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Juha Jalkanen

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ABSTRACT

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This study explores the development of pedagogical design for language teaching and learning in increasingly technology-rich environments. More specifically, it focuses on the process of design, enactment and analysis of language and literacy pedagogies in technology-rich environments. Two substudies are reported in five articles, each of which approaches pedagogical design from a different perspective. The first substudy examined (a) what pedagogical choices language students make in regard to learning objectives, working modes, materials and assessment, and (b) what kind of experiences, attitudes and perceptions were behind these choices. The second substudy focused on developing a design-based framework for collaborative pedagogical development and investigating the enactment of pedagogical designs in the context of higher education language teaching. The results show that digital technologies increase the complexity and unpredictability of the pedagogical design in language teaching. Digital environments expand the possibilities for languaging and create spaces for emerging types of literacies to take place. These literacies are social by nature and operate across different languages, spaces, and timeframes. However, to address these emerging language and literacy practices in formal education, the notion of design must be revisited. It was also found that the literacy practices in language teacher students' pedagogical designs are mainly static and do not meet needs of the contemporary and future society. In these designs, expertise appears as a property of the teacher and the discursive focus is on teaching instead of learning. The use of digital technologies is mostly disconnected from other areas of pedagogical design. Finally, the results indicate that in collaborative pedagogical development, expertise appears as shared and negotiated around different tasks. A structured and design-based development process creates a spectrum of pedagogical questions for further exploration.

Keywords: pedagogical design, technology-rich environments, language teaching and learning, language and literacy practices, expertise

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Jyväskylä, October 2015

Juha Jalkanen

* All remaining errors are mine.

FIGURES

TABLES

LIST OF ORIGINAL PUBLICATIONS

The dissertation is based on the following articles, which are referred to in the text by their Roman numerals.

I Jalkanen, J., Pitkänen-Huhta, A., & Taalas, P. (2012). Changing society - changing language learning and teaching practices? In M. Bendtsen, M. Björklund, L. Forsman, & K. Sjöholm (Eds.), Global Trends Meet Local Needs (pp. 219-241). Vaasa: Åbo Akademi.

II Jalkanen, J. (2015). Future language teachers' pedagogical landscapes during their subject studies. Nordic Journal of Digital Literacy, 10 (2), 84-101.

III Jalkanen, J., & Taalas, P. (2013). Designing for sustainable pedagogical development in higher education language teaching. In Problem-Based Learning for the 21st Century: New Practices and Learning Environments (pp. 73-99). Aalborg: Aalborg University Press.

IV Jalkanen, J., & Vaarala, H. (2013). Digital Texts for Learning Finnish: Shared Resources and Emerging Practices. Language Learning & Technology, 17 (1), 107-124.

V Blin, F., & Jalkanen, J. (2014). Designing for language learning: agency and languaging in hybrid environments. Apples – Journal of Applied Language Studies, 8 (1), 147-170.

CONTENTS

1 INTRODUCTION

The research reported in this dissertation grew out of a personal interest in doing things differently in language teaching. In 2008, I started working on the *Verkkolehtori* development project, which aimed at creating digital resources for learning Finnish. Around that time, I became interested in the pedagogical aspects of language learning in digital environments and that interest led me to focus on pedagogical design in technology-rich environments. The main question underlying my research has been: How does the increasingly digital text and media landscape change the work of language teachers?

Even though there is a great body of research dealing with language learning and technology (for a recent overview, see e.g. Thomas, Reinders & Warschauer 2014) , the practices within the digital domain remain an issue in formal education. This is evident in international surveys (e.g. European Commission 2013) that occasionally provide a view of technology use in schools. In a seven-year follow-up study, Taalas (2005) found that objectives laid out in different policy documents are far from the reality in schools. An extensive research project on future literacy pedagogies conducted in Finland provided insight into the parallel realities of literacy practices at school and in free time (Luukka et al. 2008). The present study examines the realities of language teaching in the context of higher education and aims to deepen the understanding of how language and literacy pedagogies develop and are developed.

The focus of this dissertation is on the development of pedagogical design in technology-rich environments, a subject which is approached from various perspectives in the five articles. A brief glance at the articles reveals that a shift in focus has emerged during my research. My initial view of technology-use in language teaching was a narrow one, and my aim was to find out how future language teachers use technology (Article I). Rather soon, I realized that a more systemic picture of pedagogical design was needed to understand how different technologies actually change language teaching and learning practices. This realization prompted me to revisit the data of the first article from a wider perspective (Article II). During the research, I have worked as a pedagogical developer at the University of Jyväskylä Language Centre, which provided an ideal

setting for exploring the question of how pedagogical designs can be developed in practice. A thorough investigation of my own work at the Language Centre led to the development of a model for collaborative pedagogical development (Article III). At the core of the model is the notion of reflective practice and, consequently, two of the articles explore the enactment of pedagogical designs and, using various theoretical frameworks, analyze how the designs unfold (Articles IV and V).

In short, the purpose of the present study is threefold:

- Examine the pedagogical designs of language students (Articles I & II)
- Develop a design-based framework for collaborative pedagogical development (Article III)
- Investigate the enactment of pedagogical designs in a local language teaching context (Articles IV & V)

The dissertation is structured as follows. Chapter 1 positions the study within the research domain of pedagogical development in technology-rich environments. Chapter 2 focuses in more detail on pedagogical design in technology-rich environments, which is the main theoretical framework of the research. Chapter 3 provides a brief overview of approaches to language and literacy practices in technology-rich environments which are needed for conceptualizing the enacted designs. Methodological issues and the results of the substudies are discussed in Chapter 4. Finally, Chapter 5 summarizes the results of the substudies. A general discussion concludes the dissertation.

1.1 From technology integration to pedagogical development

Research on language pedagogies in technology-rich environments for language learning has to a large extent been conducted within the field of computer-assisted language learning (CALL), which is a field of research and practice that focuses on questions around information and communication technologies and language learning. In addition to CALL, there are other, more or less adjacent, terms that are currently in use. These terms include technology-enhanced language learning (TELL), network-based language teaching (NBLT), and ICT-integrated language learning. This proliferation of terms could be seen as a way for practitioners to keep pace with the changing technological landscape. Recent discussion has shown evidence of such terms as mobile-assisted language learning (MALL) and social media assisted language learning (SMALL). The development of different terms presents a contradiction: As Bax (2003) has pointed out, there are no terms such as pen-assisted or book-assisted language learning. Many researchers in the field of languages have also engaged with computer-supported collaborative learning (CSCL) and computer-mediated communication (CMC).

Nevertheless, it seems that in the field of language teaching and learning at the moment, CALL is the most established acronym for research and practice dealing with technology. In his seminal work, Levy (1997, 1) defined CALL as "the search for and study of applications of the computer in language teaching and learning". In its 2010 research policy statement, the European Association for Computer-Assisted Language Learning (EUROCALL) states that CALL "is an established but rapidly evolving academic field that explores the role of information and communication technologies in language learning and teaching". The definition shows that the research focus incorporates a broad scope of technologies, even though the term *computer* remains in the acronym as a reminder of the field's origins. Levy's (1997) definition, however, highlights the twofold mission: to explore and to study.

The scope of exploration has expanded over the years, but most studies have focused on either written or spoken language exclusively. Beatty (2010) has conducted a review of CALL studies from 2006 to 2008. Of the 102 articles he surveyed, 12 dealt with writing, 6 with reading, 5 with listening and 4 with speaking. This provides some indication of the research focuses concerning different skills. He also points out that writing is typically the most popular focus of CALL studies, due to how easy it is to put into practice on a computer. Other skills mentioned were translation (3 articles), vocabulary (11 articles) and grammar (3 articles). The Internet appeared in nine of the studies, regularly in terms of access to authentic or other learning materials. Autonomy and independent learning, which are strangely discussed under the heading of technologies, were the focus of two articles, and learning strategies, in turn under the heading of concerns, within the scope of three papers. (For other overviews, see for instance Levy & Stockwell 2006, Warschauer 2004, Levy 1997.)

The numerous CALL studies have increased our understanding of the role of technology in language learning and teaching. These studies cover a wide scope of themes, such as teachers' encounters with ICT (Lund 2003), learner autonomy (Blin 2004), development of pedagogical and organizational frameworks (Tammelin 2004, Taalas 2005, Jager 2009) , interaction in technology-rich environments (Saarenkunnas 2004, Örnberg Berglund 2009, Vigmo 2010) , and participation in online environments (Bradley 2013). The studies also represent a variety of theoretical and methodological frameworks, including activity theory and nexus analysis. For a broader discussion of developments in the field, see Jalkanen and Taalas 2015 (in Finnish).

The need for CALL has been questioned several times. For instance, it has been argued that the next step for CALL is normalization, when there is no longer a need to point out the special role of technology, be it a computer, a mobile phone or social media. In line with this thinking, Taalas (2005, 193) has advised: "tone down the word *technology* and direct and expand the thinking towards pedagogical development in multimodal environments". As a conceptual framework for exploring and studying such language teaching and learning, Taalas et al. (2008, 242) has introduced the notion of multimodal language pedagogy, which "perceives learning as a non-linear transparent process where

the individual and group learning needs are addressed in a more efficient way, and learning tools, working modes and the use of different media are built around the learning process and not the learning content". Because the whole area of multimodal language pedagogy, as defined above, is to a large extent unexplored territory, these concepts and notions have been adopted as a point of departure for this dissertation. As a minor change, multimodal environments have been replaced with technology-rich environments to avoid the linkage to the work of Kress (2010) . The focus of this study is on the design of language and literacy pedagogies and not on different modes of meaning making. However, technology is understood in a broad sense and is not limited to digital technologies only.

This study offers insight into pedagogical development in language teaching within a larger framework of educational change. This type of approach has been underrepresented in the studies in the area of language learning, teaching and technology. The rationale for the approach lies in the realization that the contemporary frameworks within the field of CALL do not extensively enough provide answers for the critical questions emerging from the language teachers' work amidst the changing environments for teaching and learning.

1.2 Pedagogical development in technology-rich environments

When technology manufacturers state that everything is about to change, consumers hold their breath and wait for the next innovation that will improve their everyday lives in one way or another. In contrast, when educational developers or policy makers announce a change, educators often respond with a different tone: *Again?*

This attitude towards change is also evident in a question posed by a participant in this study: "Things can be taught in different ways, but if something works well, why should we change it?" Whereas the question is relevant, it prompts a second question of what it is that actually works well. As the results of this study suggest, the question of what works is context-sensitive: different ways of teaching work differently in different situations. In addition to ways of teaching, what is to be learned changes as well. New forms of language use emerge, but new competences are also needed in order to cope with the contemporary and future demands of society in terms of literacy and language practices. Both students and teachers need tools to structure, guide and conceptualize different types of processes in the often multilingual, multicultural and multimodal environments of language use and learning (e.g. workplace).

Educational innovation[1], which is a common yet problematic concept, is on many occasions related to the use of ICT, although the use of ICT does not as

[1] Change, reform, improvement, development and innovation are terms that are frequently associated with education. Saarinen and Välimaa (2012) have rightfully pointed out that using this type of terminology is a discursive power play in a sense that whoever states the problem also has the position to construct a solution for it.

such make education innovative. Furthermore, there is considerable variation concerning the meaning of innovation in various contexts. Edwards, Gilroy and Hartley (2002, 101) provide an insightful starting point for the discussion of educational innovation when they invite us to consider a story about a time machine:

> In 1900 it collected a surgeon and a teacher and set them down in 2000 in, respectively, an operating theatre and a classroom. The surgeon was bewildered by the new environment. The teacher picked up some chalk and carried on with the lesson.

Indeed, the operational infrastructure and culture of schools as institutions has changed surprisingly little considering the changes that have taken place in other areas of society (e.g. in health care). An interesting backdrop for the discussion is also that, at least in some universities, the education of future medical doctors has undergone remarkable changes in pedagogical terms (e.g. Pyörälä 2014) .

One of the cornerstones in the literature concerning innovation is Rogers' (2003) diffusion of innovations theory. According to Rogers (2003, 12), innovation is "an idea, practice, or project that is perceived as new by an individual or other unit of adoption". Similarly, Carless (2013, 1) defines innovation "as an attempt to bring about educational improvement by doing something which is perceived by implementers as new or different". Both Rogers (2003) and Carless (2013) point to the fact that innovation is a perception of something new. It is, however, justifiable to ask what actually is new.

