*.
- IV Virtaluoto, J (In press) Expanding the object of technical communication: a practitioner’s perspective. In Rellstab, D. & Siponkoski, N. (Eds.) (2015). *Rajojen dynamiikkaa, Gränsernas dynamik, Borders under Negotiation, Grenzen und ihre Dynamik*. VAKKI-symposiumi XXXV. Vaasa 12–13 February 2015. VAKKI Publications 4. Vaasa: VAKKI.

The author of this dissertation was the primary author of article III. The role of the coauthors included reviewing, commenting and, in the final stages, collaboratively writing the article manuscript with the first author.

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1 Introduction

In order to function in the information society of today, we are expected to operate a variety of devices and software applications daily. Enrolling our children to school, paying bills, renewing library loans, reserving doctor's appointments, checking out bus timetables – all of these and many other mundane activities now require computer skills. For many of us, computer skills are critically important at the workplace, too. The applications we use to complete our day-to-day tasks often come with online help features or user guides. However, technical communication products – such guides and other types of user information – do not have a very good reputation. Many of us have had bad experiences with them; either we cannot find what we are looking for, or the instructions are too confusing to be of any real help. The effects of poor user information are quite well known. As a result, for example, we shy away from technology and neglect to use the systems at our disposal to their full benefit (e.g. Brockmann, 1986, p. 15; Schriver, 1997, p. 211, 222). The companies creating the systems we use also suffer from poor user information, both indirectly and directly: increased training and customer support costs are just some of the side effects (*ibid.*). Effective technical communication would benefit all parties. So why is it so difficult to come by?

The roots of this dissertation are firmly planted in 1998. I had just gotten my first job as a technical writer. I had no idea what the term meant, but I suspected that it would allow me to combine my love of writing with my interest in technology. That turned out to be the case: by definition, technical documentation professionals “design, create and communicate product information to users” (Abdallah & al., 2005, p. 77). Since that first job, I have had the pleasure of working in many international and challenging information technology projects in a variety of companies and cultures. The IT boom in the 1990's (Suojanen, 2000, p. 1) kicked off the careers of many Finnish technical communicators, and our experiences are the focus of this study. My aim is not to generalize over a complex whole – the entire field of technical communication – on the basis of the experiences of our small group. Instead, I am hoping our stories will provide concrete examples of the ways the universal trends discussed in the literature of the field manifest themselves in the lives of technical communication practitioners. Although I have made a conscious effort to be objective, this autoethnographic study represents my interpretation of the research data and the literature of the field. Autoethnography is discussed in more detail in section 4.1.

I, for one, have been lucky: despite the various financial ups and downs and the current world-wide economic crisis, I have never been laid off. Unlike those of so many of my colleagues, my jobs have not been off-shored, terminated, or outsourced. As a profession, however, technical writing – or technical communication, as it is now more commonly called (Spilka, 2002, p. 102; c.f. Malone, 2011, p. 286) – seems to be struggling. While I had begun this research simply by looking at the quality criteria of the technical communication products we create, the problems in our work environments and processes quickly took precedence. User-centeredness is widely recognized as the main quality criterion of technical communication, and as technical communicators, we are expected to be the users’ advocates in the product development process. It is often the case, however, that we have no access to users or user data, and the offshoring and outsourcing trend (Faber & Johnson-Eilola, 2002; Carliner, 2009; Dicks, 2009; Giammona, 2011; Andersen, 2014) has created an even bigger gap between us and our audience. Our work is often seen as a routine task, evaluated by price, not quality. In the current financial environment, it is especially difficult for beginners to gain an entry into the field (Boch, 2011, p. 322). Because of this lack of new blood and development opportunities, our field is withering.

In addition, the advent of structured documentation systems has changed the field fundamentally: the documents we now create are often put together using snippets of information written by multiple technical communicators, with little regard to the cohesion and coherence of the end product. The content management approach to documentation can, in fact, transform our work from designing customer documentation products to mastering the documentation systems instead (cf. Bernhardt, 2002; Slattery, 2007; Andersen, 2014).

As a field, we have been aware of the above challenges for a long time. Two of the leading journals of the field, *Technical Communication* (2005) and *Technical Communication Quarterly* (2007) have devoted entire issues to discussing the future of technical communication, and in 2011, *Technical Communication* published a two-part special issue focused on the professionalization of the field. In *Reshaping technical communication* (Mirel & Spilka, 2002), our leading scholars offered their suggestions for the survival of the field, including strengthening the relationship between academics and practitioners and expanding the roles of technical communicators in the companies they work for. Some of the other solutions to the problems in the field suggested in the literature are: focusing on customer knowledge (Hackos, 2005, p. 275–276), diversifying, becoming “dividuals” (Spinuzzi, 2007, p. 273), becoming “boundary spanners” or “strategic

negotiators” (Hart & Conklin, 2011, p. 140—141), or focusing on content management and user experience (LaRoche & Traynor, 2013). While there are examples of individual technical communicators expanding their roles into the suggested directions (Anschuetz & Rosenbaum, 2002; Giammona, 2011), there is very little evidence of similar developments in the data of this study. The data will be presented in section 4.

In this study, the above suggestions and phenomena are discussed in relation to the actual work environments and career prospects of the interviewed technical communicators. The study comprises of four articles. Article I is focused on the quality criteria of technical communication products in relation to the work processes of the field, while article II discusses the current state and future prospects of the field as the interviewed technical communicators see them. In article III, the contradictions in the technical communication activity at a case company are analyzed through their discursive manifestations (Engeström & Sannino, 2011). The aim is to discover developmental possibilities within the activity. Article IV explores the connection between the current object of the technical communication activity and the challenges our profession is facing. The contents of each article will be discussed in more detail in section 5. The research process and objectives of this study are described in section 2, followed by a look into the methods, data and theoretical framework which the research is based on. The findings of the research and the implications for future research are discussed in sections 6 and 7, respectively.

In addition to gathering original data, I naturally turned to the literature of the field as an important information source. Although the field of technical communication – as fluid and undefined as it is – has existed internationally for quite a long time (e.g. Hennig & Tjarks-Sobhani, 2005), there are only a few literary sources (Suojanen, 2000, Abdallah et al., 2005; Isohella, 2010) discussing technical communication in Finland. This lack of prior information was partly the reason for collecting the data in this study. I felt it was necessary to discover the current state of the field as the practitioners themselves see it. It is generally recognized that there is a gap between technical communication practitioners and academics: the research done in the field does not seem to arise from the real-life experiences and needs of technical communicators (Bosley, 2002; Blakeslee & Spilka, 2004; Sullivan & Spilka, 2011; Cleary, 2012; Andersen, 2014). This study, however, is grounded in the practitioners’ understanding of the state of the profession (cf. Cleary, 2012, p. 9).

While much of the available technical communication literature tends to be focused on North America (e.g. Mirel & Spilka, 2002; Boch, 2011; Conklin & Hayhoe, 2011; Andersen, 2014), it is suggested in this study that the experiences of Finnish technical communicators are similar. We also struggle with the professionalization of the field, with the connection between academics and practitioners and with future prospects in the field. Outsourcing, offshoring and the global financial crisis have left their mark on the profession here in much the same way as in other higher-cost countries. In present-day Finland, however, the above global trends are also coinciding with various country-specific factors. Finnish technical communicators mainly work for the export industry, which has been struggling in recent years, and one of the main employers of the field, the mobile phone division of Nokia/Microsoft, has recently cut down the majority of its operations in the country (Rönnqvist & al., 2015). The Finnish economy in general is not expected to pick up in the near future. These factors coming together make this a very difficult time for the profession. Other language professions, such as the AV translation business, are also struggling: international low-cost vendors have gained a large part of the subtitling work done for Finnish broadcasters. The quality of AV translations seems to matter as little as the quality of technical communication; cost is the deciding factor.

In order for us to gain a deeper understanding about our field and to help it move forward, we must gather the experiences of professionals in different countries and situations. In this study, the focus is on Finnish technical communicators who are currently facing field-specific as well as country-specific challenges. Spilka (2002, p. 97; see also Schriver, 1997, p. 54) sees the uncertainty of the field as a possibility of “significant reform” on the path towards becoming a recognized profession. This is the underlying notion in this study, too: we must evolve with the times and be active in shaping the future of the field, or others will shape it for us.

In later sections of this dissertation, the autoethnographic (Anderson, 2006; Chang, 2008) data I have gathered will be contrasted with the literature of the field in order to provide concrete suggestions for the future of technical communication. The tools offered by activity theory (Engeström, 1995; Engeström, 2008; Engeström & Sannino, 2010; Engeström & Sannino, 2011) will be used to make sense of the data.

2 Objectives and scope

This aim of this study is twofold: to map out the current state of technical communication as a field in Finland as the practitioners see it and to find room for the development of the field through the data. Although the focus of this study is on a group of Finnish technical communicators, it is suggested with the help of previous research that the problems we are facing are common in many higher-cost countries.

The research problem will be presented next, followed by a look into the research process and organization of the research.

2.1 Research problem

In technical communication, user-centeredness is widely recognized as being the most important quality factor. However, the current technical communication environment does not allow technical communicators access to users or user data, and their work has in some cases been reduced to typing up information provided by others (cf. Slattery, 2007). This type of routine work is easy to outsource and offshore (cf. Dicks, 2009; Giammona, 2011), and it does not correspond to technical communicators' career expectations or the users' needs. Technical communicators are not happy with their current work conditions and are afraid of the entire field dying out. Users, on the other hand, are not satisfied with the quality of user guides and other technical communication products at their disposal.

The above research problem will be handled through the following research questions:

- Research question 1: How are the challenges in the field of technical communication reflected in the interview data of Finnish technical communicators?
- Research question 2: What development potentials and possibilities arise from the interview data?

In this study, the analytic tools provided by activity theory (Engeström, 1995; Engeström, 2008; Engeström & Sannino, 2010; Engeström & Sannino, 2011) are applied on autoethnographic (Anderson, 2006; Chang, 2008) interview data in order to provide answers to these research questions.

2.2 Research process

When I started this research, I did not have a clear picture in my mind about a theoretical framework that would help me realize the goals I had set for myself. I had, of course, read the literature of the field of technical communication – seminal works by e.g. Price & Korman (1993), Steehouder & al. (1994), Schriver (1997), Mirel & Spilka (2002), Spilka (2009) and Conklin & Hayhoe (2011) which efficiently outlined the field of technical communication for the purposes of this research. I had also found the sources I needed to further investigate, for example, user-centeredness as a quality factor in technical communication (e.g. Wright, 1994; Spinuzzi, 1999; Van Laan & Julian, 2001; Jayaprakash, 2008).

However, as the research progressed, I realized that I needed an additional framework, perhaps outside technical communication, on which I could base my analysis of the nature of the activity in general as well as any suggestions for the future of the field as they arose from the data. I discussed this issue with my supervisors, and the concept of cultural-historical activity theory came up; the more I read on the subject, the better it seemed to correspond to my needs. I had also been looking for a tool that I could use to reinforce the ideas I had for technical communication education: although all of the interviewees in this study had more than 10 years of work experience, none of them had any formal education in the field. Clearly, this was a job you learned by doing. I myself had taken a technical communication minor as part of my Master's degree in English Philology, but at the time, I had already been a technical writer for years. During the course, we had various visiting lecturers and teachers who all taught us the way technical communication was done in their individual companies; I felt that a transferable skill that would help us recognize and investigate the work practices of the readers of documentation would have been more useful. I discovered that Kain & Wardle (2005) had, in fact, already used activity theory as a tool in teaching transferable professional communication skills in multi-major communication courses. Artemeva's (2005) study, on the other hand, traces the career path of an engineering graduate who successfully challenged the existing communication practices of his workplace following such a course.

Activity theory has been characterized as a “philosophical and cross-disciplinary framework for studying different forms of human practices as development processes” (Kuutti 1996, p. 25) – a loosely tied school of thought rather than a fixed theory in the traditional sense. Its focus on development and

transformation particularly appealed to me, as the development of the field of technical communication was at the heart of my research.

Because it is so versatile, activity theory has been applied in a variety of fields, for example human-computer interaction (Bødker, 1989; Nardi, 1996; Kaptelinin & Nardi, 2006), change pressures in court work (Haavisto, 2002), the transformation of nursing home work (Mäkitalo, 2005), and the resistance to change in teaching practices regarding e-learning (Blin & Munro, 2008). Spinuzzi (1999; 2007) has explored technical communication through activity theory, and Andersen (2014) also sees activity theory as a potential tool for understanding technical communication processes, although she does not offer practical examples. In addition, Russell (2009) provides a comprehensive overview of written communication studies which have utilized activity theory.

The versatility of activity theory seemed both interesting and terrifying. I realized that I needed help, and found out that there was an Activity Theory and Formative Interventions summer school taking place in Helsinki the following summer. The three-week summer school transformed the course of this research fundamentally; the school was led by Professor Yrjö Engeström and Dr. Annalisa Sannino, who later became my coauthors in article III.

I had begun to look for interviewees in August 2011, when I started this research; the aim was to make this as multivoiced a study as possible right from the beginning. I joined the Finnish Technical Communications Society, where I now serve as Secretary of the Board, and then used my professional and Society networks to find the interviewees. You can find the interview questions in Appendices 2 and 3 and a description of the data in section 4. After eight interviews, I felt I had enough data; despite their different geographical locations and work backgrounds, the interviewees recounted very similar experiences and challenges. I could relate with most of them; we were all experienced Humanities-based technical communicators in Finland, and our careers had taken overwhelmingly similar turns. New perspectives to the research problem ceased to emerge. In qualitative research, this process for determining the data size is called *saturation* (Eskola & Suoranta, 2001, p. 62).

However, one of my interviewees, interviewee B, seemed to have a particularly challenging situation at her workplace. I asked whether I could arrange additional interviews at her company to explore the situation further. In the subsequent interviews, we used the developmental work research methodology (Engeström, 1995; Engeström & Sannino, 2011) as a tool to dig into the tensions and developmental possibilities within the activity. I chose the DWR method as a way

to further distance myself and my own interpretations from the data; although this is an autoethnographic study, I felt I needed an additional perspective to deepen my understanding of the issues discussed. The DWR method is discussed in more detail in section 4.2. After the interviews at the case company, I gathered additional interview data with key practitioners for the dual analyses needed in DWR.

In article IV, the final article of this dissertation, I used the data collected for the three previous articles to pull together the main findings of my research.

The research process and timeline of this study can be summarized as follows:

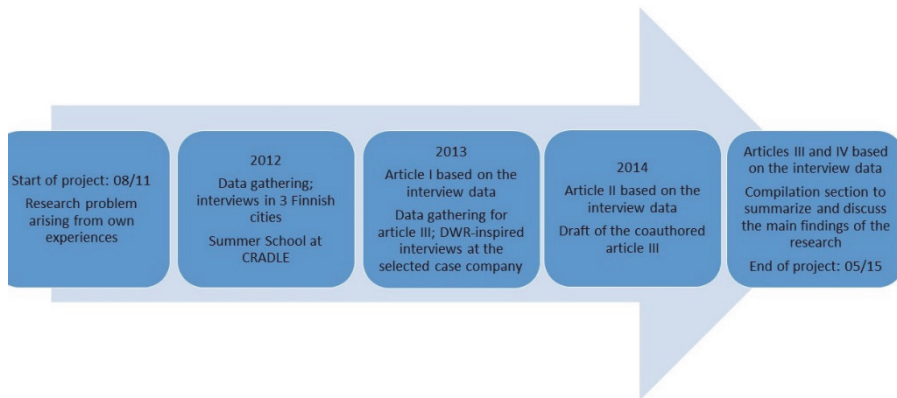


Fig. 1. The process of this study

As a whole, this research has progressed very organically. Although it started as a one-woman project, I was able to grow the networks I needed to connect my own experiences with the experiences of others and the literature of the field. When I left my job, I found a new set of peers and a frame of reference from the Finnish Technical Communications Society; when I started conducting the interviews, the word begun to spread and new interviewees started to materialize; when I needed a theoretical framework to lean on, I discovered the CRADLE. I am attributing at least part of this smooth progress to autoethnography, a method which I will describe in more detail in section 4.1.

I will discuss the organization of this study next, followed by a description of the theoretical framework used in the research.

2.3 Organization of the study

This dissertation is based on a collection of four peer-reviewed articles, which fall under two main topics. The first part (articles I and II) explores user guide quality and the field of technical communication in Finland through the autoethnographic data. The literature of the technical communication field is used to further illustrate the points made. In the second part (articles III and IV), the tools offered by activity theory and developmental work research are applied on the data in order to analyze some of the current problems in the field and to find room for development in the technical communication activity. The articles are discussed in more detail in section 5.

1. “It’s a strange little business” – current issues in technical communication

Contrasting the interview data of this study with the literature of the field, the current issues in technical communication are discussed in this article that was published in *AFinLA-e: Soveltavan kielitieteen tutkimuksia*, a peer-reviewed electronic publication, in 2013.

2. “Death of the technical communicator” – current issues and future visions for our field

This article begins with an autoethnographic account of technical communication in Finland, followed by the future visions of the technical communicators I have interviewed. The article was published in the peer-reviewed *Technical Communication* journal in 2014.

3. Surviving outsourcing and offshoring: Technical communication professionals in search of a future

This article presents a case organization facing a transformation in its technical communication activity. Two interview sessions were arranged with the people involved to discover the roots of the contradictions in the activity and to find opportunities for development. Additional interview data was gathered from key practitioners. The article is co-authored with Dr. Annalisa Sannino and Prof. Yrjö Engeström (University of Helsinki/CRADLE) and will be published in the peer-reviewed *Journal of Business and Technical Communication*.

4. Expanding the object of technical communication: a practitioner’s perspective

The work of technical communicators has traditionally been focused on the creation of user guides and other user documentation. They have, in many cases, had very little contact with their audience, and the interface between technical communicators and the Subject Matter Experts (SMEs) they rely for background information has also been problematic. The aim of this paper is to discuss the universal challenges of technical communication in the Finnish context and to explore the possibilities for development arising from the interview data. This paper will be published in *Rajojen dynamiikkaa, Gränsernas dynamik, Borders under Negotiation, Grenzen und ihre Dynamik/VAKKI Publications 4*, a refereed conference journal, following a presentation at the VAKKI symposium in 2015.

As discussed above, the first two articles mainly outline and investigate the field through previous research and interview data, whereas the last two apply the analytical tools offered by activity theory on the data collected.

The methods and data used in this study will be discussed in more detail in the next section, followed by a summary of the articles and a more general discussion on the findings. Finally, I will present concluding remarks and the benefits and implications of the research.

3 Theoretical framework

As discussed above, this study builds on the framework of activity theory. In activity theory, activities are seen as collective, systemic formations that have complex, mediational structures (Engeström, 2008, p. 26). A distinction is made between automatic operations, individual actions and collective activity (Kuutti, 1996, p. 30). The unit of analysis is the collective, object-oriented activity system; the minimal meaningful context for understanding individual actions (Engeström, 1995, p. 41; Kuutti, 1996, p. 28). The object and motive of an activity system are collective, which is why an activity may sometimes seem meaningless on the individual level (Engeström, 1995, p. 69). For example, in complex activity systems, such as today's work organizations, it may be difficult for practitioners to see the connection between the goals of their ongoing actions and the more durable motive of the entire activity system (Engeström, 2008, p. 204).

Activity systems contain the following components:

1. Subject: the person or persons carrying out the activity
2. Object: a concrete instantiation of the purpose of the activity
3. Outcome: the intended and unintended results of the activity
4. Instruments: the material and conceptual resources used to work on the object of the activity
5. Division of labor: who does what within the activity, including the division of power and rewards
6. Community: the collective entity sharing the same object
7. Rules: the regulations, norms and conventions constraining the activity (Virkkunen et al., 1999, p. 17; Hasu & Engeström, 2000, p. 63; Engeström, 2004, p. 9).

The object is the true motive of the activity; it shapes the activity, gives it purpose and direction and also determines the horizon of possible goals and actions (Engeström, 2008, p. 89). Objects are internally contradictory unities of use value and exchange value; they “resist and bite back: they seem to have lives of their own” (Engeström, 2008, p. 204). Like the entire activity system, the object is under constant development (Engeström, 1995, p. 69).

Because activities are collective and evolve over a period of time, they contain and produce a variety of different viewpoints or “voices”, as well as layers of historically accumulated features, tools and conventions (Engeström, 1995, p. 49;

Kuutti, 1996, p. 26–28). This multivoiced and multi-layered nature of activity systems is both a “resource for collective achievement and source of compartmentalization and conflict” (Engeström, 2008, p. 27). The multivoicedness of activity systems is also visible in the different ways practitioners carry out their work tasks: although the rules and tools for realizing a work task may be the same, all the participants in the activity have their own, often tacit and historically formed “theories” about how and why it is carried out (Engeström, 1995, p. 49). This type of multivoicedness was especially visible in the case company data of this study, where the participating technical communicators came from geographically and educationally different backgrounds. The case company data is presented in section 4.5.

As the activity system develops, change pressures from the outside are transformed into internal tensions within and between the components of the activity system (Engeström, 1995, p. 52). Activity systems are constantly working through these tensions (Engeström 2008, p. 205), and in activity theory, the focus is on the developmental possibilities and potentials they carry (Engeström, 2008, p. 86).

Although activities are institutionalized and therefore relatively stable and durable, they are also open systems. When an activity system adopts a new element from the outside, the result is often a secondary contradiction, where some old element collides with the transformed element; a rigid division of labor colliding with a new, advanced instrument is a typical example (Engeström, 2008, p. 204–206).

In activity theory, the contradictions arising from the interaction of the components of activity systems are seen as sources of both problems and innovations. Contradictions arise when one component of the activity develops “beyond the operational logic” of the other components (Engeström, 2008, p. 27). These historically accumulating structural tensions within and between activity systems manifest themselves as disturbances and conflicts in the everyday experiences of professionals (Engeström 2008, p. 205). Becoming aware of the contradictions at play in the activity can relieve professionals from pressures experienced at an individual level and can lead to a shift toward collective transformative efforts at a systemic level (Engeström & Sannino 2010, p. 5).

Contradictions have also been characterized as the “seeds for change” (Engeström 2004, p. 11) or “the driving forces of transformation” (Engeström & Sannino 2010, p. 5) and they are always present in all activity systems (Kuutti 1996, p. 34).

There are four types of contradictions within and between activity systems. The primary contradiction involves clashes between the use value and exchange value permeating all forms of work and therefore always present in each component of the activity system. The primary contradiction pushes the community to continuously seek more advanced and efficient solutions for realizing the object. Secondary contradictions exist between two components of the activity system, for example between a new rule and old instruments. When a new element is introduced into the activity, parts of the activity qualitatively change while other parts strive to remain as they are. This may result in escalating tensions between the transformed component and the unchanged component(s) of the activity. Tertiary contradictions stem from collisions between emerging new forms of activity and dominant old forms of the activity; the old ways of working “fight back” and resist change. Quaternary contradictions appear when a new model for an activity becomes stabilized and clashes occur between the culturally more advanced activity and neighboring activities which operate still according to old models (Engeström 1995, p. 62–64; Virkkunen et al., 1999, p. 17; Engeström, 2008, p. 206).

Because activities evolve and take shape over time, their problems and potentials can only be understood against their specific histories and development paths; this means that the history of an activity system must be looked at as the local history of the activity and its objects, as well as the history of the theoretical ideas and tools that have formed the activity (Engeström, 2008, p. 207). In other words, the roots of the current tensions are traced through the historical development of the activity system (Engeström, 2008, p. 27).

In the analysis of an activity system, the aim is to go beyond surface complaints and problems, to the roots of the tensions and conflicts (Engeström, 2008, p. 27). According to Engeström & Sannino (2011, p. 369), the contradictions within an activity system cannot be observed directly: they can only be identified through their manifestations in, for example, the discourse of practitioners. Contradictions in the interaction between people often manifest themselves as misunderstandings, disagreements, rejections and counterarguments – for example, as clusters of ‘no’ and other negatives in talk. Dilemmas – for example, clusters of ‘buts’ or hesitation in talk – may not lead to open conflict, but they are signs of tensions and contradictions in the activity system nevertheless (Engeström, 1995, p. 65–66; Engeström, 2008, p. 186). All of the tensions and contradictory forces in activity systems also carry innovative power (Engeström, 1995, p. 67).

Although there is no universally accepted methodology for applying activity theory, it is often used as a “*lens, map or orienting device* to structure the analysis of complex sociocultural learning and performance contexts” (Barab et al., 2004, p. 207, emphasis in the original). In the analysis, specific attention is often placed on the contradictions within and between activity systems, seen as “potential opportunities for intervention and improvement” (Barab et al., 2004, p. 208). According to Barab et al. (2004, p. 209), the original goal of activity theory was to help us understand and describe learning and work in socioculturally rich contexts, while other scholars, such as Engeström (1995, p. 73) also see it as the empirical research of concrete activities. In this study, activity theory is used to discover the roots of the contradictions within the technical communication activity through the data and to explore the ¹developmental possibilities and potentials arising from the data. The data and methods used in the study will be discussed next.

¹ Because no concrete development project was carried out as part of this study, I have used this wider definition instead of the Zone of Proximal Development (Vygotsky, 1978, p. 86) to describe the developmental potentials within the activity.

4 Methods and data

This section presents the methods and data used in this study. In data collection and reporting, I have applied autoethnography, as discussed in the next subsection. In article III and in sections 6 and 7, I have utilized analytical tools stemming from developmental work research. These tools will be presented in subsection 4.2, followed by a description of the different data sets and the related ethical considerations.