As a good reality check, Fullan (2007, 30) reminds us of the multidimensionality of pedagogical innovation. According to him, there are at least three dimensions, or levels, of new in terms of introducing a change in education, be it on a policy or practice level:

1. The possible use of new or revised materials (instructional resources such as curriculum materials or technologies)
2. The possible use of new teaching approaches (i.e. new teaching strategies or activities)
3. The possible alteration of beliefs (e.g. pedagogical assumptions and theories underlying particular new policies or programs)

The degree of change within these levels is related to the change in the modus operandi of schools referred to in the beginning of the chapter. All of the dimensions are needed to bring about systemic change, but very often the change takes place on the first level only (e.g. in the case of introducing new technologies). However, according to Woods and Luke (2012, 313), a pedagogical innovation "amounts to an attempt to reframe and reconstitute knowledge in classrooms, to alter and shift the social, interaction and discourse work that teachers and students 'do' in face-to-face relations". In other words, it means a profound alteration of the traditional roles in the classroom. For some time there has been discussion concerning learner-centeredness as being opposed to teacher-

centeredness. This discussion does not, however, relate to the changing roles in a more dynamic sense. For instance, if we acknowledge the fact that learners can act as teachers, then in that case the situation can be teacher-centered. Instead, to begin talking about *learning*-centeredness (Barr & Tagg 1995) would place the emphasis on the epistemic practices and their related identity issues. The term would also address the learning of both teachers and learners and at least reduce some of the dichotomies and polarities related to the discussion.

Teachers develop their teaching and themselves as professionals through their everyday practice. When trying out different types of activities they eventually develop a tacit understanding of what works and what does not. Amid the hectic day-to-day life in schools, they develop new teaching materials and when interacting with students in the classroom situation aim at fixing things that do not work (in more academic terms, this could be called a local configuration). Whereas during their studies they have adopted a certain theoretical approach to language and learning and the pedagogical atmosphere of institutions might encourage a certain type of pedagogy, in the classroom they are very much on their own.

In addition to the levels of practice and theory, current policies shape as well as reflect the contemporary educational atmosphere. On a policy level, national and international strategies have, for quite some time, recognized the need to rethink and redesign education to match the changing societal conditions. For instance, from the European perspective, the EU strategy *Rethinking Education* (European Commission 2012) calls for a fundamental shift in education and stresses the role of technology and teacher education as change agents. The OECD Innovation Strategy (OECD 2010), in turn, envisages curricula and pedagogies that would develop the capacity for learning new skills and take full advantage of information and communication technologies.

Nationally, in regard to the use of ICT in education, the development plan for education and research in Finland for 2011–2016 states:

> Information and communications technology (ICT) is an essential part of education, working life and the operation of the whole society. The use of ICT makes for more flexible and personalized learning and renews instruction. Care will be taken in both initial and continuing teacher education to make sure that teachers are able to use ICT in education. (Ministry of Education and Culture 2012, 18)

Building on the illusion that the use of ICT will renew teachers' practices, the quotation above paints a vision of a dynamic educational system. It states that teacher education will ensure that teachers are able to use ICT in education. As this study shows, the issue is complex because of the mismatch between the possibilities of ICT and the ways of doing teaching and learning. Furthermore, it is not ICT as such that transforms educational practice. The challenge lies in rethinking the ways of providing education (see also Selwyn 2011).

In 2010, the Ministry of Education and Culture (2010) published a strategic document for improving education to respond to the challenges of the knowledge society, which places the emphasis on better quality, more efficient

collaboration and more open interaction between different stakeholders. In total, the document proposes an action plan with 46 items in it. These actions include:

- Pedagogical development of schools and educational institutions
- Development of the knowledge and skills of teachers, students and other professionals within the educational domain
- Development of learning environments and learning materials
- Development of the educational infrastructure

Another strategic document that was published in the same year is the national plan for ICT in education (Ministry of Transport and Communications 2010). Among other things, it stresses the need for technological structures which support learning by understanding students' motivation, interaction and collaboration.

The latest version of the Finnish national core curriculum for basic education, which will be adopted in 2016, places a significant emphasis on the development of multiliteracies. Curriculum reform does not concern higher education as such, but the issue of multiliteracies is highly relevant from the perspective of educational continuums. Instead of starting over at each stage of education, it would be crucial to define a systematic structure for the development of civic skills, such as critical thinking, problem-solving, information retrieval and knowledge-building. From the perspective of language teacher education, the notion of multiliteracies creates a basis for new forms of collaboration between teachers as well as sets expectations for language teachers' expert role in educational institutions.

The fact that Finland is widely known for its high-level performance in international comparisons of education does not imply that development is unnecessary. As changes occur in society, new pressures on education naturally emerge. For progress on the so-called Finnish way, Sahlberg (2011, 140-142) identifies four themes as drivers in ensuring that the Finnish school system meets the contemporary and future needs of society:

1. Development of a personal road map for learning
2. Less classroom-based teaching
3. Development of interpersonal skills and problem solving
4. Engagement and creativity as pointers of success

These themes appear frequently in the literature, but the challenge is to turn them into pedagogical structures and practices in education. Yet another aspect is the development of multiliteracies and digital competence. Relating these to the discussion of the change in the operating environment, it is evident that digital technologies do not have value as such, but their potential lies in the ways they can alter the roles and practices in the classroom and beyond. Fullan (2013) ties together technology, pedagogy and change knowledge, and calls the triad a "stratosphere", a term that implies the inevitable connection of these aspects.

At the core of educational and pedagogical development is the task of creating a new culture of doing teaching and learning (Fullan 2007, Kuure, Saarenkunnas & Taalas 2002) . Development of new structures and practices may, in an ideal case, follow the phases of initiation, implementation and institutionalization (Fullan 2007), but the process often includes different types of breaks and ruptures that arise when the old and the new meet (Engeström 2009). Thus, one important part of the development process is that of negotiation between teachers, students and institutions.

The history of education has been colored by different perspectives regarding the direction of educational and pedagogical development. The results of a recent study by Pitkänen-Huhta and Taalas (reported in Article I) also point to the direction that stakeholders in language education have different ideas of the changes taking place in society, as well as of these changes' effects both on their own activities and on language education in general. Reform, as Fullan (2007, 7) puts it, "is not just putting into place the latest policy" but "changing the cultures of classrooms, schools, districts, universities, and so on". In the literature, there are many compilations of principles that advocate success in the change process. As they are refined over time, these principles change (Fullan 2007), but they also incorporate similar elements regardless of the field within which the principles were originally developed. One of the common principles appears to be that of a shared vision.

Advisors of change, like Fullan (2007) and Senge (1990), highlight the importance of having a shared vision. However, before a vision can be shared, there is a need for a shared language that can be used to negotiate the vision. This does not mean adopting the same terms, but forming an understanding of the ideas behind the terms, and negotiating the terms to be used. (Cf. Engeström (2000, 972) on vertical and horizontal movement in concept formation and learning.)

In the cluttered reality of schools, teachers are bombarded with new terms, concepts and ideas from all directions and there is a risk that the teachers adopt the terms but not the concepts and processes behind them or just consider them as a flavor of the month. One reason for the confusion around the terms and concepts is perhaps their abstract nature. For instance, the meaning of literacy has, over the years, shifted from the ability to read to reading and writing and eventually to mean in, general terms, *being able to*, which is reflected in terms like computer literacy, technology literacy, visual literacy and so on. Literacy as defined in Lankshear and Knobel (2006) seems to cover all activities around a text that can, according to a broad definition, be almost anything between heaven and earth. On the contrary, another reason is the field-specific nature of the terms. For example, at least in the Finnish context, the notion of literacy (*tekstitaidot* in Finnish) is widespread among mother tongue teachers, but not among foreign language teachers, who lean on the Common European Framework of Reference (CEFR), an approach which could, in turn, enrich the mother tongue teachers' understandings of assessment.

The challenge is that the stakeholders of the change process need to develop an understanding of what should change and how the change should take place (Fullan 2007, 9). When this individual and collective understanding of these two aspects is combined with the constantly changing operational environment, a further complexity emerges.

> First, change will always fail until we find some way of developing infrastructures and processes that engage teachers in developing new knowledge, skills, and understandings. Second, it turns out that we are talking not about surface meaning, but rather deep meaning about new approaches to teaching and learning. Meaning will not be easy to come given this goal and existing cultures and conditions. (Fullan 2007, 29)

Even more problematic is that a discursive change is often easier to adopt than a change in practices. When asked to "articulate the rules they use to govern their actions", teachers, like many other professionals, provide an "espoused theory of action" (Argyris 2008, 23) , which often turns out to have little to do with how they actually behave.

A meaningful and shared vision means a negotiated vision, not just a vision that is communicated from the administration to the other levels of the organization. When people understand what direction they are heading in and why, the understanding prompts engagement with learning. In addition, to meet the objectives laid out in the policy documents, new practices and structures of pedagogical and professional development are needed.

Although there has been prominent research interest in educational and pedagogical development for the past few decades, the issue of sustainability has, however, remained largely unexplored. More recently, it has become a research agenda of its own, and the meaning of sustainability has also evolved. Whereas in the 1980s and early 1990s sustainability mainly referred to the maintenance of innovation, contemporary approaches stress the dynamic nature of sustainability, often linked with ecological metaphors. Sterling's (2004, 50) definition provides a good point of departure for approaching sustainable pedagogical development:

> (…) sustainability does not simply require an 'add-on' to existing structures and curricula, but implies a change of fundamental epistemology in our culture and hence also in our educational thinking and practice. Seen in this light, sustainability is not just another issue to be added to an overcrowded curriculum, but a gateway to a different view of curriculum, of pedagogy, of organizational change, of policy and particularly of ethos.

The notion that Sterling puts forward is that the eligible change is a paradigmatic one. This aligns well with Lankshear and Knobel's (2006) discussion of the two mindsets they introduce as descriptive representations of industrial and post-industrial worlds (see section 3.2.1).

As a developmental lens, sustainability means the development of pedagogical resources that evolve and are configured over time. These resources – which can be material (e.g. teaching and learning materials), cognitive (e.g. theories and models of how people learn) and social (e.g. relationships, networks)

– are constructed, negotiated, and contested in a constant flux of interaction. Furthermore, these resources converge in pedagogical design.

1.3 Core concepts

This study is about development. Technology-rich environments and language teaching form the context within which the development of language and literacy pedagogies are explored and even more specifically, how these are being developed within the increasingly digital text and media landscape. There are two perspectives from which development is examined: (a) the characteristics of pedagogical designs and (b) the process of designing. The study subscribes to the notion of pedagogy as the design of social practices (Lund & Hauge 2011) and relies on theories that perceive literacy and language as social and situated (Gee 2004; van Lier 2004; Lankshear & Knobel 2006; Pennycook 2010). These theories are presented and discussed in more detail in Chapter 3.

Recognizing literacy and language as practices (Lankshear & Knobel 2006; Pennycook 2010), that is, as something that people do (instead of as something that people possess), opens up new possibilities for exploring the development of pedagogical design in technology-rich environments. From this perspective, the practices in different teaching and learning situations are always local, that is, they are configured and reconfigured within a certain space and time. Resources, such as language repertoires and digital competence, are adopted to access and interpret information and produce content in different situations for different purposes.

To investigate these situations from a design perspective, the study makes use of two lenses in particular: design for teaching and design for learning (Lund & Hauge 2011). The first lens is that of a teacher and reflects the institutional context of education within which the designs are embedded. As Lund and Hauge (2011, 262) put it, "the intentionality behind this aspect of the design is primarily that of the teacher and the larger educational policies". The second lens, in turn, focuses on what happens when the designs are enacted: how teachers and learners configure and re-configure the pedagogical design and on what resources they bring into the situated design. In addition to these lenses, the study draws on the design process by the Design-Based Research Collective (2003), which is divided into three phases: (re)design, enactment and analysis. Section 2.2 focuses on the concept of design in more detail.

To examine the various situations from a language and literacy perspective, the study employs the ecological approach (van Lier 2004) and uses the concept of *affordance* to explore how the learners perceive and make use of the social and material resources in different teaching and learning situations. The study does not investigate language learning per se, but explores different situations of language use in relation to the pedagogical design.

The study also takes a look at design from the perspective of language teachers' expertise. Building on Lund and Hauge (2011) and on Edwards (2011),

expertise in pedagogical design is defined as the teacher's strategic capacity to design, enact and analyze complex pedagogical situations in technology-rich environments in collaboration with the students. In this view, expertise is seen as relational, that is, as distributed across networks, negotiated around tasks and shared with others.

The main backdrop for the study consists of mindsets as ways of reflecting on knowledge, language and technologies. In this aspect the study is inspired by the two mindsets presented by Lankshear and Knobel (2006) and illuminates how the extent of change in language teaching and education in general is perceived. The mindsets are discussed in section 3.2.1.

In relation to the mindsets, the word *systemic* is used throughout the dissertation. In the first substudy, it refers to examining the different parts of pedagogical design (objectives, working modes, materials, media choices, feedback and assessment) as well as considering experiences, attitudes and perceptions as elements in the design. In the second substudy the focus is on the trajectory of the design, exploring how interactions and relationships between different components at the micro-level create patterns at the macro-level and how these patterns can be conceptualized.