4.1 Autoethnography as a method

This is an autoethnographic study – I am researching a group I belong to (Hayano, 1979; Reed-Danahay, 1997; Chang, 2008; Ngunjiri, Hernandez & Chang, 2010). My own experiences and the interview data will be augmented with previous research in the field in order to provide a fuller account of the issues technical communicators are facing and a more comprehensive solution to the research problem.

According to Chang (2008, p. 46–49), autoethnography is similar to ethnography in its research process: systematically collecting, analyzing and interpreting field data and reporting the findings. However, autoethnography differs from other types of ethnography in one key aspect: the autoethnographer's personal experiences are used as research data. In this study, my experiences are used as research data in article II; although my background is very similar to my interviewees', our paths diverge when it comes to customer contact. The importance of knowing your audience is the focus of article II.

In autoethnography, the personal is connected with the universal, the bigger picture, to come to a deeper understanding of the phenomena being studied. Like other ethnographers, autoethnographers also collect field data – for example, through interviews – and verify the data by comparing it with other sources. The data is analyzed, interpreted and reported like any other research, although the researcher's own voice is more visible than in other types of research (Chang 2008, p. 46–49). Chang (2008, p. 52) characterizes autoethnography as researcher and reader-friendly: the autoethnographer has the benefit of easy access to familiar data, while readers often find the writing style more approachable than other types of academic writing.

The pitfalls of autoethnography include 1) excessive focus on self in isolation from others; 2) overemphasis on narration rather than analysis; and 3) exclusive

reliance on personal memory as data (Chang, 2008, p. 54.). I have tried to avoid these pitfalls by bringing my informants to the center of the study, rather than using my personal experiences only as primary data (cf. Chang, 2008, p. 65).

The ease of data collection is a clear benefit of autoethnography: before starting this study, I had already been a participant-observer of technical communication for 15 years. My professional background also made it very easy to find informants. In the interviews, I was able to ask pertinent questions and had no trouble understanding the answers because I knew the field so profoundly. Many of the informants noted that it is easy to speak to “someone who understands”. However, while my “self” as a technical communicator pervades this study, from drawing up the interview questions to finding the interviewees to writing up the results, the emphasis throughout the study is on analysis and interpretation of the data. Literary sources are used as an additional way to verify the results; according to Chang (2008, p. 55), multiple sources are needed for the “content accuracy and validity” of autoethnographic research is in any other type of research (cf. Engeström, 1995, p. 130–132). Finally, my own experiences are contrasted with the data and previous research in the field in order to produce an autoethnography, rather than “self-indulgent introspection” (Chang, 2008, p. 54).

Chang (2008, p. 64), lists the following main criteria for selecting an autoethnographic research topic: 1) personal interest; 2) professional significance; 3) manageability; and 4) ethical standards. In this research, all of the above criteria apply: I am very invested in the topic, my own livelihood for the past 15 years. I believe that the results of this study have direct implications on the field in general. I also think that it is necessary to emphasize the international nature of our field; so far, much of the research conducted in our field has concentrated on North America. While there are similarities between many high-cost countries, each country also has its own specific features to consider. As for the manageability of the research, the support from my peers, my work and educational background (and the fact that I have had proper funding!) have moved the research process steadily forward. Finally, I have ensured at each step that I follow the ethics guidelines set by the Ethics Committee of the Human Sciences at the University of Oulu, my home university.

Autoethnography comes in various sizes and shapes (cf. Chang, 2008, p. 47–48), and in this study, I am “investigating a topic dear to my personal experience without centering on myself” (cf. Chang, 2008, p. 66). Anderson (2006, p. 375) introduced the term *analytic autoethnography* to refer to ethnographic work where the researcher is a full member of the group or setting being studied. While I am

aware that autoethnography in its various forms has been under debate (see, for example, Denzin, 2006; Ellis & Bochner, 2006), I find that the guidelines of analytic autoethnography correspond with the goals I set myself in this study. According to Anderson, the five key elements of analytic autoethnography are as follows:

1. complete member researcher (CMR) status; visible as a such in published texts
2. analytic reflexivity
3. narrative visibility of the researcher's self
4. dialogue with informants beyond the self
5. commitment to theoretical analysis (Anderson 2006, p. 378.).

My background as a technical communicator grants me CMR status; while I do not currently share a workplace with any of my interviewees, we have a shared work and educational history. We are all professional technical communicators, either of Finnish origin or having close ties with Finland; all but one of the interviewees have an educational background in the Humanities, most often in English; and we are all concerned for the future of our field. Although my "self" is clearly visible in this study, I aim to reflect on my experiences analytically and contrast them with the literature of the field as well as the interview data. The aim of this study is to provide a theoretical analysis of the issues discussed, rather than a subjective, purely narrative account.

In the analysis of the autoethnographic data I collected, I used *thematic analysis*: a method for "identifying, analyzing and reporting patterns" within a set of data (Braun & Clarke, 2006, p. 79; Eskola & Suoranta, 2001, p. 174–180). In addition to my own experiences as a technical communicator, the starting point for my analysis was the literature that seemed relevant to my research problem: the various challenges brought on by the "seismic shift" (Dicks, 2009, p. 52) in technical communication. My aim was to see if similar developments were visible in the Finnish context; the results of my analysis are reported in section 6.

4.2 Developmental work research (DWR) as a method

In article III, we used the methodology of developmental work research (DWR) to analyse the contradictions in the technical communication activity at a case company. DWR is a methodology stemming from activity theory and focused on investigating and developing work and organizations (Engeström, 1995; Virkkunen et al., 1999; Engeström & Sannino, 2011). The method involves interventions in

which researchers and practitioners dig into the history of the problems experienced in an activity system to identify the contradictions behind them and construct expansive solutions to deal with them (Engeström 2000, p. 966; Virkkunen & al. 1999, p. 19–20). DWR interventions help employees see how the problems they encounter in their work are connected to the structures of the activity system; the aim is to actively seek solutions to the encountered problems and to develop the activity as a whole (Virkkunen et al., 1999, p. 12). The conceptual model of the activity system (Engeström, 1987) is often used as a tool in the process. The model is presented in Appendix 1.

In the interventions, the current situation and historical development of the activity system are analyzed (Virkkunen & al. 1999, p. 19–20). The analysis consists of two parts: historical and empirical (Engeström 2008, p. 132). The aim is to place the current situation in its historical context to discover the origins of the encountered problems. In DWR, recurring disruptions in work processes are analyzed as symptoms of inner contradictions brought about by previous changes in the activity system (Virkkunen et al., 1999, p. 12). The information is used to collectively design and implement a new model for the activity (Virkkunen & al. 1999, p. 19–20). In this study, the creation of a new model for the activity was not the aim. Instead, we gathered data for the historical and actual-empirical analyses of the activity to discover any developmental potentials within it. In order to resolve the contradictions within an activity system, the activity must be analyzed in a wider context: new development potentials can be discovered by looking at the object and outcome of the activity in relation to the connected activity systems (Virkkunen et al., 1999, p. 13). The internal contradictions within an activity system often manifest themselves as quality problems, inefficiency and disruptions in the flow of work. The employees, on the other hand, often feel that they are subjected to excessive workloads and haste (Virkkunen et al, 1999, p. 18). These types of “impossible tasks” (Engeström 1995, p. 90) were also recounted by the interviewees in this study.

As discussed above, it is possible to dig into the contradictions within an activity system by analyzing the discursive manifestations of contradictions (Engeström & Sannino, 2011) within a set of data gathered at the activity site. The method developed by Engeström & Sannino was applied on the data discussed in article III. It distinguishes four types of such manifestations: 1) dilemma, 2) conflict, 3) critical conflict, and 4) double bind. These discursive manifestations can become apparent when participants in DWR interventions elaborate on the tensions they experience in their work. Each type of such manifestations can be empirically

traced on the basis of the use of specific linguistic cues. Dilemmas are linguistically conveyed with ambivalences such as “on the one hand... on the other hand” and “yes...but.” Conflicts are disagreements conveyed with linguistic cues such as “no” and “I disagree.” Critical conflicts can be empirically identified in the use of vivid metaphors and emotional narratives conveying a sense of paralysis between opposing motives. Double binds are expressed by means of pressing rhetorical questions conveying the urgency of mobilizing collective resources to tackle problems.

The data we analyzed in article III differs from Engeström & Sannino’s (2011, p. 369) data in many ways: they focused a longitudinal organizational change effort that comprised of multiple face-to-face meetings where there were various participants. Although the interviews conducted at the case company utilized the tools of DWR, the data is much smaller, the aim was discussion rather than change, and the sessions were one-time events with a small number of participants. It seems, however, that the method is also applicable on this type of data; similar discursive phenomena signifying underlying contradictions were discovered during the analysis described in article III.

4.3 Data set 1: Eight interviews with technical communicators

For the data presented in articles I and II, I interviewed technical communication practitioners who were based in three different Finnish cities. The interviews were originally conducted in Finnish and have been translated into English by me. Six of the interviewees (A, B, D, F, G and H) have been working both as in-house and as outsourced technical communicators, two (C and E) as subcontractors only. The interviews were face-to-face and semi-structured (di Cicco-Bloom & Crabtree 2006, p. 315), with questions ranging from the interviewees’ professional and educational backgrounds to their future visions and aspirations. The semi-structured interview type was chosen in order to have a common framework for the discussions while allowing them to progress freely. I also sent the interview questions beforehand to each participant, so that they could decide in peace whether they felt comfortable discussing the topics. The interview questions are presented in Appendix 2.

None of the interviewees had a degree in technical communication, but three of them (A, B and C) had completed a technical communication minor or other studies in the field. All had a background in English (cf. Cleary, 2012) and a minimum of 10 years of work experience. I made notes during each interview and

then put together a transcript which I e-mailed to the interviewee in question so that they could correct and further comment on the discussion. Each interview lasted approximately two hours. The interviewees were selected on the basis of their professional experience (minimum of five years; representatives with experience from in-house as well as outsourced technical communication), location (representatives from different cities to maintain geographical diversity) and their interest to devote their time to the study.

At the time of the interviews, four of the interviewees were outsourced technical communicators (three different employer companies) and four were in-house technical communicators (four different employer companies). In the interest of anonymity, I will not provide more specific details about the current employers of the interviewees in this study. While none of the interviewees had a formal education in technical communication, they were based in different cities and half of them were currently working for a vendor, half in-house, their work experiences were remarkably similar: all of them had learned ‘on the job’, they all concentrated on the creation of customer-facing information products either as a technical writer (five interviewees) or as a project manager (three interviewees), and their working language was English. Many of them also had experience in localization, internationalization and creating UI (user interface) texts. They were all involved in the documentation of IT products, either hardware, software or a combination of both. While the majority of the in-house technical communicators focused on business instead of consumer products, there was not a clear division between in-house and outsourced documentation work on the basis of the product type.

In Finland, technical communication courses have traditionally been offered as part of English, Communication or Translation Studies, which is one of the reasons why many Finnish technical communicators have a background in the Humanities rather than Engineering or other technical subjects (cf. Cleary, 2012). In the most recent industry survey conducted by the trade unions Kaj and Specia together with the STVY, 78% of the participating technical communicators had a degree in the Humanities (Sjögren, 2013). The challenges brought on by this division are discussed in more detail in article III and sections 6 and 7.

4.4 Data set 2: Two interviews with key practitioners

For articles III and IV, I also gathered additional interview data to provide a further context for the state of field in general. To this end, I interviewed two prominent technical communicators, Nicholas Hill and Mary Nurminen, who were selected

on the basis of their extensive professional experience and strong involvement in the ²Finnish Technical Communications Society (STVY). The STVY is the only professional society in the field of technical communication in Finland. While the previously largest technical communications society in the world, the ³STC in the United States, has reported a “dramatic decrease” in its membership from 22 000 to 6 000 members (Dicks, 2009, p. 65; Dubinsky, 2015), its tiny Finnish counterpart has had a steady 140 members for a number of years, and no major ups or downs have occurred. ⁴The European Association for Technical Communication (tekom Europe e.V.), on the other hand, reports that it connects 8 500 members through its 10 country organizations. All technical communicators are obviously not society members in any of these countries, but these numbers give a sense of scale: the field really seems to be a “strange little business” in Finland, as one of the interviewees in this study put it.

The interviews of Hill and Nurminen were conducted in English, recorded and transcribed by me. Hill’s interview transcript contains 11 639 words, Nurminen’s 6880 words. Consent has been obtained from both interviewees to use their names in this study; both Hill and Nurminen have been key figures in the Finnish technical communications industry and are known to most, if not all, practitioners.

Hill was one of the co-authors in Abdallah et al. (2005). He is the current chairperson of the Finnish Technical Communications Society, and has over fifteen years of practical experience in technical communication. Nurminen is the previous chairperson of the Society, also with over fifteen years of technical communication experience. In addition to article III, parts of these interviews have also been used in article IV. The focus in the interviews was the field in general, rather than the personal working life experiences of the interviewees. The aim of the interviews was to trace the history of the activity of technical communication in Finland and to provide additional context for the interview sessions carried out at the case company. The interview questions are presented in Appendix 3.