1.4 Aims and research questions

This study investigates the development of pedagogical design in technology-rich environments for language teaching and learning. More specifically, it views the process of pedagogical development through the concept of design, which is examined in relation to the language and literacy practices that emerge as the designs unfold.

The study consists of two substudies. The objective of the first substudy is to investigate the use of ICT among language students from the design perspective. In the second substudy, the objective is to develop and analyze research-based pedagogical designs within higher education language teaching and to propose a model of collaborative pedagogical development based on the empirical development cases. These substudies aim to expand the framework of multimodal pedagogy by focusing on the pedagogical design process from different perspectives. The overall research questions are as follows:

1. What characterizes the pedagogical designs of language students?
2. What characterizes the enacted pedagogical designs in technology-rich environments?
3. What kinds of structures, processes and approaches support the development of language and literacy pedagogies in technology-rich environments?

The two substudies are reported in five articles, each of which approaches pedagogical design from a different perspective. The first substudy examined (a)

what pedagogical choices language students make in regard to learning objectives, working modes, materials and assessment and (b) what kind of experiences, attitudes and perceptions were behind these choices. The second substudy focused on how these different elements are designed, negotiated, contested and redesigned in the context of higher education language teaching. Table 1 shows the specific focus of each article in relation to substudies.

Table 1 Focuses of the articles in relation to substudies

Substudy	Focus	Article	Focus
1	Pedagogical choices	I	Expertise in relation to the use of digital technologies
		II	Experiences, attitudes and perceptions; characteristics of pedagogical designs
2	Pedagogical development and enactment of pedagogical designs	III	Organizational structures favorable to pedagogical development
		IV	Literacy practices in technology-rich environments
		V	Languaging and agency in technology-rich environments

The study is situated within the context of higher education language teaching and more specifically within the Language Campus of the University of Jyväskylä. The Language Campus is a unique teaching and research hub, which brings together four expert units around various aspects of language teaching and language teacher education. These units comprise the Department of Teacher Education, the Department of Languages, the Centre for Applied Language Studies (CALS), and the Language Centre, which is a teaching unit responsible for the organization of the language and communication studies for university students from all faculties.

The first substudy (Articles I and II) takes place within the Department of Languages, which is partially responsible for language teacher education. (Pedagogical studies are provided by the Department of Teacher education.) The second substudy (Articles III, IV and V) has been conducted within the Language Centre, which is a unique research context because of its pedagogical contact with all university students. In addition, CALS has been the home base of my PhD research, while the Department of Teacher Education has been an important part of the collaboration.

2 DESIGN PERSPECTIVES OF PEDAGOGICAL DEVELOPMENT

2.1 Pedagogical development as a research domain

Pedagogical development is a research domain that draws on a number of disciplinary fields and subfields, including applied linguistics, education, educational psychology and theories of educational change. Moreover, it stands at a crossroads between theory, policy and practice (Taalas 2006), and can be examined through a framework consisting of three levels (Owston 2006, Kozma 2003): micro (classroom organization, teachers and students), meso (school organization, administrators and leaders), and macro (national and international trends and policies). The research challenge is to find linkages between the different levels.

In this study, pedagogical development is examined in the context of technology-rich environments for language teaching and learning. Much of the research in the area is conducted under the wide umbrella of education and technology, which, as Selwyn (2012, 213) notes, is not a coherent field study. The terminology surrounding the topic (e.g. e-learning, e-education, e-pedagogies) suggests a different pedagogical stance depending on whether teaching and learning takes place in a digital environment or not. From the perspective of pedagogical development, many of these approaches have been somewhat dichotomist: the focus of design has been on courses as either online or offline, and the ways in which different media could structure and support the learning process has not been sufficiently taken into account. Moreover, most of the studies have focused on one side of pedagogical development only (e.g. on teachers or on learners, on the design process or on the resulting activities).

Salavuo (2008), among others, suggests that technology should be viewed as a medium for pedagogical development in education. Following the various policy initiatives, a great deal of training for teachers in Finland has focused on developing their technical skills without a link to pedagogical development

(Taalas 2005). In part, this explains why many studies report a low level of renewal in education. As Cope and Kalantzis (2009, 4) provocatively put it: "Digital technologies arrive, and almost immediately, old pedagogical practices of didactic teaching, content delivery for student ingestion, and testing for the right answers are mapped onto them and called a 'learning management system'." On the basis of recent research, a lack of new thinking in regard to pedagogical practices seems to be the status quo.

Blin and Munro (2008) discuss the transformation of teaching practices in higher education and explore the factors that shape the institutional use of virtual learning environments (VLE). Their results suggest that the use of VLE often builds on teachers' current pedagogical patterns and that the element of pedagogical development is missing, resulting in little disruption of teaching practices.

In research on computer-supported collaborative learning (CSCL), principles drawn from theories of learning have successfully been adapted into technology-rich pedagogical contexts (Koschmann 1996). Recent doctoral dissertations have approached CSCL from the perspective of collaboration scripts and technologies in educational settings (Laru 2012, Hämäläinen 2008) . Despite the promise these studies show for contributing to pedagogical development, the pedagogical designs developed during the research process often lack sustainability.

In the field of language teaching and technology, Lund (2003) studied English teachers' practices in ICT-integrated environments in terms of how the teachers perceive the impact of such technologies on education and on their specific subject domain. He argues: "[A] set of contextual factors (often referred to as 'traditional') is currently being challenged by a new set of contextual factors that emerge in the ICT-rich classroom" (Lund 2003, 268). He also claims that the complexity of educational practices that involve ICT "has been seriously underestimated" due to a "simplistic and instrumental view of technologies" as well as a focus on the "learner, the technology, or the teacher as separate objects of study instead of [on the] social relations that develop between the three".

Blin (2005) examined the relationship between computer-supported language learning and learner autonomy. She focused on factors that either "contribute to or prevent the development and exercise of learner autonomy in technology-rich environments" (Blin 2005, 257). In the discussion of her study, Blin (2005, 255–256) points out: "[the] activities did not always unfold as planned and tensions within or between activity systems manifested themselves through disturbances, breakdowns or conflicts and, at times, through feelings of frustration and expressions of doubts about the whole enterprise". Based on the principles formulated as a result of the aforementioned study, she has developed a pedagogical design model (Blin 2010).

Taalas (2005) examined the ways in which technology is integrated in language teaching in vocational and higher education. In the area of language teaching and technology, her study is one of the few that adopts a systemic stance on the development of language teaching pedagogies as well as organi-

zational development. In her framework for sustainable ICT integration, which builds on the systems view, Taalas (2005) identifies teacher and learner support, mental and financial resources and theoretical links to learning, language learning, and assessment as integral components. Owston (2007), using the data from the SITES-M2 study, developed a model with almost identical counterparts. The main difference is that Owston's model lacks the theoretical aspect, but instead makes explicit the role of policies. In addition, Owston (2007) maintains that some of these factors are essential whereas others can be seen as merely contributing to sustainability. Furthermore, Jalkanen and Taalas (2013a) discuss the idea of designing *for* sustainability and link sustainable pedagogical development to organizational learning. They maintain that whereas organizational structures are important, there must also be room for emergence, serendipity and new initiatives. Jager (2009), in turn, has developed a framework for the implementation of ICT-integrated language learning and teaching, which seeks to accommodate both pedagogical and organizational aspects of the use of CALL.

Kuure, Saarenkunnas and Taalas (2002) examined aspects of teacher-learner interaction in a web-based learning activity from the perspective of participant roles and discussed these in relation to emerging cultures of learning and teaching. One of the key implications of their research was that pedagogical development

> is not a matter of developing particular kinds of designs for learning environments, new task types or interaction patterns alone. What is important is to involve teachers and students alike in assessing the collaborative processes of learning, aware of the complexity of meaning-making in web-supported study. (Kuure et al. 2002, 39.)

As the discussion above suggests, there is a considerable amount of hype in relation to the use of digital technologies as a driver for pedagogical change. Instead of relying blindly on the transformative power of emerging technologies, Selwyn (2011, 2014) advocates a more critical perspective on the use of digital technologies in education and emphasizes the need to focus on the objectives of education.

New structures are needed to develop research-based pedagogies in technology-rich environments. Cooper, Levin and Campbell (2009, 169) conclude:

> Organizations that actually deliver education require more capacity to find, share, understand, and use research. Until schools and school systems have more capacity in these areas, even the best research will have little impact. Universities, too, generally lack the capacity to apply research to their own practice.

This applies to pedagogical development as well. Furthermore, the development of new structures needs to take place along with the negotiation of new cultures of teaching and learning. Building on these ideas, the next chapter will discuss the concept of design as a lens through which to view pedagogical development.

2.2 Design as a lens for pedagogical development

This section expands the approach to multimodal pedagogy presented in Taalas (2005) by first elaborating the notion of design as a central concept and then structuring the design process through phases of design, enactment, analysis and redesign.

2.2.1 Definitions

From a pedagogical standpoint, the many new technologies make possible a variety of activities that support the learning process, including publishing, sharing, discussing, constructing knowledge, and networking (De Freitas & Conole 2010) . Although the emerging technologies offer new possibilities for orchestrating the pedagogical setting, they also increase the complexity of teaching and learning. This phenomenon calls for new ways of making sense of pedagogical complexities.

In recent times, many researchers have pointed to the need for conceptual models that would structure the educational design process and support the analysis of the resulting learning activity for further enhancements (Laurillard 2012, Conole 2013, Barab 2006, Lund & Hauge 2011) . This interest in educational designs has led to the development of new design methodologies as well as frameworks to evaluate designs with a view to enhance them, which has also expanded the notion of design. Levy and Stockwell (2008) have extensively discussed design in relation to computer-assisted language learning and pointed out that the term design is used in various ways in the literature. In some cases, design is used as equivalent to creating or planning (Gee 2005) whereas in other cases it is seen in a more dynamic way (Cope & Kalantzis 2000) . Despite the frequent use (or perhaps because of it), authors typically leave the term without a proper definition.

According to the Oxford English Dictionary, design as a noun refers to "a plan produced to show the look and function of an object before it is made as well as the art or action of conceiving of and producing such a plan". It also refers to "a purpose, planning, or intention that exists or is thought to exist behind an action, fact, or material object". As a verb, in turn, it means "doing or planning something with a specific purpose or intention in mind". The dictionary definitions highlight some key features that apply to educational designs:

- Designs are operationalized in the form of a plan (course or lesson plan), the object being the lesson that is enacted.
- Design is also the process and science of producing the plan.
- There are intentions and purposes behind the action.

In line with the above, Laurillard (2012, 1) has proposed an idea of teaching as a design science, which she develops by drawing on examples of other sciences,

"whose imperative is to make the world a better place", such as engineering, computer sciences, and architecture. Shoe goes on to state that the relationship between a design science and a theoretical science is interdependent, but a design science "builds on design principles rather than theories, and the heuristics of practice rather than explanations". This kind of relationship is also visible in the work of Levy and Stockwell (2008), who thoroughly discuss the links between CALL theory and practice.

One example of the movement towards a design science is Learning Design (LD), an emerging field within educational research. Conole (2013, 7-8) defines LD as the following:

> [A] methodology for enabling teachers/designers to make more informed decisions in how they go about designing learning activities and interventions, which is pedagogically informed and makes effective use of appropriate resources and technologies. This includes the design of resources and individual learning activities right up to curriculum-level design. A key principle is to help make the design process more explicit and shareable.

LD is relatively close to instructional design, which refers to "the systematic and reflective process of translating principles of learning and instruction into plans for instructional materials, activities, information resources, and evaluation" (Smith & Ragan 2004, 2) . Design results in instruction that "includes all learning experiences in which the instructional support is conveyed by teaching and other forms of mediation" (Smith & Ragan 2004, 3) when it is "a systematic or intensive planning and ideation process prior to the development of something or the execution of some plan in order to solve a problem" (Smith & Ragan 2004, 4). However, Häkkinen (2002, 466) points out: "One of the major challenges for the field of instructional design is to seriously recognize the importance of participatory and collaborative modes of designing. Collaborative approaches to design called for by Häkkinen (2002) have been developed within the field of participatory design, which is a form of user-centered design. Participatory design has strong roots especially in the Scandinavian design tradition. Similarly, Lund, Rasmussen and Smørdal (2009, 228) use the concept of co-design to "capture the pedagogical and technological aspects of design as a non-dichotomous and dialectical relationship".

In the field of language education, the works of Colpaert (2010) and Kuure et al. (2015) are promising examples of the developments in design as it relates to language learning with new technologies. Building on the educational engineering approach, Colpaert (2010) proposes the use of language learners' personal goals as design concepts. What is important in his approach is that educational engineering is seen as both a method and a hypothesis. Another important aspect in this approach is how the focus is on the process instead of on the product. Kuure et al. (2015), in turn, have explored how participatory design can facilitate a switch in language students' perspective from the teacher role to the designer position. For this research, the value of their work lies in how it combines participatory design, cultural-historical activity theory and

nexus analysis, a combination that allows the researchers to tackle the complexity of design as a social and situated practice.

In the present study, design is seen as a concept that bridges theory and practice. It encompasses "both a systematic approach with rules based on evidence, and a set of contextualized practices that are constantly adapting to circumstances" (Beetham & Sharpe 2007, 6) . In addition, the study adheres to Lund and Hauge's (2011, p. 263) definition of didactics as "the design of social practices in which learners, teachers and (social and material) resources are configured and re-configured in activities that make knowledge domains and knowledge advancement visible, and that continuously create opportunities for reflective participation in such activities" (see Figure 1). In this line of thinking, the teacher is seen as a designer who creates a blueprint for action. In Lund and Hauge's (2011) terminology, this blueprint is called "a design for teaching", which functions as a roadmap in complex pedagogical situations. This roadmap unfolds in the pedagogical situation as the learners bring their own life worlds into play (Lund & Hauge 2011, Cope & Kalantzis 2000) and becomes "a design for learning" (Lund & Hauge 2011).

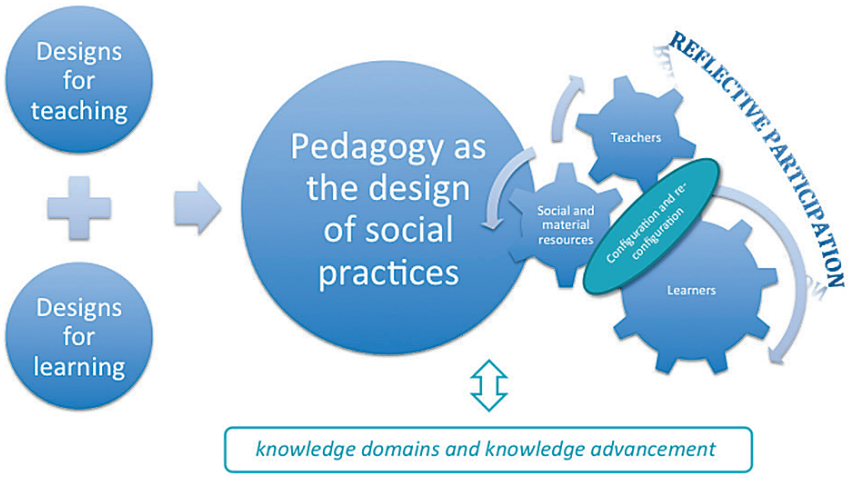

Figure 1 Pedagogy as the design of social practices (based on Lund & Hauge 2011).

2.2.2 Pedagogical design as a process

Teachers as designers should address the questions of what should be learned, how learning can take place, and how learning can be evidenced. These dimensions are included in a model for multilayered and multimodal design by Taalas (2005, Figure 2). There are three main points in the design model: (a) to identify the dynamic context for which the course is planned, (b) to create opportunities for learning in different ways by integrating multiple representations in the plan, (c) to identify the possibly critical points in the course in terms of individual needs, in terms of functionality of the teams working on tasks and in terms of pre-planned resources that can be used to support learning

throughout the course/theme. With the design model, teachers can also structure the course both content- and time-wise and see how the various content elements are integrated into a meaningful entity and not as separate content areas with a remote linkage between them.

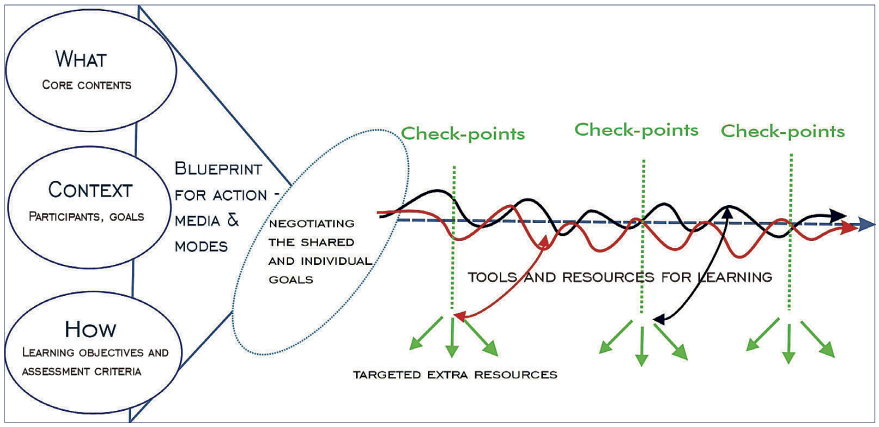

Figure 2 A multilayered, multimodal design for learning (Taalas 2005, 192).

Because Taalas (2005) did not structure the actual design process, in this dissertation I have concentrated on that task. Following the design-based research framework, I have divided the pedagogical design process into four phases: initial design, enactment, analysis, and redesign. As a basis for the initial design, there is a need to take into account the heterogeneity of the learners and their varying histories as learners, including their learning cultures, values, skills, knowledge and perceptions. This range of considerations means that the design should elicit multiple starting points.

Initial design is the first stage of the process. It emerges through a teacher's interpretation of curricula (see Lund & Hauge 2011), exploration of the available resources, and selection and organization of the learning activities. Here, the learning activities are defined as "those tasks that students undertake to achieve a set of intended outcomes" (Conole 2008, 189). The key of this stage is what Wiggins and McTighe (2005) call "backwards design", which means that the design process should begin with the end point in mind. The process of backwards design consists of three stages: In stage one, the focus is on identifying the desired results; stage two is about determining acceptable evidence of learning; and stage three consists of planning the learning experiences and instruction. Another important aspect of the process is that it motivates teachers "to think about assessment before deciding what and how they will teach" (Wiggins & McTighe 2005, 19). Furthermore, it highlights the importance of using a variety of formal and informal assessments to gather evidence of learning during a unit of study or a course.

Enacted design is the second stage of the process, which emerges through negotiation and co-construction of the learning situation. The design "is con-

structed and negotiated in real time by the contributions of those engaged in the learning process" (Cormier 2008, na). It takes the stance that students construct the meaning of a given activity through negotiation. Therefore, negotiation is a process that takes place throughout a unit. Enacted design has three main dimensions: resources and constraints, affordances, and learning trajectories. Resources and constraints refer to those environmental conditions that shape the design as they provide learners with different kinds of possibilities for action, that is, for affordances. The design affords different things to different learners depending on their preferences. In other words, some learners adhere closely to the initial design whereas others negotiate a path of their own that might take a different course from the initial one but still achieve the learning goals. This type of divergence is illuminated in the following description of a course for Finnish as a second language (Jalkanen & Vaarala 2012) :

> Students were assigned to produce project work in small groups. To enhance creative approaches to design, only a few instructions were provided. Students were asked to design a multimodal text or a presentation for other students. Moreover, the students were encouraged to focus on ways to engage other students to interact. One of the groups made a semi-traditional presentation using video in the background while narrating it using a written script. Another group made a video in which they interviewed Finnish people about the theme of the project as well as discussed the topic by themselves. The video was then shown to others in the classroom. The third group created a survey, which they tweeted to others and asked them to respond to it at the beginning of the class using their iPads. The results were then shown and used as a basis for discussion.

Whereas learner paths in terms of language learning are regarded as individual, in terms of collaboration they are seen as intersecting in different points in time. The intersecting learner paths are sites for collaborative learning.

Learner paths go beyond the course boundaries. In some cases the learning spaces evolve and transform over time, going through multiple cycles of evolution. These spaces become learning resources for learners after the course has ended and by doing so form new social spaces of belonging and learning. For more on such spaces, see Thomas and Brown's (2011) notion of a collective and page 33 in this dissertation.

Implementation of the procedures and conditions described above leads to the formation of the following principles:

1. The design is carefully justified. The justification is a basis for the negotiation that takes place for both horizontal (objectives, resources and learning sites) and vertical (time) dimensions (for a representation of the design, see p. 153 in Article V). Whereas the representation of the design is a road map for action in the learning setting, it is crucial that the enacted design is open to adopt new forms of action.
2. Enacted design emerges as a result of negotiation. In other words, learners construct the meaning of the learning activity based on the initial design by negotiating it with the teacher and with each

other. By turning the learning situation into a meaningful experience, learners exercise their agency.

3. The analysis of the design is process-oriented. The focus is on what learners do and what is being learned rather than on the acquisition of predefined content. Analysis of the design relies on such observation that can document the evidence of the learning processes taking place.
4. Analysis of the learning trajectories can account for the affordances. Analyzing the enacted design (what paths learners take) can help the teacher to reflect on the design and to understand what becomes an affordance for learning. The analysis requires a theoretical framework.

From the perspective of pedagogical development, it is often so that new practices can only be understood backwards. Therefore it is crucial that the teacher has a picture of the expected learning trajectories in mind, because this picture can be then used as a basis for exploring and reflecting on the new practices.

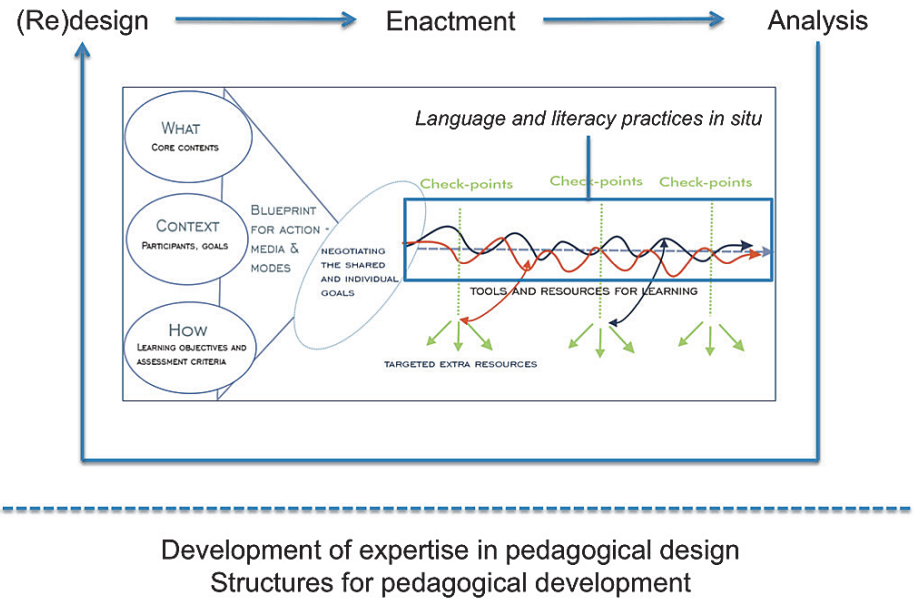

Figure 3 Elements of the present study in relation to design model by Taalas (2005).

Figure 3 shows the elements of the present study in relation to the multilayered and multimodal design for learning by Taalas (2005). The model is located within the process of (re)design, enactment and analysis. These phases are explored in the substudies. Furthermore, conceptual tools are offered for analyzing the language and literacy practices that emerge as the designs unfold (Articles IV and V). Finally, the meta-level incorporates the development of expertise in

pedagogical design (see section 2.2.4) as well as structures for pedagogical development (Article III).

Eventually, the design becomes a map "that is always detachable, connectible, reversible, modifiable, and has multiple entryways and exits and its own lines of flight" (Deleuze & Guattari 1987, 21) . From the pedagogical perspective, the bottom line is that a map can be drawn, but what paths learners take cannot be known. This uncertainty is what makes the enacted designs unpredictable. The crucial factor is not to restrict these lines of flight but to aim at understanding the process and what is actually being learned and how the skills and competences are being transformed.

2.2.3 Systemic pedagogical designs: from objectives to assessment

The current technology-rich environment affords a multitude of ways in which the pedagogical setting can be orchestrated using the tools and spaces available within different contexts. Pedagogically meaningful use of these artefacts requires an understanding of the roles and processes that constitute the pedagogical event and an informed design for them that is in line with the learning objectives (Lund & Hauge 2011). Biggs (1996) uses the term "constructive alignment" to make a point regarding the importance of a systemic view of the pedagogical setting. In this line of thinking, objectives, modes of working, available (social and material) resources and assessment practices are aligned, that is, they support each other.

Objectives are an important point of departure, because they provide the meaning and the direction for the activity. Objectives are defined here as moving targets towards which learners strive on their learning path. The assumption is that, in order to trigger learning, the objective is something beyond one's existing capacity.