² The Finnish Technical Communications Society (2015) URI: <http://www.stvy.fi/>. Cited 1 September 2015.

³ Society of Technical Communication (2015). URI: <http://stc.org/>. Cited 24 August 2015.

⁴ The European Association for Technical Communication (2015). URI: <http://www.technical-communication.org/>. Cited 1 September 2015.

4.5 Data set 3: Two interview sessions at a case company

This data set was used in the co-authored article III. It consists of audiorecorded open-ended interview sessions in which I engaged in joint analyses of the activity system together with three practitioners at a case company. Two of the practitioners took part in the first interview session, one practitioner in the second interview session. The aim of the sessions was to gather data for the empirical analysis of the activity. The participants were selected on the basis of their professional experience (minimum of three years), location (representatives from two separate sites) and their interest to devote their time to the study. The case company is a large multinational company with development and other teams in many countries and sites across the globe. It has undergone multiple changes in ownership, bringing together different business cultures and ways of working. As a case in technical communication, the company – a large employer in the field – has gone through major turns, such as the rise of the field in the IT boom years of the 1990's, and the outsourcing trend of the turn of the millennium. This is why this company was selected as the case for this study.

Recently, the company has re-organized its technical communication activity by bringing the work back in-house from various vendor companies. The company's decision to start *backsourcing* (Kotlarsky & Bogner, 2012) also involved *near-shoring* (Aspray et al., 2006): moving the work closer from a distant offshore location, but to a country with lower wages. This development is represented in the study by the participating sites, Site A and Site B. At Site A, the technical communicators have a background in Humanities and extensive experience in the field. Site B, on the other hand, is a newly established *near-shore* site, where the technical communicators and line managers have a background in engineering and (so far) little experience in technical communication. In spite of these significant differences, the sites operate according to the same technical communication processes and guidelines, which were originally developed at Site A.

The first open-ended interview was conducted with a Documentation Project Manager (DPM) and a Technical Writer (TW) who also had a Lead Author (LA) role. The DPM and TW were both from Site A, and had been with the company for over 10 years and over 5 years, respectively. The interview was conducted in Finnish, recorded, transcribed and translated into English by me. The transcript contains 13 393 words. The second open-ended interview was conducted with a Technical Writer, who also had a Documentation Engineer (DEng) role in Site B

and had joined the company 4 years ago. This interview was conducted in English, recorded and transcribed by me. The transcript contains 4882 words.

Unlike the first two sets of interviews, the open-ended interviews at the case company contained no pre-determined questions. Instead, we discussed the technical communication activity at the company using the conceptual model of the activity system (Appendix 1) as a tool helping the participants voice the tensions they experienced in their work. In the analysis of the data, we then focused on exploring the historical contradictory forces which might cause the tensions.

As discussed above, the contradictions within an activity setting must be analyzed through their manifestations in, for example, the discourse of the practitioners. Using the methodology described above, we marked each linguistic cue pointing to a manifestation of contradiction in the interview transcripts. We then classified the manifestations to the four types within the methodology (dilemma, conflict, critical conflict, double bind). Using thematic analysis as discussed above, we identified the themes of the manifestations and then categorized all the discursive manifestations into the themes. All in all, we identified 66 discursive manifestations of contradictions in six different themes. Some of these will be discussed in more detail in section 6.

4.6 Ethical considerations

Thirteen technical communication professionals, all above the age of 18, were interviewed as part of this PhD dissertation. In addition to the 10 semi-structured interviews, two interview sessions at a case company were held to gather the data for this study. Three technical communicators participated in the sessions. Before the interview sessions, I signed a Non-Disclosure Agreement as requested by the representatives of the case company.

The interviews were conducted in 2011–2013. No personal identification details were collected. Informed consent from the parties involved in this study has been acquired, including the handling and storage of the information collected.

The interview transcripts (on paper and on a memory stick) and the related e-mail correspondence (on a memory stick) are held in a locked cupboard. I have the only key. The interviewees' names, their employers' names or other identification details are not visible in the transcripts. I have not played the tapes or shown the transcripts to anyone but my supervisor and my two co-authors, Dr Annalisa Sannino and Professor Yrjö Engeström (University of Helsinki), who have seen edited excerpts. There are no extra copies of the files, apart from the interview

transcripts forwarded to each interviewee by e-mail. After the completion of this dissertation, all the interview materials will be securely destroyed using the services offered at Oulu University.

The study has been carried out according to the guidelines of the Ethics Committee of Human Sciences of the University of Oulu and I have requested an official Ethics Statement from the Committee. The Committee decided that that no additional statement was needed as no minors were involved and no personal identification or otherwise sensitive data was gathered during the course of this research.

5 Summary of original articles

This dissertation is based on a collection of four peer-reviewed articles, which fall under two main topics. The first part (articles I and II) explores user guide quality and the field of technical communication in Finland through the autoethnographic data. The literature of the technical communication field is used to further illustrate the points made. In the second part (articles III and IV), the tools offered by activity theory and developmental work research are applied on the data in order to analyze some of the current problems in the field and discuss the developmental potentials and possibilities arising from the data.

This section summarizes the contents of each article, but it also outlines the development of my understanding of the topics discussed. I began this research by concentrating on the text-based features (cf. Wright, 1994, p. 15) of technical communication; the obvious place to start. I discovered that although none of the interviewees had a degree in technical communication, they did operate according to a set of readability and usability guidelines which they had, in most cases, learned “on the job” (Interviewee E) and “case by case” (Interviewee A) rather than a complete package of formal education; this was also true for those who had completed studies in the field. Company-specific styles and conventions were therefore bound to affect their view of high-quality technical communication (cf. Boch 2011, p. 310).

I then widened my scope to the other themes that could be discovered in the data: SME support, user feedback, outsourcing and offshoring, the future prospects in the field and the role of our educational institutions. While my background as a technical communicator had enabled me to ask specific questions about, for example, the impact of offshoring, I found that all of these themes could be connected to the literature of the field. This way, I was able to link the experiences of the interviewees to the wider context of technical communication. It became clear that the transformation ongoing in the field of technical communication – the “seismic shift” (Dicks, 2009, p. 52) – was a much wider and more complex phenomenon than I had originally anticipated.

The key findings of this research are briefly outlined in this section in relation to each article. The findings are discussed in more detail in section 6.

5.1 “It’s a strange little business” – current issues in technical communication

In this article, the aim was to explore the known quality criteria of technical communication and to investigate how the current work processes of the field affect the quality of the documents we produce. The field of technical communication was outlined and some of the main problems in the field analyzed. Autoethnographic interview data and literary sources were used as tools in the analysis.

Although user guides and other technical communication products have been around us for a long time, we have not reached an understanding about the most efficient way to communicate this information (Westendorp, 1994, p. 42). We also know that they are used in various situations and ways, depending on the current needs of the user (Price & Korman, 1993, p. 7; Wright, 1994, p. 7–8; de Jong & van der Poort 1994: 232–233). In general, user guides are not read from cover to cover, but rather as a tool to solve a problem at hand as quickly and as efficiently as possible (Wright, 1994, p. 12; Nielsen 1993, p. 149). The *minimal manual* (Carroll, 1994) and various other types of job aids and quick guides (Price & Korman, 1993, p. 294) have been suggested as ways to better fit the context of use for individual users.

Van Laan & Julian (2001, p. 55), among others, stress that it is not possible to create efficient user documentation without knowing the user. Getting access to the users, however, is a more complicated matter (van der Geest 1994, p. 54). The interview data of this study clearly shows that technical communicators are often cut off from their audience and have very little access to any type of user data. Wright (1994, p. 13–15) suggests that technical communicators have often adopted a text-based view to user guide quality, overlooking the ways in which the documents will eventually be used. It is suggested in this article that while this may be true, the reasons are more complicated than an unwillingness on the technical communicators’ part to pay attention to the context of use. The current work process seems to involve updating individual sections of the user guide based on the changes in the product to be documented; there is no time or resources to concentrate on the usability and usefulness of the entire document set. According to the data, this also applies to the testing and review phase (cf. Schriver, 1997, p. 472–473). The availability of SME (subject matter expert) support was also seen as problematic (cf. Lee & Mehlenbacher, 2000; Cleary, 2012). The tensions arising from the interaction with SMEs will be discussed in more detail in section 6.

As mentioned above, the outsourcing and offshoring trend has transformed the technical communication activity fundamentally in recent years. This development was also very visible in the interview data. Especially those technical communicators who worked for vendor companies seemed frustrated with their work environments and expressed fears for the future of the field. The lack of user contact and feedback was another issue that was heavily featured in the interview data. These themes are traced throughout this dissertation.

5.2 “Death of the technical communicator” – current issues and future visions for our field

This article discusses some of the main challenges in the field of technical communication through my own experiences in the field. Technical communication has been one of the major career choices of English graduates in Finland; many of the interviewees reported, however, that they had ended up in the field by accident, or as a way out from becoming a teacher. They had learned the tools of the trade in practice, and had found little use for their studies in their work. The tight financial environment and the outsourcing and offshoring trend had affected the career prospects of the interviewees, and many of them felt that in the future, people with an engineering or other technical background would have a better position in the job markets. This development is also visible in the literature of the field (e.g. Giammona, 2011).

Technical communicators need the help of the surrounding community – for example, SMEs and users – in order to bring together all the aspects of the product being documented. In my own career, have had the pleasure of working for companies where it has been possible for me to have frequent contact with users. I have trained users, presented the company’s products at user groups and trade fairs and collected feedback during, for example, consultancy visits at customer sites. All of this has made it possible for me to produce documentation that meets the needs of the end-user. According to the data, however, this is not a very common situation. None of my interviewees had established channels for user feedback, and none of them were able to arrange usability testing for their information products. Especially outsourced technical communicators also reported that there were problems with the SME interface: support and feedback was not readily available (cf. Slattery, 2007; see also Lee & Mehlenbacher, 2000). This division of labor in technical communication which isolates technical communicators from potential

sources of support within their organizations will be discussed in more detail in section 6.

According to the data, the vendor model brings an additional layer of management into the technical communication process, and the sales personnel are often more focused on getting the deal than the actual contents of the project at hand. The contracts are often very rigid, the work has to be reported very carefully, and the customers are not willing to pay for quality development work. This has reduced the work to collecting snippets of information from various sources, rather than designing a coherent user guide. For both in-house and vendor technical communicators, the starting point of the work is the product and its changed features; there is very rarely time or resources to concentrate on the user's needs.

The gap between the academics and practitioners in technical communication was briefly discussed above. According to Spinuzzi & Zachry (2000, p. 176), technical communicators should look at their documentation as an open system, while they “plan research studies; analyze data from the research of existing documents; and plan how to implement new forms of documentation.” Carroll & Van der Meij (1998, p. 59), among others, have also called for user documentation where “feedback from users and their work contexts pervades the process.” In my experience, technical communicators do see their work as an open system, but not for the reason suggested above. We know that our work will be augmented and modified – and in many cases, discarded – by the users simply because it does not meet their needs as it is. The process suggested by Spinuzzi & Zachry above is the ideal of technical communication: a process that practitioners would welcome, but one that currently seems completely out of our reach.

5.3 Surviving outsourcing and offshoring: Technical communication professionals in search of a future

This article traces the development of technical communication as an activity system in Finland through interview data gathered at a case company and with experienced practitioners. The case company described in the article has been a major employer in the field, and the development path of technical communication within the company serves as an example of many of the major turns the field has taken in Finland. The contradictions manifested in the interview data were analyzed through a methodological framework developed by Engeström & Sannino (2011). The framework is discussed in more detail in section 4.2.

As discussed above, the outsourcing and offshoring trend has changed technical communication fundamentally in recent years. In addition, there seems to be a shift from Humanities-based technical communication to a multi-skilled engineers doing the work. These developments were also reflected in the case company data: the company had recently begun *backsourcing* (Kotlarsky & Bognar, 2012) its technical communication activity from various vendor companies but the technical communicators and line management at the newly-founded Site B all had an engineering background and were hired in a lower-cost country. This created a number of tensions within the activity. Through the interview data, we discovered that although the technical communication activity at both sites was seemingly uniform, there were in fact two very different activity models being employed. The rules and requirements for the activity had originally been defined at Site A, where the employees were still operating according to these rules. The employees at Site B, however, had developed their own way of working, which relied on a different set of (unofficial) rules, including lighter planning and quality control processes. In addition, there were numerous tensions between the technical communicators at both sites and the line management at Site B. These tensions will be discussed more closely in section 6.

Although much of the technical communication literature available to us stems from North America, we were able to connect the experiences of the interview participants to those of their colleagues abroad. This seems to suggest that many high-cost countries face similar challenges in the midst of the “seismic shift” (Dicks, 2009, p. 52). The suggestions made by the participants to develop the activity at the case company included gathering user feedback and using the information to better align the object of the activity with the needs of the users of the documentation. Currently, however, the fragmented division of labor and the isolation of the technical communicators from their community was preventing any development efforts.