The work carried out within the Bologna process has directed educators' attention to learning outcomes (Biggs & Tang 2011) . These outcomes are often phrased in the following way: *On completion of the learning unit the student will be able to*…. To emphasize the aspect that the achievement of the outcomes is highly dependent on what learners themselves do, the term *outcome* is often paired with adjectives such as *desired* or *expected*. In the everyday talk of teachers as well as in the data of this study, it can be seen that objectives are often confused with activities, that is, with what is being done. The problem with such objectives is that if the objective is to practice something during a lesson (e.g. the past tense), then consequently the objective is achieved if such activity has been carried out.

Furthermore, there is not just one source of objectives. In the context of formal education, at least three types of objectives are present in pedagogical situations. Policy documents, such as national and institutional curricula, define the institutional framework and thus function as tools for setting the local objectives. The level of abstraction, however, allows different interpretations, which are important to recognize as the interpretations shape the pedagogical choices. The teacher and the students, in turn, set the local objectives, which then come

together in the process of negotiation as a part of the pedagogical design (Taalas 2005) and formulate a horizon of objectives. The objectives also relate to the dimensions of *must know*, *should know* and *nice to know*, because these dimensions regulate the importance of the matter in relation to the personal objectives as well as the objectives of the learning unit (e.g. lesson, course, module). For technology-rich environments, the aspect of digital literacy plays an important role (see section 3.2.2).

In accordance with the pedagogical design, objectives turn into learning activities. Beetham (2007, 28) defines activity as "a specific interaction of learner(s) with other(s) using specific tools and resources, oriented towards specific outcomes". Similarly, according to Blin (2010, 186), tasks provide an initial structure for students' actions and activity is what students actually do.

What the discussion so far lacks is the recognition of the nature of the community, which is the social context within which the activity takes place. As a point of comparison, Thomas and Brown (2011, 53) offer the notion of a collective in which "people learn in order to belong", whereas in a community, as they have defined it, "people belong in order to learn". Instead of "shared intention, action, or purpose" it is "active engagement with the process of learning" that defines collectives. How this is connected with different artefacts is that whether technology-enabled or not, "communities remain social entities and it is by enabling social processes that technology contributes to the emergence of communities" (Wenger, White & Smith 2009, 191) . Educational designers, therefore, "must learn to recognize the social processes that technology enables and understand how to support these processes as a way to foster the emergence of meaningful communities" (Wenger, White & Smith 2009, 191) .

As an example of the social processes technology enables, Warschauer and Grimes (2007) discuss the notion of Web 2.0 (especially blogs, wikis and social networking sites) in terms of three elements of language use and communication: audience, authorship and artefact. Their conclusion provides an empirical perspective as well as a theoretical one. Empirically, the Web 2.0 tools and environments provide affordances for different kinds of processes: blogging creates a huge number of authors and connects them to audiences, wikis empower collaborative multiauthored writing to better harness collective knowledge, and social networking sites enable both the many-to-many distribution of multimodal artefacts from authors to audiences as well as the automated presentation of user-selected content. The theoretical perspective they offer is that these Web 2.0 technologies do also correspond to distinct analytic traditions within language studies: blogging is an example of dialogic interaction, wikis exemplify social constructionism, and social networking sites match a post-structural perspective. Social processes are also evidently present in studies on computer-supported collaborative learning (e.g. Crook 2011, Koschmann 1996) .

Visual representations expand the design toolbox for tracking learner movements across different spaces and timescales. For instance, Conole (2008) has done extensive work on artefacts that mediate the design process. These representations make visible the chains of activities, teacher and learner roles,

and different resources that learners draw on when constructing an activity. (For further discussion, see Article V.)

The multitude of technologies provides many possibilities for learning activities, such as publishing, sharing, discussing, constructing knowledge, and networking. What is important to note here is that technology as such is not a methodology. Instead, it enables many pedagogical approaches in line with the socioconstructivist views of learning, as the list of some contemporary technological trends and their pedagogical counterparts (Table 2) compiled by de Freitas and Conole (2010, 19) shows. In the same manner, the focus should be on the design principles behind games, not on games as such (Gee 2005).

Table 2 New tools mapped onto pedagogic usage (de Freitas & Conole 2010)

Trends in the uses of applications and tools	**Pedagogical drive**
New Web 2.0 practices	From individual to social
Location-aware technologies	Contextualized and situated
Adaptation and customization	Personalized learning
Virtual and immersive 3D worlds	Experiential learning
Google it!	Enquiry learning
User-generated content	Open educational resources
Badges, World of Warcraft	Peer learning
Blogging, peer critique	Reflection
Cloud computing	Distributed cognition

From the learning perspective, creating, sharing and editing of content are related to knowledge-creation (Paavola & Hakkarainen 2005) , which complements the acquisition and participation metaphors of learning (Sfard 1998). Based on the notion of knowledge-creation, Hakkarainen (1998) has developed a pedagogical methodology called inquiry learning (see also Lakkala 2010). The methodology is based on a process similar to scientific research and advocates a socioconstructivist approach.

The sequencing of activities respective to the desired learning processes shapes the selection of tools and environments. Different environments and tools provide different opportunities (affordances) for different types of learners in different situations. Affordances are picked up depending on the learner's perception, motivation and capacity. (For more on the concept of affordance, see section 3.1.2.)

It seems, however, that the role of affordances is often downplayed in language teaching, especially in beginner level courses. For instance, the task of buying a coffee is easily limited to a textbook example of a dialogue and practice of it in pairs. Out of the classroom, in a coffee shop, this task would present a range of sources for potential affordances: price lists, different sizes of mugs and other people all represent resources for a negotiation of meanings (see Article V for an example of such a negotiation V).

While being aware of the purposes for which a certain tool can be used (e.g. blogs for reflection), it is good to bear in mind that affordances are situa-

tional and mediated through cultural and historical development. This is the case with many technological innovations that over time can be used to do something entirely different than what they were designed for (further discussed in Article IV). As Jones, Dirckinck-Holmfeld and Lindström (2006, 51) point out: "Technologies do not have affordance within them, affordances occur in relationships with active agents or actants." In other words, as van Lier (2004, 93) states: "It is the activity that determines what is picked up, not the complex environment". The pedagogical implication is what Jones et al. (2006, 51) call "indirect design":

> [W]e can design *for* learning. This stands in distinction from those who argue that we can design learning and learning environments directly. The relational view we have of technology and its affordances suggests that designers have limited direct control over how their designs are enacted.

In other words, a level of unpredictability characterizes the pedagogical designs enacted by teachers and students. In relation to this aspect, the dimensions of personal and shared are worth considering. A relatively new concept in the field is that of personal learning environments (PLE), which is used and defined in many ways. Laakkonen (2011) discusses the concept in terms of higher education language teaching and suggests PLE as a kind of a pedagogical lens through which learner-centered pedagogies and learning environments can be examined and developed. The value of the concept is in bridging the different learning sites as well in its orientation to learning. In other words, the approach emphasizes empowering learners in constructing their learning spaces irrespective of the institutional boundaries. As for educational designs, however, these personal spaces, which can also incorporate spaces for collaboration, need to be seen as a part of a bigger picture. This means that despite the rhizomatic or satellite-like organization of the personal learning spaces, the individual learning paths need to converge in certain phases with respect to the pedagogical design. From the perspective of PLEs, this convergence can mean, for instance, that the learners share the personal space with the teacher and/or other learners depending on the situation. The situated combination of personal and shared spaces leads to the emergence of new kinds of learning spaces.

Figure 4, which is edited from Wenger et al. (2009), provides a tool for the selection and alignment of learning tools and spaces. The circles illustrate the subjects of the activity as well as the nature of the work (individual–collaborative). The vertical axis describes the mode of work and the degree of participation whereas the horizontal axis describes the time-relatedness. In relation to the figure it is useful to bear in mind that the degree of each dimension can and most likely will vary.

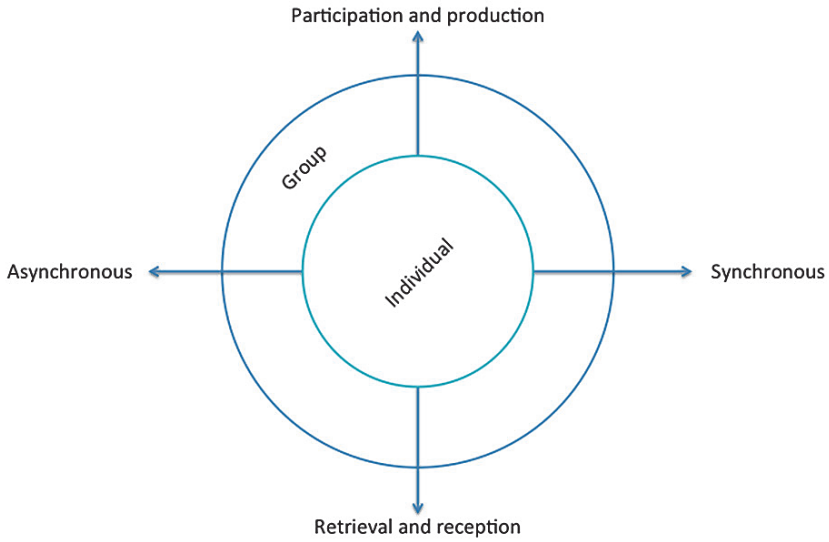

Figure 4 Design planner (edited from Wenger et al. 2009).

The tool can be used to map tools and environments but also pedagogical elements, such as modes of working, practices around texts, and modes of assessment. It also helps in understanding how the aforementioned elements contribute to the development of different skills. For example, a list of hyperlinks provided by the teacher and the links accessed by an individual student would be located within the inner circle, close to retrieval and reception and thus not favorable to the development of higher order skills.

Another concept helpful in understanding the design process from the perspective of different spaces is multilayeredness. In multimodal pedagogy (Taalas 2005), the course structure consists of multiple layers that expand the linear model in order to enable diverse learning paths. Technologies for learning can function as a working environment for a learning activity, support for individual or group work, or an extra resource. The role of technology in the process can be examined through Twining's (2002) framework, which consists of three modes: support for the learning process, extension of the learning process, and transformation of the learning process.

Finally, development of new pedagogical approaches is seldom possible without rethinking the ways assessment is carried out. For instance, a volume edited by Boud and Falchikov (2007) provides a comprehensive compilation of the pitfalls in assessment as well as its future directions, especially in the context of higher education. The key issue is that assessment is always a reflection of values: We assess what we consider important. Therefore, assessment practices have an immense role in socializing students into certain views of learning, language and knowledge, which has also been noted in relation to the use of technology (see for instance Selwyn 2007) . Assessment also has a washback effect on teaching: what is being assessed is usually being taught. Hence, changing assessment practices is a good way to move towards the transformation of

teaching practices (Reeves 2007). Assessment practices are needed that provide students with the means to respond to the learning challenges they face in formal education and working life as well as to evaluate their progress.

2.2.4 Expertise in pedagogical design

As notions of pedagogical design expand and the complexity of learning contexts inside of as well as outside of formal education increases, a need arises to reconsider what type of expertise is needed for the language teachers of today and tomorrow. Discussion on language teachers' changing expertise has been touched upon (BALEAP 2008), including empirical studies focusing on trajectories of expertise in technology-rich environments (Alanen et al. 2011).

From a knowledge point of view, Eteläpelto and Light (1999, 155-156) divide professional knowledge into three complementary components: practical, formal and metacognitive knowledge. According to them, practical knowledge is associated with working life experience, formal knowledge is understood as textbook-based knowledge, and metacognitive knowledge functions as a bridge between the two (self-regulation, awareness of strategies). Teachers who possess a university-based education might experience problems in updating their formal knowledge in a workplace setting. Klette and Carlsten (2012, 80), for instance, point out the difficulty of acquiring an overview of the theoretical knowledge that might be relevant for teachers. Furthermore, they found that there are not necessarily any routines or formal infrastructures for knowledge-distribution to bridge the knowledge acquired during in-service training and the local level of practice. Edwards and Daniels (2012, 54), in turn, argue that research-based knowledge is not necessarily what matters in professional practices. Instead, according to them, there may be the need to reconfigure the practice or to change the roles and responsibilities to better and more responsively meet the needs of a local context. The central role of local configuration is aligned with the emergent nature of pedagogical designs discussed above. Furthermore, in today's working life, expertise is increasingly seen as distributed across networks, negotiated around tasks and shared with other practitioners.