5.4 Expanding the object of technical communication: a practitioner’s perspective

The various tensions within the technical communication activity were discussed in the preceding articles. As discussed above, there are recognized challenges in the field and there have also been various calls to reshape and redirect the field in order for it to survive – with very few tangible results.

According to the data in this study, the object of the technical communication activity is still the user guide and other product documentation (cf. Dubinsky, 2015). This article takes a critical look at the relevance of the object: many of the interviewees reported that the users do not, in fact, have very much use for the documentation we create. Instead, they use parts of the official documentation and then edit and augment it in a way that suits them better. In the current financial environment, this puts technical communicators in a difficult position: if our work is not relevant to the intended audience, why do we exist? In order to develop the activity system, we need to transform the object: what the activity produces and why (Engeström 1995, p. 99). In this process, as discussed above, the specific characteristics, tensions and historical development path of the activity must be taken into consideration (Engeström, 2008, p. 207).

As discussed above, the work of technical communicators is very product-focused and reliant on the help of the often reluctant SMEs, with little or no access to the users. This type of work – the “assembly of documentation” – is low-level and routine, a commodity activity that is very easy to outsource and offshore (cf. Faber & Johnson-Eilola, 2002, p. 136–137; Slattery, 2007, p. 323; Dicks, 2009). In the interview data, continuing education, networking and knowledge management are suggested as a way to move the field forward. The fragmented division of labor was discussed above; multidisciplinary teams were offered as a solution to this problem. This would allow technical communicators better access to SMEs and help them in gaining professional competence about the various technologies they work with. This, in turn, would eventually relieve SMEs of some of their current workload.

According to Andersen (2014, p. 150), the “calls to align technical communication education and research with practice are certainly not new but never has the need been so urgent”. This issue was also brought up by the interviewees in this study, who, in general, felt that academic research does not meet the needs of practitioners. In a field as small as ours, this is not a sustainable situation.

The findings of the research are discussed in more detail in the next section.

6 Findings

As a field, technical communication is context-based and interdisciplinary – our work differs from business to business, product to product and company to company (Spilka 2002, p. 103; Rainey, 2005, p. 200). Despite this diversity, there have been attempts to define the field. It was mentioned in section 1 that all technical communication professionals “design, create and communicate information to users” (Abdallah et al., 2005, p. 77). According to another, slightly broader definition, technical communicators “fundamentally use words and images to help people accomplish their goals” (Dicks, 2009, p. 52); notably, this definition emphasizes the user’s needs instead of the need to communicate information. Mirel & Spilka (2002, p. 2), further broaden the scope of technical communication to include sensitivity to our “audiences’ social and cultural contexts” (cf. Van Laan & Julian, 2001, p. 55, 93). Elements of all of these definitions are visible in the data.

Naturally, the professional societies in the field have also offered their definitions of technical communication; the STC, tekomp Europe and STVY all provide their definitions on their web site. The STC has the widest definition, listing job titles ranging from visual design to usability, human factors, and web design as belonging to the field technical communication. These job titles, however, seem to have very little relevance to the participants of this study (cf. Cleary, 2012; Dubinsky, 2015). As discussed above, in DWR the focus is always on a local activity system and its characteristics: any development efforts should arise from the contradictions and potentials in the current activity setting. Usability and human factors concepts, such as User Experience (UX) and Human-Computer Interaction (HCI), are independent academic and professional disciplines with their own conferences, bodies of knowledge, educational paths and so on. The same goes for visual design and web design. It is also doubtful many web designers or UX and HCI professionals would identify as technical communicators, which means that their experiences and career paths are outside of the scope of the present study – the focus of which is on experienced technical communication practitioners and their views for the future. tekomp Europe, on the other hand, defines technical communication in a much less all-encompassing way: the society caters to the “creators and users of user information”. The Finnish STVY also offers a more focused definition of technical communication as the “planning and creation of user information”, which is more suited for the purposes of this research and better aligned with the experiences of the research participants.

Like all activity systems, technical communication is multivoiced and multilayered (Engeström, 1995, p. 48; Engeström, 2008, p. 27). The people involved have different backgrounds, experiences and aspirations and the companies they work for also have different histories, aims and company cultures. On the basis of the data, however, it does seem that many of the central components in the technical communication activity are fundamentally similar; despite the diversity of the field, it is relatively durable and long-term. This allows us to look at technical communication as an activity system.

As mentioned above, the activity system is analyzed from the viewpoint of the *subject*; in the case of this study, “my people”: experienced technical communicators with a background in Humanities, whose careers started in the IT boom of the 1990’s (cf. Suojanen, 2000; Sjögren, 2015). Although user documentation has been the central focus for many of us, it is by no means the only deliverable we have focused on. To illustrate this point, this is an incomplete list of the information products I have been working on during my career, in no particular order:

- User guide
- Requirement specification
- Functional specification
- Parameter dictionary
- Training materials, both basic and advanced
- Troubleshooting instructions
- Release note
- Technical bulletin
- Server start-up instructions
- Online help
- White paper
- Offer
- Web page
- Marketing materials
- Internal bulletin
- Press release

All of these have one thing in common: they have described a technology (cf. Cleary, 2012, p. 12) – either in technical or a layperson’s terms – or provided instructions for working with technology. To me, this is the core of being a technical communicator. In his interview, Hill provided the following summary:

1. ⁵Hill: I'd break it down to three things: what do people need to know in order to achieve some useful goal that they need to achieve? Whatever information they need, give them that information, and deliver it in a mechanism that they can consume. So those are the three things I think make up tech writing: understanding what people need to know, delivering them what they need to know, and giving it to them in a way that they can understand it.

For many of us, this has involved software product documentation (cf. Carliner, 2009). Hill mentions, however, that the field has in fact been around for much longer than the start of the IT boom:

2. Hill: I've been in the field since 1998. At the IT boom, more happy times. Although the profession is not that new in Finland, it's been around for a while. I met somebody who had been working for one of these paper machine type companies, where if they sell 20 units per year they are doing brilliantly because they are fantastically expensive, and when I met her sometime in 2000 she'd been working there for like 25 years. So it's been around awhile, it's just been underneath the surface, not very visible.

According to the data, especially those technical communicators who work for vendors are focused on product documentation – user instructions for either hardware or software products. For in-house employees (like myself), there is more room to maneuver and the tasks tend to have a wider range.

The interviews for this study were conducted at a time when the aftermath of the global financial crisis and the downsizing of many of the major employers in the field coincided in Finland. These factors coming together have seen a rise in traditional, hardware-focused technical communication:

3. Nurminen: All of a sudden there were all these customers that didn't do software, or they did software because most of these things nowadays have a user interface... but it was really fascinating to get into the world of machines. My favorite was a fish processing company, they made machines that processed fish, and they had wonderful names, things like "de-slimer"!

The field has also changed in other ways during the interviewees' careers: basic editorial tasks no longer exist. The profession now requires technical communicators to have extensive technological skills and knowledge about, for

⁵ Parts of the data presented in this section have been published previously in the articles comprising this dissertation.

example, content management systems, on top of the language and writing skills “more and more assumed as a default” (Interviewee F).

4. Hill: There was a time when the job was getting a ton of e-mails saying change this, change that, and your job was transferring the information from the e-mail into some hideously complicated SGML template, and make changes, and it was more of an information management type of thing, forms and clicking buttons... but those days are gone. I can't say that I personally miss them, because I wasn't the most rewarding thing to do. It was, quite frankly, mind-numbingly boring.

Currently, the field is still recovering in Finland. Many of the interviewees commented that the field had seen difficult times before, but that the current problems seemed more profound than anything they had experienced before (cf. Hayhoe, 2005). Among the most pressing problems mentioned in the interviews were the number of available posts, the lack of newcomers to the field (cf. Boch, 2011) and the effects of offshoring and outsourcing (cf. Dicks, 2009; Carliner, 2009; Giammona, 2011; Andersen, 2014).

6.1 Current tensions in technical communication

In article III, we utilized a methodology developed by Engeström & Sannino (2011) for discovering the roots of the contradictions within the technical communication activity at a case company. Within the methodology, specific linguistic cues are seen as manifestations of contradictions in an activity system. The methodology is described in more detail in section 4.2.

As discussed above, I did not analyze the rest of the interview data the same way as the data in article III; instead of digging into the contradictions experienced by the interviewed practitioners in a specific activity setting, the aim of these interviews was to gather background information about the field in general, which I then analyzed using thematic analysis. However, manifestations of contradictions similar to those discovered at the case company are visible in these interviews, too. The excerpt below contains a rhetorical question, typically a sign of a double bind:

1. Hill: I also think that the jobs are going to be in sort of small to medium sized companies who are exporting right now, who maybe don't have tech comms people. But the difficulty is, how to get in and sell yourself to them when they're not even advertising these kinds of jobs?

At the time of the interviewees, job opportunities in the field of technical communication were very sparse. Interviewee B summarized the general feeling in the field:

2. Interviewee B: This is a dying industry... it's moving towards multi-skilled engineers doing the work. I also think that collaborative writing is coming, where you get direct feedback from the customers and update the documentation together.

In the case company, all the recently hired technical communicators were, indeed, engineers (cf. Giammona, 2011). As discussed above, the technical communicators interviewed in this study, on the other hand, all had a background in the Humanities, most often English studies, and had learned the tools of the trade in practice than through their education. This created a number of tensions between the technical communicators and the stakeholders they interacted with. These tensions will be looked at in more detail next. Collaborative writing – brought up here by Interviewee B and also suggested in the literature as a future direction for the field – will be discussed more closely in section 7.

In the case company data, we discovered a key secondary contradiction between the constantly tightening deadlines and development cycles (the component of *output*) and the available human resources (*community*) within the activity. The pressures to produce more content in a tighter schedule with as little cost as possible resulted in a variety of discursive manifestations of contradictions, such as the critical conflict below:

3. TW/LA: That's exactly it. You get this feeling that you're banging your head against the wall, "produce quality", and at the same time you have to do it quicker and quicker and cheaper and cheaper...
DPM: The cycle is getting shorter and shorter – more content on a tighter schedule, more concurrent releases. There is just so much work.

The pressure to produce more content in tighter time frames was also articulated by many of the other interviewees. In the excerpt below, the expressions of helplessness and the rhetorical question point to a double bind, a sign of an aggravated secondary contradiction within the activity:

4. Interviewee D: The work has gone so insane that it is just basic survival now. I no longer put in extra hours because it's no use, you can't control a chaos. Quality doesn't mean anything – no matter how well you do your own work,

you can still get fired just like that. Do they pull the names out of a hat or something?

In the excerpt below, another expression of helplessness – “There is never time or money to do anything” – points to a double bind within the activity, preventing the technical communicators from developing the activity into a meaningful direction:

5. Interviewee E: If you are too ambitious, you won't make it in this business... you will burn out. Big dreams, like fixing quality problems, will amount to nothing. There is never time or money to do anything.

Interviewees A and H both used the same expression to describe their work: they called it “constantly putting out fires”; reacting instead of having time to plan and develop their work. Interviewee A went on to describe his workload as “crushing”:

6. Interviewee A: The pace of work is crushing at times... and this work is so challenging that not many people could do it anyway.

Interviewee A worked in a highly technical, very fast-paced content management environment, and his work was mainly geared towards managing the work processes within the system, at the expense of concentrating on the content. According to Engeström (2008, p. 68), complicated tools can “take on a life of their own”, becoming substitute objects in the activity system. Complex content management systems seem to have these features; this will be discussed in more detail later in this section.

In the excerpt below, yet another double bind points to the aggravated secondary contradiction between the *object* of the activity and the *community* at the case company: the technical communicators feel the need to develop the object into a more meaningful direction, but also feel they do not have the support of their management in the endeavor:

7. DPM: But it's not like, we are not the core competence area in this company, we are in the [technology] business, not in the technical communication business. So it's like we have to put out this documentation, but it's pretty low priority. And I could also say that as long as the line management... as long as they feel that everything is going fine, we have nothing... because they are our feedback channel upwards...

As discussed above, technical communication as an activity is very diverse and varies from company to company and product to product. In general, however, it is heavily dependent on the surrounding community. The community of technical

communication is made up of colleagues, managers, SMEs and other in-house stakeholders. Interviewee C called the community's attitude towards documentation "the key factor" in producing high-quality technical communication. The "history of tension" within the activity (Engeström, 2008, p. 78) arises from the often-reported attitude among SMEs that documentation is not important or worthy of their time (Lee & Mehlenbacher, 2000; see also Brockmann, 1986, p. 18–19; Schriver 1997, p. 492). According to the interview data, access to SMEs and their attitude towards technical communication continues to be a major quality issue. This attitude may stem partly from the current division of labor within the activity; this is discussed in more detail later in this section.

The audience – the users of the products – however, can also be seen as temporary members of the community, having important information that could be used in the development of the company's (information and other) products. The importance of user contact is so obvious that it seems self-evident. And indeed, although I had initially based the hypotheses in this study on my own practical work experience (cf. Chang 2008, p. 63), I found that the case of user-centeredness in customer documentation was quite easy to argue: many of the scholars of the field had already deduced that it is impossible to create effective customer documentation without access to users or user data (Price & Korman, 1993; Wright, 1994; Schriver, 1997; Spinuzzi, 1999; Van Laan & Julian, 2001; Mirel, 2002; Jayaprakash, 2008). Many of the interviewees also emphasized the need for user contact; in the words of Interviewee B, "direct feedback is the best part of the job".

According to Mirel (2002, p. 2), we should move towards documenting for "use in context", also emphasized by Spinuzzi (1999; Spinuzzi & Zachry, 2000). According to Spinuzzi (1999, p. 21), when designing new documentation, we should be aware of the user's activities and the resources at their disposal for the documentation to fit into its intended environment – its ecology of genres – and for it to be truly useful.

However, while technical communication literature does emphasize the need for the technical communicator to be aware of the user and the user's needs for documentation, the tools it offers us to accomplish this goal are often not very concrete (cf. van der Geest 1994, p. 54; de Jong and van der Poort, 1994, p. 232–233; Andersen, 2014). Spinuzzi & Zachry (2000, p. 178) suggest *organic engineering*, where technical communicators are continually involved in updating and augmenting dynamic documentation in collaboration with the users, as a way to create documentation that is directly relevant to each user. The collaborative writing Interviewee B brought up above seems to be a concept similar to organic

engineering. According to the data in this study, however, technical communicators rarely have the time and resources to focus on their audience. Interviewee H also mentions that even if there was a way to get feedback, it would not directly impact the quality of documentation. In the excerpt below, the cluster of negatives ('don't, couldn't) points to a conflict:

8. Interviewee H: We don't really get direct feedback, but even if we did, we couldn't utilize it unless the user guide was updated. Guides are only updated if the product changes.

In the case company, feedback was not systematically collected but trickles of it sometimes reached the technical communication department. Interestingly, although the technical communication personnel on the two sites have very different backgrounds, they all agree on the importance of user contact. In the excerpt below, the reported speech signals a critical conflict:

9. DPM: And then we get this customer feedback, "we don't use your documents, we create our own." They use parts of our documents, and copy-paste what they need.

TW/LA: Yeah, I just saw this installation guide in French that had some of our stuff and then a lot of extra information, too.

The contradiction between the output and the community within the activity seems increasingly frustrating against this background – what is the point of creating more and more releases in increasingly tight timeframes and with increasingly limited resources, in a situation where the output does not meet the needs of the intended audience?

The DEng at the case company also mentioned that the documentation produced did not seem to be relevant to the audience:

10. DEng: Our customers only have interest in a couple of the documents we produce. We should implement some sort of data gathering so that we could see which documents are read, counting the doc views on our site or something like that.

The DEng at the case company suggested web analytics as a way to gather user feedback. While Andersen (2014) points out that web analytics are not a sufficient tool to understand user behavior, in the case of little or no direct user contact, they could at least serve as a starting point. In his interview, Hill emphasized that quantitative and qualitative feedback both serve a purpose:

11. Hill: There's two types of feedback, quantitative and qualitative. Qualitative is almost always written by someone who's ticked off, "I hate you", and that can be either justified or unjustified. Just because somebody tells you something, doesn't make it justified. They may just be having a bad day. But quantitative feedback tells you how many people are reading the documents, and if there's a document that nobody reads, it can just be a legal requirement, something that has to be there and has to be correct. So you have to analyze the feedback, of course. But I think more writers should feel entitled in their companies to demand usage figures. Which is why I'm a big fan of going online, because it's much easier to get feedback that way. The quantitative feedback doesn't tell you why things are happening but it gives you some idea what's going on.

Interviewee D also mentioned that at her company, there is a tendency to react to individual customer feedback without analyzing it properly in-house. This way, the personal opinions of individual customer representatives can gain disproportionate importance when there is no quantitative feedback to weigh them against.

Hill sees user feedback as a way to direct the entire technical communication process; in a tight financial environment, the idea of not producing useless documentation should appeal to companies.

12. Hill: You can find out what people are looking at, are they finding things, stuff that can influence your information design. Or, what JoAnn Hackos says and I firmly believe, you should always have a plan for killing information. If people aren't looking at it, just get rid of it. It's what I call organic growth, just weeds in your documentation. Kill it. Completeness is not the objective, usefulness for the user is.

In my own work, unlike many of my interviewees, I have been fortunate enough to have direct and frequent user contact. My experiences are summarized in article II. In his interview, Hill emphasized the need for user contact but also the harsh reality many technical communicators are faced with:

13. Hill: No. I have actually met users.

Virtaluto: I have as well. We're a rare species!

Hill: Mind you, I was a requirements manager at the time.

Virtaluto: I was just a tech writer, but the company was sort of forward-thinking in that they let me...

Virtaluto: ... actually meet users! It makes all the difference. It helps you be an advocate if you've actually met them. Yes, we are the advocate for the user,

but we are often in a position where it's very difficult for us to be that. Because we just don't have the data.

According to Engeström (2008, p. 83), the history of a work community is embedded in the history of the organization and often also in the history of the professions involved. As discussed above, there is a generally recognized history of tension between technical communicators and the surrounding community. This tension, at least in part, seems to arise from the division of labor within the activity. Interviewee G actually called this “the weight of history”. Hill describes a situation highlighting the issue:

14. Hill: Too many software developers have had the following experience: technical writer comes into the project, and they are supposed to be creating API reference documentation for other software engineers. The technical writer comes to the very busy software developer or architect, and says “Tell me what to write”. The writer takes notes, jots that down, goes away, does some sort of preformatting, things like that. And then comes back to the same software person and says “Please review this”. From the perspective of that software developer, what have you done?

In the situation described above, the technical writer is not able to do the work on their own – a background in Humanities generally does not help in the creation of API reference documentation. From the software developer's viewpoint, however, the technical writer is not helping to realize the object of the activity. It is difficult to see the value the technical communicator brings to the described project. According to Engeström (1995, p. 90), recurring “impossible tasks” like this are signs of a secondary contradiction in an activity system, and in the case of highly technical writing projects, the solution has been to either outsource the task or to hire employees with a more technical background to do the work in-house. At the case company, both options have been used, with mixed results.

In the case company data, we identified a secondary contradiction – similar to the one described by Hill above – between the complex object of technical communication and the fragmented division of labor which isolated the technical communicators from their community in the organization. The critical conflict in the excerpt below manifests this contradiction:

DPM: [...] but now it seems that the line management more and more interferes with...

Virtualuoto: What kinds of things does the line management handle, then,

that aren't their responsibility?

DPM: Well, everything.

Virtualuoto: Can you give an example?

TW/LA: Error management!

DPM: Well, yeah... they seem to think that error management is entirely their responsibility and that the DPM can't... shouldn't... can't do anything about it. Can't even know about it. Errors. That go into the documents.

Virtualuoto: Why is that?

DPM: It is not the DPM's task. It's a line management task. That's what my superior yelled at me last week... [sighs, laughs]

Virtualuoto: But how does that work then in practice, because they affect the contents of documentation...

DPM: Well, exactly.

Virtualuoto: So how do they think you should get the information?

DPM: Well, I shouldn't. It is secret information. It is not for the DPM to know.

This contradiction is also manifested in the rest of the interview data, particularly in the case of outsourced technical communicators: the object of technical communication requires profound subject matter understanding, but technical communicators feel isolated from the SMEs they rely on for background information, review resources and, ultimately, permission to publish the documentation. Because of this isolation and the lack of continuous education, the technical communicators' competence does not grow – which, in turn, makes it increasingly easy to outsource or offshore the task. In my experience, being an in-house technical communicator makes it possible to grow into an SME role; because of the constant contact with the developers, sales people, support people and – if you are very lucky – with the users, your competence grows and it becomes possible to see the entire trajectory and use case of the product your company is developing. This, in turn, relieves some of the burden of the other SMEs, whose primary task is something other than supporting the documentation department.

The interviewees in this study also generally favored being an in-house technical communicator for a variety of reasons, for example easier access to information and possibilities of influencing one's own work. In the words of Interviewee H, "nobody is a subcontractor by choice". Interviewee D mentioned that there is an "I just work here" attitude amongst vendors, while in-house

employees tend to be more invested in the success of the company. One reason for this attitude may be caused by the wall between vendors and their community.

15. Nurminen: There are some jobs where it makes total sense to use a supplier, and some jobs where it does not. There are situations where it makes total sense, but not these long-term “Will you please bring in 20 writers to sit in our premises where we’re going to put a big wall around you and you can collaborate in these ways but not in those ways.”

In his interview, Hill called this “the vendor trap”: a situation where the division of labor is such that the vendor company has no access to the users or SMEs of the products they are documenting. Interviewee E described a project where there were no background materials available, the vendors were not allowed to contact the SMEs, and the product had to be documented “without ever seeing it in real life”.

According to Interviewee B, the reason for the outsourcing trend is that we do not see documentation as part of the product. Instead, technical communication is seen as a commodity activity (Faber & Johnson-Eilola, 2002), and the recent advances in content management tools allow people not trained in technical communication to provide “well-structured content”, making it easier to outsource and offshore the task (Andersen, 2014, p. 121). Carliner (2009, p. 44) also sees offshoring and the advent of CM tools as the reasons behind “dwindling work opportunities” in technical communication in high-cost countries. Interviewee B mentions, however, that offshoring is not an unproblematic solution either:

16. There is constant churn – we may have enough writers in all projects, but they keep changing, so the competence doesn’t grow. We start from scratch every two months.

As briefly mentioned above, complicated tools can sometimes become substitute objects in an activity system (Hasu & Engeström, 2000; Engeström, 2008, p. 68). According to Engeström (ibid.), the instrument in an activity system is constantly evolving, in much the same way as the other components: what is now a tool may soon be an object or a rule. The interview data in this study mirrors the development described in the literature: the current CM tools are often very complicated and even unstable, turning technical communicators into “tools jockeys” (Hackos, 2007, p. 206; Slattery, 2007) instead of user-focused communicators. In some cases, the development of these tools has also resulted in routine, low-level content production; easily outsourced and offshored, with little or no interaction with users or even SMEs (Hackos, 2005; Slattery, 2007; Carliner, 2009; Dicks, 2009;

Giammona, 2011; Andersen, 2014). In the case company, a complicated CM tool that was in the process of being replaced had created a number of tensions and conflicts within the activity. In the excerpt below, an expression of helplessness again signals a double bind, a manifestation of the secondary contradiction between the object and the instruments within the activity.

17. TW/LA: Yeah, it was about four years ago when I had this training... this is such a hideous system that it takes four days to train! [laughter] And there's like no possibilities for reuse, anything like that. I was just so desperate when it came, like this cannot be true...

In a single-sourcing environment, the option to create various outputs and versions from the same material is of key importance. At the case company, however, the CM system had forced the technical communicators into creating the versions manually, which is tedious and makes the production system increasingly prone to human error. The reported speech in the excerpt signals a critical conflict:

18. TW/LA: Well, we just have had many versions. There are these conditions that you can sort of use, but they're like "you can do this but never do that or you'll mess up the entire production system"! I had to start an e-mail folder just for tips and hints, just to try and keep the system going.

According to Slattery (2007, p. 318), the complexity of the CM tools may turn technical communication into a technological skill – focusing on the instrument rather than the object of the activity, as discussed above. What naturally follows is that when the systems undergo the significant usability improvements as other specialist systems have undergone, technical communication will be in even direr straits than it is now.

The conceptual model of the activity system discussed above can be used to illustrate the tensions within an activity setting. The figure below summarizes the tensions discussed above, depicted with the jagged red arrows.

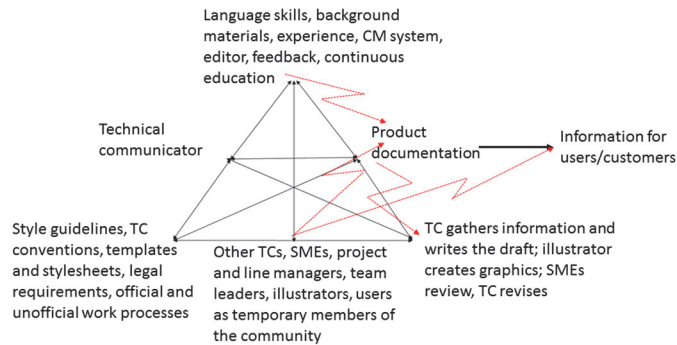


Fig. 2. Summary of the tensions within the technical communication activity

The developmental potentials arising from the tensions within the activity will be discussed next.