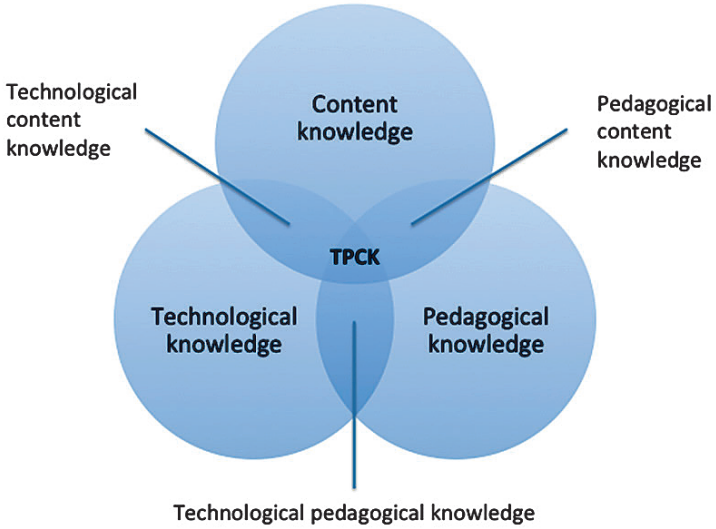

Figure 5 Technological pedagogical content knowledge (Koehler et al. 2007).

In the context of education and technology, Koehler, Mishra and Yahya (2007) offer a model for technological pedagogical content knowledge (TPCK). The model presented in Figure 5 is based on an idea that teachers' professional knowledge consists of three dimensions (content knowledge, pedagogical knowledge and technological knowledge) and a combination of these dimensions is needed to make pedagogically sound use of ICT in education. As a critique of the model, Angeli and Valanides (2009) argue that it does not pay attention to how the potential and the pitfalls of ICT might shape the content and the pedagogy. (For a further discussion of the models, see Loveless 2011.) Furthermore, what this type of model fails to take into account is the dynamic and complex nature of pedagogical designs that are co-configured in interaction. In other words, it is not useful for understanding the type of knowledge needed to conceptualize the learning and interaction that occurs when the pedagogical designs unfold.

In the present study, expertise in pedagogical design is defined as the teacher's strategic capacity to design, enact and analyze complex pedagogical situations in technology-rich environments in collaboration with the students. Through reflective participation in the design process, teachers can develop their expertise in design and, henceforth, expand their pedagogical repertoires. Reflective participation in "activities that make knowledge domains and knowledge advancement visible" (Lund & Hauge 2011, 264) is subsequent to Schön's (1983) concept of the reflective practitioner who is able to become aware of and criticize their tacit understandings through reflection, which is a basis for professional learning. In the field of language teaching, Mann and Walsh (2013) have recently revisited the concept of reflective practice.

In line with Lund and Hauge's (2011) approach to design, Blin and Jalkanen (2014) suggest that the pedagogical setting should be favorable to the

formation of "critical design agency", which enables the participants to adopt, resist and transform educational designs that are imposed on them. Jalkanen and Taalas (2013), in turn, frame the concepts of expertise and agency in a three-tier concept of access, ownership and authorship. These concepts portray a level of agency in relation to the ability to create and design pedagogical activities incorporating new types of elements that support learning, in this case these elements are various technologies. (These notions are explored in more detail in Articles III and V.)

In education, however, pedagogical development is still very much based on individual rather than collaborative work. Teachers are still working mainly individually and without external insight and support (Klette & Carlsten 2012). The individual culture of development in education is somewhat surprising, because for some time teams have been considered as "the fundamental learning unit in modern organizations" (Senge 2007, 10) . Furthermore, Engeström (2010) offers an interesting perspective that can enrich the notion of teams, namely that of *knots*. To respond to the increasing complexities of the changing world, knots bring together people with varying expertise around a shared task for an undefined time and then again a group of different experts around a different task. This "pulsating movement of tying, untying and retying together otherwise separate threads of activity" is not "reducible to any specific individual or fixed organizational entity as the center of control" (Engeström, Engeström & Vähäaho 1999, 346-347) . Similarly, Thomas and Brown (2011, 53) state that in a collective "there is no sense of a core or center". However, there is a need to understand how these groups are formed and how the group works together for a joint goal. Based on the trajectories of language teacher students' expertise in multimodal pedagogy, Alanen et al. (2011) divided them into three types:

1. *Copiers*, who were able to replicate to some extent what they had learned to carry out the project
2. *Producers*, who were able to appropriate tools for multimodal design and apply these in project design
3. *Innovators*, who showed innovation and intellectual curiosity to expand their understanding of new literacies and multimodal meaning making beyond project work

The different types of engagement with the process should be taken into account in the development work. This categorization is in line with the access–ownership–authorship continuum discussed above.

Edwards (2011, 17) approaches expertise in the following manner: "as a process of informed interpretations of the problems of practice and appropriate responses to those interpretations, both of which may be enriched if we bring into play the expertise of others". From the viewpoint of language teaching, this means that language teachers must learn to engage in pedagogical development work with other experts (e.g. technology experts, teachers in other subjects) in

order to enrich or expand "understanding of the problem or task and a greater range of responses to it" (Edwards 2011, 18). In addition, there is a need to understand the process of sharing expertise from the perspective of language and learning (e.g. how one communicates one's expertise, what kind of roles and positions different people adopt in different situations). The second point is related to socioconstructivist classes of theories, such as distributed cognition and situated cognition.

The learning challenge is that language teaching professionals should engage in horizontal learning, that is, in crossing the boundaries of their fields of expertise and comfort zones. As Engeström (2001) has pointed out, in such learning there is no competent teacher: the solutions to complex problems are learned simultaneously with the collaborative construction of them. This approach indicates a shift from content-based designs to activity-based designs, in which the ability to gain ownership and authorship of the activity is the key (further discussed in Article III).

3 LANGUAGE AND LITERACY PRACTICES IN TECHNOLOGY-RICH ENVIRONMENTS

One of the aims of the present study is to explore the concept of pedagogical design in relation to the language and literacy practices that emerge as the designs unfold in technology-rich environments. A need therefore emerges to define the basic concepts and theories of language use and literacy to which the practices are anchored.

3.1 Language use as practice

According to many contemporary views, language (use) is seen as a situated and a local practice. Pennycook (2010) , among others, argues that language emerges from the activities it performs: "Grammars and structures of language, from this point of view, are always emergent rather than predefined." Pennycock (2010, 129) then goes on to note the consequence of this view: "Once we accept that language is a social practice, it becomes clear that it is not language form that governs the speakers of the language but rather the speakers that negotiate what possible language forms they want to use for what purpose." This kind of approach puts the concept of competence in a new light. Citing Canagarajah (2008), he further suggests: "If we want to retain a notion such as competence, it refers not so much to the mastery of a grammar or sociolinguistic system, as to the strategic capacity to use diverse semiotic items across integrated media and modalities" (Pennycook 2010, 129). Furthermore, through language use, people create and maintain places and spaces as well as relationships with and within them.

Since the social turn in second language acquisition (SLA), the research paradigms in second language teaching and learning have shifted considerably, and the focus has moved from psycholinguistic issues to sociolinguistic ones (Block 2003). In recent times, the concept of *languaging* has been frequently used in the literature to capture and explain the dynamic and multidimensional na-

ture of language use (Dufva et al. 2011, Pietikäinen et al. 2008, Zheng & Newgarden 2012) . By using the word *language* as a verb instead of as a noun, the focus shifts from language as an object of study to language as an action or process. More recently, multilingual perspectives have begun to attract more attention in applied linguistics (May 2014).

In regard to understanding the dynamics of languaging, holistic theories such as complexity theory (Larsen-Freeman & Cameron 2008) and the ecological approach (van Lier 2004) have started to become established as theoretical frameworks. These theories share the systemic and rhizomatic approach.

3.1.1 Complexity approach

Larsen-Freeman and Cameron (2008, 198-200) sketch a complexity approach to language teaching and learning using four (interrelated) components as a starting point. Referencing ecological approaches, they first highlight the need to reveal and understand the connections across different levels and timescales as a way to interpret action in teaching and learning situations.

Second, they point to the need to see language as a dynamic system that is shaped and re-shaped in a flux of interaction. They rightfully underline the question of whether to teach a frozen and static version of a language (which does not really exist in the so-called real world) or to understand the dynamic system of the living language. Pedagogically, this is an interesting question, especially in the initial stages of learning a new language: Should there be a stronger emphasis on providing students with tools to observe and analyze language and interaction in the wild? The question is even more relevant if we consider how much technologies have changed the way we are in contact with various languages in our everyday life.

The third point regards co-adaption, which in simple terms means that "change in one system produces change in the other" (Larsen-Freeman 2008, 199). This co-adaptation takes place between teachers, students and learning contexts. Finally, Larsen-Freeman and Cameron (2008, 199) argue that teaching is in fact managing the dynamics of learning. Even though teachers cannot control the learning of their students per se, "teaching and teacher–learner interaction construct and constrain affordances of the classroom" (Larsen-Freeman 2008, 200) and create opportunities for learning that are favorable to students' learning processes. In other words, "learning guides teaching not vice versa" (ibid.). What this means is that teachers need to be sensitive to complex processes of learning, make timely interventions and provide pedagogical support for learners navigating the discomfort zone until "the system self-organizes in a new way" (ibid.). This approach challenges the traditional approach, which presupposes that the language content to be learned is mostly predefined and can be tested after it has been taught. This line of thinking directs the focus to the learning environment as an ecology of various semiotic resources (see Pennycook's definition of competence).

3.1.2 Ecological approach

In addition to complexity theory, the ecological approach also aims at explaining language learning from a systemic perspective (van Lier 2004, 2000). Like Pennycook's (2010) notion of language as a local practice, the ecological approach takes emergence as its starting point instead of reductionism: "Language emerges out of semiotic activity." It approaches cognition and learning as distributed across people and their environment. In line with the notion of languaging, van Lier (2000) sees the interaction that learners engage in as learning, not just as something that facilitates it. This interaction is often multimodal in nature. Furthermore, the technology-rich environment changes the dynamics of classroom interaction as well as the process of negotiating meanings (Article V).

Besides language learning in more general terms, the ecological approach is useful in thinking about the learning environment. According to van Lier (2000), the learner "is immersed in an environment full of potential meanings, meanings become available gradually as the learner acts and interacts within and with this environment". The environment provides a semiotic budget, which means the opportunities for meaningful action that the situation affords. Hence, one of the key concepts in the ecological approach is that of *affordance*, which has its origins in the psychology of perception (Gibson 1986). In line with Gibson, van Lier (2000, 252) defines an affordance as "a particular property of the environment that is relevant—for good or for ill—to an active, perceiving organism in that environment". However, van Lier further notes: "An affordance affords further action (but does not cause or trigger it)." This means: "What becomes an affordance depends on what the organism does, what it wants, and what is useful for it" (van Lier 2000, 252). While being aware of the purposes for which a certain tool can be used (e.g. blogs for reflection), it is good to bear in mind that affordances are situational and mediated through cultural and historical development. This is the case with many technological innovations that over time can be used to do something entirely different than what they were designed for. Van Lier (2004, 93) states: "It is the activity that determines what is picked up, not the complex environment." Framing this in terms of learning, van Lier rightfully remarks: "A simple learning activity is possible in a complex environment (given appropriate guidance), and the environment remains there as a potential proximal source of instigative processes." Affordance as a property of the environment appears to be the dominating way of defining the concept, but in van Lier's more recent work he has defined affordances as "relationships that provide a 'match' between something in the environment [...] and the learner" (van Lier 2004, 96). From this point of view, it is the enacted pedagogical design that either affords or constrains these relationships.

Finally, at the heart of sociocultural theory is the idea that the human mind is mediated by culturally constructed artefacts, that is, by physical and psychological tools (Lantolf 2000). In a similar way that people develop other tools, they also develop language to better suit their communicative and psy-

chological needs. The development of language is necessary because, according to the Vygotskian view, thinking and speaking are strongly interrelated, meaning thought is manifested through linguistic means.

3.2 Expanding literacy and language practices

Emerging theories of language use and learning share many premises with literacy research, such as the dynamic and situated nature of practices. A major transition in the field of literacy research has been the shift from literacy as an ability to read into new literacies that are multimodal by nature (Lankshear & Knobel 2006) . As a result of this shift, research has produced widely varying accounts of literacy practices and the contexts in which they occur (Hull & Schultz 2002, Coiro et al. 2008) . As has occurred in SLA research, a similar social turn has taken place in the field of literacy studies (Gee 2008). This turn has been a digital one that is the result of the development of new technologies (Mills 2010).

Literacy has long been considered to be a manifestation of power. It has enabled access to knowledge as well as the processing and production of it. Knowledge, in turn, is central to the ways in which contemporary society operates, meaning many of today's jobs are knowledge-intensive: Practitioners search, process, evaluate, and produce information for various purposes. Therefore, today's society is often called the knowledge society[2]. Hargreaves (2003, 1), for instance, begins with a consideration of knowledge economies that are, according to him, "stimulated and driven by creativity and ingenuity". He further states: "[The] knowledge society is really a learning society" (Hargreaves 2003, 3).