6.2 Development potentials in technical communication

As discussed above, there are recognized challenges in technical communication; these are reflected in the literature of the field as well as the interview data of this study. In the interviews, I also asked the participants to reflect on the future of the field in terms of what we could or should do to reshape the profession. Understandably, many of the interviewees could not suggest concrete solutions. At the time of the interviews, the future seemed particularly gloomy to many of them. There was a sense of isolation; in the words of Interviewee B, “there is nowhere to go if you want to develop things, our managers don’t care and there is no customer documentation strategy of any kind”. Many of the other interviewees also noted that there was nowhere to go professionally; there was no career path to follow. Two things, however, came up: the importance of reinforcing our connections to the users as well as the SMEs and the importance of “raising the profile” (Interviewee H) of the profession (cf. Giammona, 2011).

As practical steps to be taken, Interviewee C suggested that instead of separate documentation and product development teams, the work could be done in a

multidisciplinary team consisting of technical communicators, engineers and other SMEs; “that way, we could fix technical content, language, usability and other things all at once”. This would tear down some of the walls discussed above. Nurminen referred to this type of division of labor as a “self-defense mechanism”: if technical communicators were embedded in the development teams, it would be a lot harder to just “put an X on that box and package it all away”. As a profession, we need closer ties with our community in order to survive but also in order to develop our skills and increase the value we add in our organizations.

In the next section, I will analyze the developmental potentials and possibilities arising from the data in more detail.

7 Discussion and conclusion

The impact of globalization and the advances in content management systems have changed technical communication profoundly in recent years. Although much of the literature discussing these major trends originates from North America, the experiences of the Finnish practitioners in this study seem to be fundamentally similar. The outsourcing and offshoring trend has affected the career prospects of technical communicators in all higher-cost countries, but the situation in Finland is further complicated by the struggling export business and the downsizing of major employers. Finnish technical communicators typically write in English for audiences outside Finland; in this respect, their work differs from the work of their colleagues in, for example, North America. Technical communication is an international field, and in order for it to move forward, we need to gather the experiences of practitioners in different countries and contexts.

To cope with the ongoing changes, Andersen (2014, p. 143) calls for practical research “that examines both what is working and why and what might be improved and how” in the content industry. This study has contributed to this discussion by addressing the following research questions:

- Research question 1: How are the challenges in the field of technical communication reflected in the interview data of Finnish technical communicators?
- Research question 2: What development potentials and possibilities arise from the interview data?

The solutions to the above research questions arising from the data will be discussed in this section.

7.1 Reshaping the technical communication activity

The tools offered by activity theory were used in the analysis of the data in this study, as discussed in sections 3 and 4.

In the case company data, we discovered two key secondary contradictions. The increasing *output* demands and increasingly tight human resources (*community*) meant that there were very few possibilities to develop the quality of the work. The other contradiction in the case company data arose from the *object* of the activity, requiring profound subject matter understanding, and the fragmented *division of labor* which isolated the technical communicators from potential sources of support,

competence and information within the organization. Although the rest of the interview data was not analyzed using the same methodology as the case company data as discussed above, linguistic cues pointing to these two contradictions were also identified in these interviews. This seems to suggest that the challenges encountered by technical communicators are similar, despite the diversity of the field.

On the basis of the data in this study, fundamental tensions and contradictions remain in the activity of technical communication despite various scholarly efforts to resolve them. The division of labor in an activity system comprises the division of power and rewards; in technical communication, power is currently divided in a way which leaves practitioners largely unable to influence their own work or the quality of the end products. The object and output do not correspond with the user's needs, which leaves technical communication practitioners as well as users equally frustrated. The interviewees in this study all value user feedback and are aware of its importance, but currently have little access to users or user data. This isolation makes it all but impossible to create user-focused documentation. On the other hand, there is a pressure to "produce quality" with zero reported errors.

In order for technical communication to move forward, the lack of user contact is a key problem to fix. This is not a new requirement; as a field, we have been aware of this problem for a long time. Globalization, however, has made this an increasingly pressing problem (e.g. Hackos, 2005). According to Dicks (2009, p. 53), those employees who communicate effectively with customers and add value to their experiences are deemed "important to retain." The longer technical communicators stay on the fringes of product development processes, the more difficult it will be for us to prove our value. Dubinsky (2015, p. 127) points out that while we may argue that technical communicators are "truly usability focused and design oriented", many of us are unable to use these skills in our workplaces.

In many countries, customer documentation is required by consumer protection legislation, so technical communication as a field will not disappear; currently, however, the money spent on documentation is not used in the most efficient way. According to the data, companies are storing masses of outdated and unnecessary information in their documentation systems. Technical communicators could be an invaluable asset in determining what parts of this information are important to retain and how they should be presented, but instead, they are using their time "putting out fires" and churning out update after update for an audience who has no interest in the output (cf. Cleary, 2012). All information has an overhead, and it is difficult to see how the current process is saving our employers any money. All

of the technical communicators I interviewed brought up the issue of haste, having too much to do in too little time and too few resources (cf. Virkkunen et al., 1999). This prevents the technical communicators from proactively planning their work, including the contents of the documents they produce. When I asked Interviewee D what they would do if they did have the time, she had an answer ready:

1. Interviewee D: I would go through the whole document set. There's so much there that hasn't been touched in years, I'm sure we could cut down 30% of the stuff if we ever had the time to really concentrate on this.

The concept of “killing” useless information was also brought up by Hill; it is not efficient to carry around information that nobody needs purely for historical reasons. Content strategy has been suggested as a way forward by, for example, Andersen (2014) and LaRoche & Traynor (2013), but in the current situation, it seems to be quite difficult for technical communicators to develop their work in this direction. None of the interviewees were able to devise proper information architectures or plans for their content – the dwindling resources were used on “putting out fires” instead. The interviewees also mentioned that the lack of time and resources prevents them from improving the usability of the products of the company as well as the documentation. Poor usability is another issue which will directly show in, for example, customer support costs.

It was also suggested in the interviews that in the future, consumer products will be documented through crowd-sourcing, because it is clearly the cheapest option. According to Cleary (2012, p. 22), there are job opportunities for technical communicators in the “content curation” of crowd-sourced or user-generated content for consumer goods. However, in cases where the company creates business-to-business products, the customers cannot go “directly to Google” (Andersen, 2014, p. 125) for user guidance as it is usually not available in the public domain. It would seem that in the future, the majority of technical communication jobs will be at companies producing business hardware and software instead of consumer products. This means that technical communicators must develop the technological skills needed to document these – often quite complicated – systems.

In order for technical communicators to grow into meaningful roles within their organizations, they need to integrate themselves with the product development process and with the customer interface – as suggested above, collaborative writing and organic engineering are seen as ways to improve the quality of the end product but also the job satisfaction (and security) of the technical communicators themselves. In many companies, the technical communication team is seen as a

service provider, called in at the last minute to document an existing product. If technical communicators were part of the product development team instead, they could influence product design from the start (cf. Dubinsky, 2015). As discussed above, this would make it possible to fix many usability issues as part of the development process. This would probably also cut down on the SME support needed, which would relieve some of the history of tension discussed above. Fundamentally, collaborative writing would ensure that the object and the outcome of the activity meet the needs of the users – the reason we produce product information in the first place.

In activity theory, expansive learning refers to a process where individual disturbances and innovations grow into a new, collective model for the activity. It is the object and motive of the activity that are expanded: what the activity produces and why (Engeström, 1995, p. 99). To re-conceptualize the object, the “hidden boundaries” within the activity must be made visible and questioned (Engeström, 2008, p. 88). These hidden boundaries are often located in the nature of the rules, community and the division of labor within the activity (ibid.). It is suggested in this study that the current object, community and division of labor in the technical communication activity are making it increasingly difficult to develop the activity into a meaningful and sustainable direction.

It is often stated that technical communication is suffering from an “identity and credibility crisis” (Spilka, 2002, p. 97). There are probably many reasons for this, from the diversity of the field to our profession not being very established yet (e.g. Coppola, 2011). However, many Finnish technical communicators have a background in translation – another traditional career path for English majors – and the communicative skills and personal characteristics they have may not be directly applicable in the fast-paced and demanding world of today’s IT companies. As Hill put it:

2. Hill: You have a lot of people in the field with a translation background. And you know, being an introvert, that’s totally cool if you’re a translator. You can go days without seeing anybody. Particularly these days when it’s all vendors and blah blah blah, you never see a customer.

The myth of the introverted technical writer is familiar to all practitioners, but it is not working to our advantage. In one of my very first job interviews, the interviewer pointed out that technical writers mostly work alone, and that it might be a difficult position to be for a very outgoing person. Even then, I remember thinking that the interviewer was wrong: in my mind, technical writing was a “boundary-spanning”

(Hart & Conklin, 2011, p. 140–141) activity even then. Translation may be largely solitary work, but technical communication is a group effort and it demands effective communication skills:

3. Hill: It all comes down to having an understanding what your role is in any particular situation and how you add value. And I don't mean just in terms of money, how you contribute to the team. You can contribute to the team in ways that people don't understand and don't see. And I'm not saying that that's not valuable, but you have to be able to communicate – it's in our industry title – have to be able to communicate with people about how what you contribute is making their lives better.

Along with the technological skills needed at the workplace, our educational programs should emphasize the importance of communication skills to better equip students to the realities of working life. In Finland, there is no established process in place where experienced practitioners would return to universities to do research in the field and train the future generations of technical communicators (Suojanen, 2000). This is another reason for our identity and credibility crisis. Technical communication is very practice-based, and it is difficult to see how it could be efficiently taught by people having no hands-on experience in the field.

The widely reported gap between technical communication academics and practitioners was discussed above. According to the interview data, the research conducted in the field is not particularly useful, and as none of the interviewees had formal education in the field, it is not surprising that they did not see their studies as very relevant to their working life. The interviewees did mention business courses, legal courses and practically-oriented usability and user research courses as the types of continuous education that would be useful in their work. Hill summarized the general feeling in the field as follows:

4. Hill: I often find, and I don't mean to be critical of my academic colleagues, but I find that a lot of the user research stuff is not very useful practically. They want to put people in labs and monitor what part of the screen their eyes are going to, and that stuff is just hideously expensive to do, and there are probably only three companies I could think of in this country who would even remotely think about spending that much money. So often it's a case of "yeah that's nice, but how do I do that in my document?" And it's way too expensive for us to ever get authorization for that kind of stuff. And not even in terms of money, in terms of time!

In the case of CM, for example, some of the future work descriptions suggested in the literature appear “abstract and idealistic,” as they neglect the viewpoints of CM practitioners (Andersen, 2014, p. 123; Carliner, 2009). The suggestion made by Anschuetz & Rosenbaum (2002, p. 150), seems to be a case in point; according to them, technical communication should be “re-conceptualized as a comprehensive network of activities, knowledge, and skills that help technologies be useful, usable, learnable, enjoyable, memorable, marketable, competitive, and of high quality”. This vision is very far from the daily grind reported by the participants in this study. A necessary next step would be for us to map out the practical, concrete needs of practitioners: what tools and transferable skills do they need to develop their work that academic research could provide? Many of the interviewees mentioned that we should be able to show – in clear, financial terms – the value we could add to the companies we work for (cf. Schriver, 1997, p. 79). Andersen (2014, p. 128) also suggests that the content we produce has a direct effect on the “organization’s bottom line”. However, we need research to concretely back up these claims.

Based on the discussion above, the steps to be taken in order to stop technical communication becoming (or remaining) a commodity activity can now be summarized as follows:

- Instead of being “outsiders” or service providers, technical communicators should be integrated into product development teams, where they could influence, e.g., the usability of the product during the design phase
- Closer ties with the users should be established throughout the product development process
- Resources should be spent on content strategy and the elimination of useless information instead of “putting out fires”
- Technical communicators should develop their communication and technological skills to increase their professional influence
- To have true impact on the development of the field, academic research should focus on methods and research settings which would bring forward the experiences of practitioners. In many research projects, research problems are defined in a way that disregards the complex and expansive nature of the field.

To answer the call for research on “what works” in technical communication, the obvious next step would be to find and analyze technical communication success stories. In organizations where there are fewer tensions within the activity, how is the work organized? Is the division of labor different from the data in this paper? The answer to these questions would help us ground our suggestions for the future

in the concrete experiences of practitioners in the field. In addition, we need a concrete development project to expand the object of the technical communication activity into a more meaningful direction. This could, in fact, be done at the case company, where the current situation is quite aggravated and the activity system already seems to be on the verge of a transformation.

Finally, as this is an autoethnographic study, I need to reflect on my own impact on the results. Have I been objective, or have I let my own experiences and opinions override those of the participants in this study? I have used extensive quoting in the preceding sections to let the interviewees' own voices be heard. I hope I have succeeded in giving them a turn to speak. I have also tried to follow the guidelines set by Chang (2008) and Anderson (2006) for producing an actual research report instead of "self-indulgent introspection" (Chang, 2008, p. 54). As to the findings of this study, my data sample is quite small, and Finland is a special case due to the massive impact of the Nokia/Microsoft downsizing; these factors will have an effect on the generalizability of the findings. The organizational power and communication structures revealed by the case company data would also have deserved a more profound investigation – one that I will hopefully be able to embark on in the future.