The transformation from an industrial society into a post-industrial society has brought learning to the fore (Bereiter 2002, Barr & Tagg 1995) , challenging educators to rethink and redesign learning environments and the activities that take place within them. Instead of memorizing facts, students "need a deep conceptual understanding of complex concepts, and the ability to work with them creatively to generate new theories, new products, and new knowledge" (Sawyer 2006, 2). The transformation is also well reflected in Lankshear and Knobel's (2006) discussion of the two mindsets they introduce as descriptive representations of the industrial and post-industrial worlds (Table 3).

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2 In the field of research, policy and practice, the notion of the knowledge society and its associated terms has been widely used as both a descriptive concept and as a policy objective (Hargreaves 2003; Välimaa & Hoffman 2008).

Table 3 The two mindsets (Lankshear & Knobel 2006)

Mindset 1	Mindset 2

The world is much the same as before, only now it is more technologized in more sophisticated ways:
• The world is appropriately interpreted, understood and responded to in broadly physical-industrial terms
• Value is a function of scarcity
• An 'industrial' view of production:
  o products as material artefacts
  o a focus on infrastructure and production units (e.g. a firm or company)
  o tools for producing
• Focus on individual intelligence
• Expertise and authority 'located' in individuals and institutions
• Space as enclosed and purpose-specific
• Social relations of 'bookspace'; a stable 'textual order'
	The world is very different from before and largely as a result of the emergence and uptake of digital electronic internetworked technologies:
	• The world cannot adequately be interpreted, understood and responded to in physical-industrial terms
	• Value is a function of dispersion
	• A 'post-industrial' view of production:
	  o products as enabling services
	  o a focus on leverage and nonfinite participation
	  o tools for mediating and relating
	• Focus on collective intelligence
	• Expertise and authority are distributed and collective; hybrid experts
	• Space as open, continuous and fluid
	• Social relations of emerging 'digital media space'; texts in change

The first mindset builds on the assumption that the contemporary world is essentially the same as it has been; only now it is more technologized. This world relies on the same economic, cultural and social principles and routines. The second mindset, conversely, takes the stand that the world is different in many respects from industrial times. The change is related to new ways of doing and being in the world made possible by the new technologies. In this view, Lund & Hauge (2011, 269) suggest: "Uncertainty becomes a natural educational state."

3.2.1 Impact of digital technologies

Digital technologies are clearly becoming an integral part of our everyday life. Erstad (2010, 61) has identified four areas within which digital media have an impact on adolescents' media use and literacy practices: a participatory culture, information access, communication possibilities and content production. As a point of comparison, Jalkanen and Taalas (2013b) found in their survey of Finnish university students that technology has a central role in four domains: management of everyday life, communication, entertainment and studying. In their data, it was apparent that the use of technology is both ubiquitous and location-based. For example, mobile devices are used to search for information while on a bus, but at home the search is carried out with a computer.

It has been suggested that a whole new generation has grown up immersed in the digital world. While there is truth to the fact that the media landscape has been shifting constantly within the last few decades, many of these categorizations have been somewhat oversimplified and categorical instead of being empirically and theoretically informed (Bennett & Maton 2010, Thomas

2011) . Much of the reporting has focused on quantitative differences between different subject cohorts (Egeberg et al. 2012, Medierådet 2010) . In addition to looking at what technologies are being used and how much, there is a need to shift the focus to the wide spectrum of activities around these technologies.

From the language and communication point of view, it is apparent that the language and media landscape (or the learning landscape) is considerably more multifaceted than it used to be: texts that people deal with on a daily basis are significantly more multilingual and multimodal, integrating different ways of creating meaning (Pennycook 2010; Gee 2004; Lankshear & Knobel 2006). Technologization and globalization have changed the way people use languages in their everyday lives in terms of where, why and how:

> As the communicative landscape grows in possibilities, so the artefacts and media are taken up by people in different and diverse ways in order to take and make meaning, communicate and do things through meaningful activity. (Ivanič et al. 2009, 15)

Continuously evolving forms of participatory publishing, often associated with the concept of Web 2.0 (O'Reilly 2005), such as blogs, microblogs, image and video services as well as environments based on peer production, blur the boundaries of ownership and authorship, and the roles of producer and consumer merge (Jenkins 2006, Drotner & Schroder 2010) .

One of the key challenges is to enhance the understanding of the relationship between the learning trajectories and associated technologies (Cope & Kalantzis 2009) , which have to a large extent become "black boxed" (Säljö 2012), that is, we no longer understand all the processes technologies run for us. As the underlying idea of multimodal pedagogy is to support the learning process, it needs to be realized what skills and competences are needed to use different tools for learning. For instance, a student learning Finnish might use a web-based translator to translate *house music* into Finnish. The translating tool might suggest *talomusiikki* ('building music') as a possible translation based on a word-to-word translation whereas the idiomatic translation would in this case be *house-musiikki*. This is just one example of how learners, in order to be able to use the tools available, also need to have a wider understanding of how language works.

This development has led some authors to consider the implications for the cognitive capacity of humans and to pose questions such as what needs to be memorized, what processes need to be understood and what it means to learn something (Säljö 2012, Watson 2010, Scardamalia & Bereiter 2006, Bereiter 2002) . In other words, what is meant by knowledge?

Scardamalia and Bereiter (2006) contrast knowledge *of* with knowledge *about* as two different approaches to knowledge and knowing. They argue that the latter approach dominates traditional educational practice. They explain that *knowledge about* consists of all the declarative knowledge one can retrieve when prompted to state what one knows about something. Instead, *knowledge of* implies an ability to do or to participate in an activity. Säljö (2012, 12), in turn, stresses the importance of becoming "skilled at judging what is not nec-

essary or relevant for our particular interest" in order to cope with the increasing quantity of information and knowledge. Moreover, a great deal of knowledge is both created and held collectively (Brown & Duguid 2002) . In this respect, Säljö (2012) raises the question of individual competences while leaning on the notion that in societies that are socially and technologically complex "even very experienced and skilled readers will not be able to handle all the genres and text types available" (Säljö 2012, 12). This argument is in line with the idea that from time to time native language users come across new types of texts and practices. In relation to reading, Gee (2004, 39) comments on the situated nature of literacy:

> Traditionalists treat learning to read as if "read" was an intransitive verb. People just "read". But no one just reads; rather they read *something*. "Read" is a transitive verb; it requires an object, a thing being read. When people read they are always reading a specific type of text, whether this be a comic book, a recipe, a textbook, a legal brief, or a novel. Learning to read is about learning to read different types of text with real understanding. This is why learning to read and learning content can never really be separated. You can't read a book if the content of the book is meaningless to you.

The same idea applies to writing as well. Against this background, the literacy developed in modern formal education needs to correspond to the social, cultural and multimodal nature of information in contemporary societies (Brown & Duguid 2000; Lantolf 2000). In Erstad's (2011, 100) words:

> The different literate worlds that young people move between, online and offline, relating to different ways of getting access to and interpreting information ("reading") and producing content in different modalities ("writing"), informs us about how we need to reorient what we mean by "being literate" in our culture.

In a world that is changing with great rapidity, Scardamalia & Bereiter (2006, 97) suggest: "The fundamental task of education is to enculturate youth into this knowledge-creating civilization and to help them find a place in it." They go to explain that this means that formal education must be refashioned in a fundamental way, "so that it becomes a coherent effort to initiate students into a knowledge creating culture". Ideally, the future citizen would skillfully employ various linguistic resources combined with digital competence in order to cope with information-rich processes associated with the knowledge society. In relation to this, it has been pointed out that adolescents' capacity to confidently act and move across digital spaces is not directly associated with their ability to use these spaces for learning purposes (Erstad 2010, Watson 2010) . Such a gap reveals a need to consider how digital competence is developed alongside language and other skills.

3.2.2 Taxonomies for "being literate" and a new culture of learning

Different types of taxonomies have been developed to structure and illustrate the various aspects of "being literate" in the technology-rich world. One of the often-cited ones is that of Jenkins (2006). He provides a list of eleven core skills needed to participate within the new media landscape:

- Play: the capacity to experiment with one's surroundings as a form of problem-solving
- Simulation: the ability to interpret and construct dynamic models of real world processes
- Performance: the ability to adopt alternative identities for the purpose of improvisation and discovery
- Appropriation: the ability to meaningfully sample and remix media content
- Multitasking: the ability to scan one's environment and shift focus onto salient details on an ad hoc basis
- Distributed cognition: the ability to interact meaningfully with tools that expand our mental capacities
- Collective intelligence: the ability to pool knowledge and compare notes with others towards a common goal
- Judgment: the ability to evaluate the reliability and credibility of different information sources
- Transmedia navigation: the ability to deal with the flow of stories and information across multiple modalities
- Networking: the ability to search for, synthesize, and disseminate information
- Negotiation: the ability to travel across diverse communities, discerning and respecting multiple perspectives, and grasping and following alternative sets of norms

Whereas the competences listed above are not in any hierarchical order, the following list compiled by Erstad (2011, 62) bears resemblance to Bloom's taxonomy, which maintains creative skills as the most advanced type: basic skills, download, search, navigate, classify, integrate, evaluate, communicate, cooperate, create. Another recent compilation of 21st-century skills (Binkley et al.) presents a list of almost 200 different competences. Emphasizing the impact of digital technologies, Ilomäki, Taalas and Lakkala (2012) discuss the term digital competence as a comprehensive view of the skills and competences needed in a technology-rich society. The European Commission (2012) spells out transversal and basic skills (including language skills) and vocational skills, and UNESCO (2011, 7) in turn suggests three approaches that connect education policy with economic development:

- Technology literacy: Increasing the extent to which new technology is used by students, citizens and the workforce by incorporating technology skills into the school curriculum
- Knowledge deepening: Increasing the ability of students, citizens and the workforce to use knowledge to add value to society and the economy by applying it to solve complex, real-world problems

- Knowledge creation: Increasing the ability of students, citizens and the workforce to innovate, produce new knowledge, and benefit from this new knowledge

These taxonomies and descriptors suggest a shift towards a new culture of learning. Participatory endeavors in the knowledge society share a number of features, such as the situated and fluid nature of their memberships and belonging. Thomas and Brown (2011, 52) reflect this shift in their attempt to define a new culture of learning, which makes a distinction between a community and a collective:

> We call this environment a *collective*. As the name implies, it is a collection of people, skills, and talent that produces a result greater than the sum of its parts. For our purposes, collective is not solely defined by shared intention, action, or purpose (though those elements may exist and often do). Rather they are defined by an active engagement with the process of learning. [...] In communities, people learn in order to belong. In a collective, people belong in order to learn.

According to Jenkins (2006, 3): "A participatory culture is also one in which members believe their contributions matter, and feel some degree of social connection with one another (at the least they care what other people think about what they have created)." The same spirit is echoed by Gee (2004, page number?): "People learn best when their learning is part of a highly motivated engagement with social practices which they value." In other words, learning is most effective when the activity is meaningful to them.

Finland has been widely known for its high-level performance in international comparisons of education. This success is usually attributed to the high-quality teacher education and the relatively substantial freedom teachers have to orchestrate their own teaching (Sahlberg 2011, Hargreaves & Shirley 2009) . The recent evidence, however, indicates that the Finnish school system fails to fully realize its mission to educate citizens who are competent enough to design their social futures in the media- and information-rich world (Cope & Kalantzis 2000, see also Hargreaves 2003) . On this basis, the current reform of the national curriculum for basic education builds on the notion of multiliteracies (Cope & Kalantzis, 2000): "Competence in an even more diverse set of functional, academic, critical, and electronic skills." This notion is the basis for succeeding in the society of today and of tomorrow. The taxonomies and descriptors discussed above provide a point of departure for pedagogical development in terms of future literacy pedagogies in practice.

4 THE PRESENT STUDY

The core of the present study is pedagogical design, which is understood as social practices that are configured and reconfigured in local settings. In this stance, there is no absolute truth to be found, and instead there are only different socially and culturally situated perspectives on the phenomenon under investigation. This study, therefore, subscribes to a constructivist paradigm. In research carried out within this paradigm, findings are created during the research process and they are based on the researcher's interpretation.

This approach led in this case, as in many others, to qualitative research, which consists of a set of interpretive practices that "turn the world into a series of representations, including field notes, interviews, conversations, photographs, recordings, and memos to the self" (Denzin & Lincoln 2000, 4-5) . By definition, qualitative research is exploratory and aims at making sense of complex phenomena. As lenses for viewing the main characteristics of qualitative research, Dörnyei (2007, 37-38) proposes the following: emergent research design, the nature of qualitative data, the characteristics of the research setting, insider meaning, small sample size, and interpretive analysis.

The emergent nature of research can be seen in the process of this research as it was described in the introduction. Further, it can be portrayed as fluid, flexible and responsive to new openings. Research questions have evolved and been refined during the process and the focus of the research has been "narrowed down only gradually and the analytic categories/concepts are defined during, rather than prior to, the process of the research" (Dörnyei 2007, 37).