To conclude this report, the benefits and implications of this study will be presented next.

7.2 Benefits and implications of this study

To bridge the often-reported gap between technical communication practitioners and academics, this study was intended as a practical rather than merely theoretical account of the issues discussed.

The results of this study are expected to benefit:

1. Companies

An improved technical communication process would result in less reviewing and shorter user guide publication cycles. This would, in turn, save money as well as the valuable time of the SMEs. Customer satisfaction is also expected to improve. In many countries, customer documentation is required by consumer protection legislation, so it will be necessary to produce it in the future, too; why not do it as efficiently as possible?

2. Customers

If an efficient, customer-focused technical communication process was in place, the users of the products would gain more complete and tailored information at an earlier stage. In my experience, some of the current work processes of the field – where documentation is produced at the same time or after the testing period – do not allow customers access to information early enough. This makes it difficult for them to plan the implementation of the updated features and systems.

3. Technical communicators

Technical communicators would gain end-to-end responsibility for their work and not become easily replaceable ‘editors’ (see e.g. Kuutti, 1996, p. 24). It is suggested in this study that the current trend of producing outsourced and offshored documentation has reduced the technical communication process to the mere “assembly of documentation” (Slattery, 2007, p. 323) from multiple sources.

The study has implications for:

1. Technical communicator training

The institutions offering technical communication courses must be aware of the real-life requirements in the field. Continuing education is necessary in a field as diverse and interdisciplinary as technical communication. It is suggested that in some cases, the education in the field does not correspond to the needs of the practitioners.

2. Company processes

Currently, technical communicators – especially outsourced technical communicators – are very far removed from both the developers of the products we document and the users of the documentation (cf. Slattery, 2007, p. 315). It is suggested in this study that in order for us to produce high-quality, relevant documentation, we need to have stronger connections to both product development and the customers. This implication is not limited to technical communication processes only (cf. Sauvola et al., forthcoming; Olsson & Bosch, 2014).

3. Team structure

Technical communicators are often not part of either product development teams or customer support teams. The team structure should be revised so that technical communicators gain easier access to SMEs (subject matter experts) and product information. Again, this is especially troublesome to outsourced and offshored technical communicators. Closer ties with the community of the activity would

enable technical communicators to grow into SME roles, relieving some of the “history of tension” and easing some of the burden of the current SMEs.

4. The technical communication job description

Technical communication is a very diverse and varied field, and the job descriptions of individual technical communicators differ greatly. However, as we are trying to sell our services to companies and prove the value we add in the product development process, a common understanding of what we can do and how we can add value should be reached. The mere production of user guides with the help of SMEs is not a sustainable career option in today’s highly competitive job markets, which the offshoring trends has shown.

5. Theoretical framework and methods

The aim of this research project was to discover concrete development potentials and possibilities within the technical communication activity. I find that through its focus on development and change, activity theory fits this purpose well. I also think that as an autoethnographer, it is perhaps easier for me than an outsider to analyze the development potentials arising from the data. Through the combination of the methods chosen, I was able to answer my research questions. However, as a concrete development effort was not conducted as part of this research, it is difficult to say whether the suggestions made are viable in the real world. All of the suggestions did arise from the experiences of practitioners in the field, so they are not purely theoretical; more research is needed, however, to determine their true value.

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Appendix 1: Conceptual model of the activity system

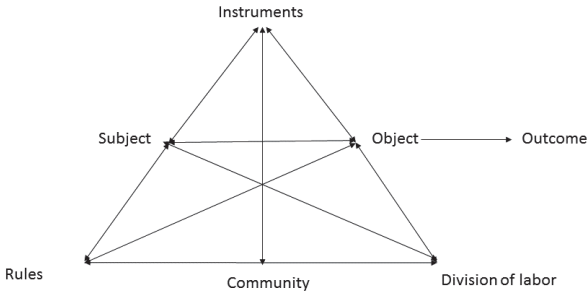


Fig. 3. Conceptual model of the activity system (Engeström, 1987, p. 78)

Appendix 2: Interview questions for data set 1

Ikä

Sukupuoli

Koulutustausta (valmistumisvuosi, pää- ja sivuaineet, ammatillinen koulutus)

Työhistoria; montako vuotta nyk. paikassa?

Urapolku:

Miten päädyit nykyisiin tehtäviisi?

Mitä muita it-alan töitä olet tehnyt?

Teetkö nykyisen työsi ohessa muita töitä?

Onko sinulla etenemismahdollisuuksia? Millaisia?

Millaisten tuotteiden parissa toimit?

Mitä työkaluja käytät?

Millaisia dokumentteja tuotat (suunnitelmat, manuaalit, speksit, oikoluku, budjetit...)

Missä projektin vaiheessa tulet mukaan kuvioihin –suunnittelu-, toteutus-, ylläpito-?

Mitä mahtuu tyypilliseen työpäivään?

Organisaatio (alihankkijoilla sekä oman firman että projektiorganisaatio):

Montako kollegaa sinulla on?

Kuulutko johonkin tiimiin, mihin?

Mikä on sijaintisi (tiimisi sijainti) organisaatiossa –oma osasto, markkinointi, testaus tuotekehitys...?

Ketkä katselmoivat dokumenttisi?

Saatko palautetta organisaation ulkopuolelta? Mistä?

Jos olet tiiminvetäjä, montako alaista sinulla on?

Kannatko budjettivastuuta?

Teetkö etätöitä? Paljonko? Kustantaako työnantaja esim. nettiyhteyden? Onko etätöihin olemassa säännöt, joita kaikki noudattavat?

Joudutko matkustamaan työasioissa? Paljonko? Onko matkustamiseen olemassa säännöt, joita kaikki noudattavat?

Oletko kontaktissa käyttäjiin?

Osallistutko käyttäjätapaamisiin, messuille tai muihin tapahtumiin yrityksesi edustajana?

Järjestätkö käytettävyydestejädokumentaatiolle?

Järjestetäänkö työpaikallasi tuotteiden käytettävyydestejä? Otatko niihin osaa?

Kuka suunnittelee koko kirjaston ja yksittäisten dokumenttien yleisen rakenteen?

Jos suunnittelet itse dokumenttien ja kirjastojen rakennetta, onko siihen tarpeeksi aikaa? Millaisia työkaluja käytettävissäsi on –templatet, style sheetit, style guidet, teknisen kirjoittamisen käsikirjat jne?

Kuka päättää, miten kuvitusta yms. dokumentteihin tulee?

Teetkö kuvitusta itse? Millaista (screenshot, vuokaavio, diagrammi etc.)?

Jos teet itse kuvitusta, oletko saanut siihen koulutusta?

Onko käytettävissäsi grafiikka-, tekstityyli-, suunnittelu-tms. ohjeistusta?

Jos on, kuka ohjeet on kirjoittanut? Kuka niitä päivittää?

Jätetäänkö laatu/käytettävyyssasioiden suunnittelulle ja toteutukselle aikaa projektisuunnitelmia tehdessä? Joudutaanko suunnitelmista joustamaan projektin edetessä?

Mitkä tekijät auttavat sinua työssäsi –ihmiset, työkalut, organisaatiokuviot, omat luonteenpiirteet...?

Mitkä tekijät estävät sinua onnistumasta työssäsi?

Kuulutko teknisten kirjoittajien järjestöihin? Miksi/miksi et? Mistä muualta saat tukea työhösi?

Järjestetäänkö sinulle työhösi liittyvää koulutusta (tuotteeseen liittyvää, uusiin työtehtäviin liittyvää, esimieskoulutusta, budjetoitinkoulutusta)?

Ovatko omat opintosi olleet hyödyksi työelämässä?

Pystytkö tekemään tehtäväsi riittävän laadukkaasti annetussa ajassa? Jos et, miksi?

Jos olet toiminut sekä alihankkijana että talon sisäisenä kirjoittajana/info designerinä/projektipäällikkönä, miten työpaikat erosivat toisistaan?

Saatko mielestäsi arvostusta työssäsi? Mitä muuttaisit tai parantaisit?

Oletko tyytyväinen työhösi ja urakehitykseesi?

Miten tekninen kommunikaatio on muuttunut urasi aikana? Miten uskot alan muuttuvan tulevaisuudessa?

Appendix 3: Interview questions for data set 2

Personal information:

Name:

Age:

Educational background:

Work history:

Current job:

How did you get started in technical communication?

Do you have work experience in other fields?

In your current job, what is a typical workday like?

During your career, what aspects of technical communication have you enjoyed?

What aspects would you change?

Technical communication as a profession:

How would you describe the work of a technical communicator?

What skills does a technical communicator need to succeed in their work?

What else is needed for successful technical communication (e.g. personal characteristics, planning or development issues, feedback, support from colleagues...)?

Do you think technical communicators are appreciated by the R&D and other stakeholders? If/if not, why?

What do you think are the biggest challenges in technical communication today?

How could we overcome some of these challenges?

How could we show our value to prospective employers? Why should one hire a technical communicator?

During your career, how has technical communication evolved?

How does the outsourcing/offshoring trend affect the technical communication industry?

How do you see the future of technical communication in Finland?

Has the membership in STVY changed over the years? How/why?

How do you see the future role of STVY in the industry?

List of original publications

- I Virtaluoto, J (2013) “It’s a strange little business” – issues in technical communication. *AFinLA-e Soveltavan kielitieteen tutkimuksia* 2013/ n:o 5: 200–213.
- II Virtaluoto, J (2014) “Death of the technical communicator” – current issues and future visions for our field. *Technical Communication* 61 (1): 38–47.
- III Virtaluoto, J, Sannino, A, Engeström, Y (In press) Surviving outsourcing and offshoring: Technical communication professionals in search of a future. *Journal of Business and Technical Communication*.
- IV Virtaluoto, J (In press) Expanding the object of technical communication: a practitioner’s perspective. In Rellstab, D. & Siponkoski, N. (Eds.) (2015). *Rajojen dynamiikkaa, Gränsernas dynamik, Borders under Negotiation, Grenzen und ihre Dynamik*. VAKKI-symposiumi XXXV. Vaasa 12–13 February 2015. VAKKI Publications 4. Vaasa: VAKKI.

The author of this dissertation was the primary author of article III. The role of the coauthors included reviewing, commenting and, in the final stages, collaboratively writing the article manuscript with the first author.

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115. Leinonen, Riitta-Marja (2013) *Palvelijasta terapeutiksi : ihmisen ja hevosen suhteen muuttuvat kulttuuriset mallit Suomessa*
116. Mertala, Petteri (2013) *Kuvalla voi olla merkitystä : Suomen ja Espanjan väliset suhteet vuosina 1917–1946*
117. Alaniska, Kari (2013) *Kalojen kuninkaan tie sukupuuttoon : Kemijoen voimalaitosrakentaminen ja vaelluskalakysymys 1943–1964*
118. Enwald, Heidi (2013) *Tailoring health communication : the perspective of information users' health information behaviour in relation to their physical health status*
119. Käsäkoski, Helena (2014) *Value creation in childhood obesity care and prevention*
120. Myllykangas, Mikko (2014) *Rappeutuminen, tiedostamaton vai yhteiskunta? : lääketieteellinen itsemurhatutkimus Suomessa vuoteen 1985*
121. Kangasvuo, Jenny (2014) *Suomalainen biseksuaalisuus : käsitteen ja kokemuksen kulttuuriset ehdot*
122. Harjuniemi, Jenna (2014) *Kön, språk och kognition : semantiska och begreppsliga strukturer hos svenska femininavledningarna och deras finska och tyska ekvivalenter*
123. Jylhä, Eva-Jo (2014) *The creation of the Small New England Town in Alice Hoffman's Massachusetts novels : a cultural imagological study*
124. Mäkinen, Leena (2014) *Narrative language in typically developing children, children with specific language impairment and children with autism spectrum disorder*
125. Anttila, Tero (2014) *The power of antiquity : the Hyperborean research tradition in early modern Swedish research on national antiquity*
126. Ylipulli, Johanna (2015) *Smart futures meet northern realities: anthropological perspectives on the design and adoption of urban computing*
127. Saviniemi, Maija (2015) *On noloa, jos ammattilaiset tekevät tökeröitä kielioppivirheitä : toimitushenkilökunnan kielenhuoltotiedot, -käytännöt ja -diskurssit*
128. Uusitalo, Ari (2015) *Hyvästit, potkut vaiko lobbauksen hedelmä? : Yhdysvaltain suhtautuminen Filippiinien itsenäisyyskysymykseen ja sen ratkaisuun 1929–1934*
129. Korpua, Jyrki (2015) *Constructive Mythopoetics in J. R. R. Tolkien's *Legendarium**

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A
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