Multiple types of data have been collected and analyzed in order to "capture rich and complex details" of the phenomenon being studied (see Table 4). In line with other qualitative research, this study has also aimed at capturing insider meaning, that is, "participants' views of the situation being studied" (Dörnyei 2007, 37). For data collection, this approach means a small sample size. Through content analysis, the data have been analyzed in an interpretive manner, producing the researcher's interpretation of the data and helping to "make sense of phenomena in terms of the meanings people bring to them" (Denzin and Lincoln 2000, 4–5). The pedagogical contexts of the substudies as well as

the procedures of data collection and analysis are described in more detail in the following sections.

Table 4 Overview of data and analysis methods

Article	Focus of the article	Data	Analysis
I	Expertise in relation to use of digital technologies	Course assignments (including course plans)	Qualitative content analysis
II	Experiences, attitudes and perceptions	Reflections	Qualitative content analysis
	Characteristics of pedagogical designs	Course plans	
III	Organizational structures favorable to pedagogical development	Researcher narrative	Narrative inquiry Qualitative content analysis
IV	Literacy practices in multimodal environments	Blog entries	Critical design ethnography
V	Languaging and agency in multimodal environments	Video recordings of the lessons	Qualitative analysis

4.1 Substudy 1

The aim of substudy 1 was to examine the pedagogical designs of language students (Articles I and II). The empirical analysis is based on qualitative data collected at a Finnish university between 2009 and 2010. The data were collected on a course targeted at language students in the Department of Languages. The objective of the course was to familiarize students with the Common European Framework of Reference for Languages (CEFR) and the European Language Portfolio (ELP). During the course, each student created a course plan for a vocational school program of his or her own choice.

Table 5 The course structure

Theme 1: focus on perceptions and previous experiences	Theme 2: focus on ELP, curriculum and goals	Theme 3: focus on media choices	Theme 4: focus on assessment	Reflection on the process
	Literature, discussion and blog reflections			
	First version of the course plan	Second version of the course plan	Third version of the course plan	
Lectures and face-to-face meetings				

To support the pedagogically meaningful use of ICT based on the core ideas of CEFR, the course structure (see Table 5) incorporated a virtual learning environment (VLE) structured into four themes: perceptions and previous experiences; the ELP, curriculum and goals; media choices; and assessment. The purpose of the first theme was to orient the participants to the theme of teaching and learning in technology-rich environments as well as to make them more aware of their perceptions. In this part, the students were asked to (a) reflect on their experiences of ICT use in language teaching as learners, and (b) position ICT in relation to their teaching philosophy as future teachers.

The second, third and fourth themes aimed to support participants in creating their course plans. These themes therefore functioned as checkpoints in which the course plan was examined critically from a predefined perspective. After each checkpoint, the participants uploaded a revised version of their course plan to their personal folder in the VLE. All of the themes included a section that provided participants with relevant literature. To reflect on the ideas presented in the literature, participants wrote personal blogs and participated in group discussions on topics related to the literature.

An extensive corpus of data was collected in three sets during the research period. The data corpus consists of web discussions, blog reflections and the course assignments of the 28 students that participated in the study. All data are in written form.

Table 6 Participants

Period of data collection	Participants		
	Male	Female	
Autumn 2009	2	8	10
Spring 2010	0	7	7
Autumn 2010	1	10	11
	3	25	28

Table 6 shows the number of participants in each period of data collection. The strong representation of females is a typical gender distribution in language-teacher education in Finland.

4.1.1 Article I: Focus on ICT use and expertise

Article I looked into language students' pedagogical thinking in relation to the use of ICT in language teaching. The data consist of students' course assignments. The article is co-authored with Anne Pitkänen-Huhta and Peppi Taalas, who were in charge of study 1, while I was responsible for study 2.

The data were analyzed using qualitative content analysis, and the aim of the study was to examine the pedagogical designs of future teachers, especially from the perspectives of expertise in a language classroom and the use of technology. The focus was on how language students plan their teaching activities (course plans) and what kinds of discussions take place around the planning (blog entries and online discussions). The analysis was carried out in two phases. First, the data were thematically categorized. The themes emerging in the first phase were then studied against the following research questions:

1. Who has expertise in a language classroom? How is expertise manifested?
2. Do future teachers use technology in a classroom context? What purposes is technology used for?
3. What elements promote/hinder the pedagogical use of technology in language teaching?

One of the key findings was that expertise appears as a property of the teacher, who also acts as a gatekeeper of information. The teacher's expertise is manifested in the form of teaching the language and culture to students who are portrayed as tabulae rasae. Furthermore, when the students discuss the use of ICT, the discursive focus is mostly on teaching instead of learning. In relation to expertise, the students believe that the use of ICT could weaken the teacher's expert role if the teacher lacks sufficient technological skills. The results imply that the role of ICT in language learning is not well understood.

Another finding was that students plan to use ICT in their classrooms, but the role of technology appears as something disconnected from the learning process. The role of ICT is an extra layer that often brings the added value of entertainment and fun. Teacher-controlled ways of using ICT allow both teachers and learners to stay in their comfort zones and consequently diminish the dimensions of complexity and uncertainty.

The results of the study indicate that the students feel insufficiently supported in teacher education as designers and implementers of innovative pedagogical models. This study strongly highlights that the language students replicate the practices and mindsets they have been socialized into during their formal education.

In the article, the results were contrasted with the results of study 1 (conducted by Anne Pitkänen-Huhta and Peppi Taalas). Based on the two studies it was concluded that the stakeholders involved in language education seem to have differing ideas of the changes taking place in society, as well as of their effects on their own activities and on language education in general.

4.1.2 Article II: LT students' pedagogical landscapes

Article II examines the experiences, attitudes and perceptions of language students regarding the use of ICT in language teaching. In addition, the article analyses the key characteristics of students' pedagogical designs. In other words, the article continues the exploration started in Article I by employing a more systemic view of pedagogical designs.

In this paper, two of the course assignments have been analyzed: reflection (in theme one) and the final version of the course plan that the participants created during the course. The analysis of the data builds on the operational framework created for the Towards Future Literacy Pedagogies (ToLP) project (Taalas et al. 2008). The framework consists of the core elements of a typical pedagogical situation: objectives, working modes, materials, media choices, and assessment and feedback. The operationalization of these elements is shaped by various sets of motivations, attitudes, beliefs and values. For the purposes of this study, the framework has been slightly modified. Materials and media choices have been combined as a single element and motivations, attitudes, beliefs and values have been replaced with experiences, perceptions and attitudes.

In the first stage of analysis, coding schemes for the participants' reflections were developed inductively. In a later stage, the coding schemes were refined by connecting them with previous research. As a result, five themes were developed: experiences of technology use, add-on use, add-in use, the gap between the two domains, and the preservation of the tradition. The course plan documents were coded using the ToLP framework mentioned above. The codes referring to the elements of pedagogical design were assigned to the corresponding parts in participants' course plan documents. Next, these parts were analyzed part by part, and subcodes were assigned to units in the plan that represented a certain theme. The purpose of this phase was to identify the themes that emerged within each part of the course plan documents. In the analysis of both participants' reflections and their course plan documents, the consistency of coding has been assessed throughout the process as well as after coding the entire data set (Miles & Huberman 1994) .

The research questions are as follows:

1. What kinds of experiences, attitudes and perceptions do the language-teacher students have regarding the educational use of ICT?
2. What are the key characteristics of the teacher students' pedagogical designs?

The results show that in general the participants have had only a few encounters with digital technologies during their formal language studies. The use has mainly been based on individual rather than collaborative ways of learning and represents a rather narrow view of language use and interaction. Furthermore, the use has been situated within a specific place in an institutional domain. The participants' relationship with technology appears to be multivoiced: digital technologies are seen as an externally imposed element ("a trend") as well as a normalized part of everyday life. Some participants recognize the gap between media practices at school and during free time, which implies that normalization has not yet taken place in schools. Furthermore, the voices also echo a certain culture of learning, which is referred to as traditional. In this type of a learning culture, technology has an add-on role and the roles of teachers and learners remain fixed.

The participants' pedagogical designs create a teacher-centered view of the language classroom. Learners are not given an active role in any phase of the learning process: the teacher defines the objectives, materials and media, the working modes and the assessment and feedback practices. In other words, there is a lack of space for learners to select the tools, environments and ways of working around a type of content that is meaningful for them. In line with the results described in the previous section on experiences, perceptions and attitudes, the learner's role is often that of a recipient. As for content, grammar and vocabulary play a central role, a fact that resonates with the participants' own experiences as learners examined in the previous section. Different print-based materials dominate the literacy practices, which are rather static despite the variation of text types.

Contrary to Bigg's (1996) principle of constructive alignment, the objectives, materials and media choices, the working modes, and the assessment and feedback practices are not in line with each other. In other words, technology is often adapted to the design without changing anything else in the pedagogical setting. Looked at through Fullan's (2007) three dimensions of pedagogical change, it appears that the change occurs mostly on the level of materials, but not so much in practices or beliefs. However, there are many assumptions about, for instance, students' motivation and digital competence underlying the pedagogical choices. Assumptions such as these highlight the importance of understanding how perceptions affect the construction of the pedagogical design.

The findings imply that language students' pedagogical landscapes reflect their own experiences as learners. Furthermore, the literacy practices in students' designs are mainly static and do not respond to the needs of society now and in the future.

4.2 Substudy 2

The second substudy is situated within the context of a higher education language teaching organization, the Language Centre, which is a multilingual,

multicultural and multidisciplinary expert organization that widely supports the internationalization of the university as well as of the surrounding society. The substudy focused on developing a design-based framework for pedagogical development (III) and investigating the enactment of pedagogical designs in language teaching (IV and V).

The research reported here has been conducted within the researcher's own institution. As Alvesson (2003, 167) points out: "It is rare that academics study the 'lived realities' of their own institutions." The research setting offers many possibilities but also some methodological challenges. First of all, when a researcher's own institution is the context, a double role emerges (employee and researcher), which provides useful insights but also raises ethical issues. For instance, the researcher cannot constantly remind the members of the organization that he is engaging in research (Parry & Boyle 2009) .

The search for an approach to fit this kind of research has resulted in a methodological journey. When the research began in 2009, design-based research appeared to be a suitable research strategy and functioned as a starting point for the methodological exploration. Despite the fact that it features no explicit tools for data collection or analysis, it did provide an overall framework within which to place the study.

Design-Based Research (DBR) has been suggested as a research approach that can connect different levels of action, such as research and practice. DBR has its origins in the work of Brown (1992) and Collins (1992), who introduced *design experiments* as a new paradigm for research. This type of experimentation represented a shift from laboratory-based experiments to ones that take place in authentic settings where all the variables cannot be controlled. In the following paragraph, aspects of this research are discussed in relation to principles of "good design-based research" proposed by the Design-Based Research Collective (2003).

First, the central goals of designing learning environments and developing theories or "prototheories" of learning were intertwined in many respects, because the designs adhered to the theoretical principles and the enacted design was reflected against the theoretical background (Articles IV and V). Second, development and research took place through continuous cycles of design, enactment, analysis, and redesign (Article III). All stages of the research were carried out collaboratively with another teacher/researcher. This collaboration meant that the results were not just communicated to practitioners and educational designers (the third principle) through more-or-less academic channels (e.g. journals, conferences and in-service training for teachers), but they were also a part of professional development within an institutional setting through engagement in the process (III). Fourth, description of the design in an authentic setting accounted for how the designs functioned. Instead of documenting just success or failure, it focused on the interactions that refine our understanding of the learning issues involved (IV and V). The fifth principle, according to which the development of such accounts relies on methods that can document and connect processes of enactment to outcomes of interest, was the most chal-

lenging one, because the primary objective was pedagogical. This consideration required that the use of the necessary data collection instruments always had to be thought of from the pedagogical point of view.

Design-based research – especially when carried out by researchers themselves – easily becomes patronizing, a view reflected by Engeström (2011) :

> The emphasis on completeness, finality, and closure may be partly explained by the idea of design experiments as "refinement." The implication is that the researchers have somehow come up with a pretty good model which needs to be perfected in the field.

Indeed, many DBR studies do not pay enough attention to the local adaptation of the design or the sustainability aspect. What emerges is the ivory tower problem: Researchers come, carry out the research, leave, analyze the data and communicate the findings to practitioners in the form of nicely defined principles. Therefore, bearing Engeström's (2011) concerns in mind, this study views pedagogical development as a co-designed and evolutionary process. In this process, the succeeding cycle is always based on the data collected in the preceding cycle and on the analysis of that data, as well as on the design principles that were formed based on the analysis. In line with the collaborative view, the data are often analyzed by more than one researcher. The DBR process also functioned as an analytical lens with which to view pedagogical development (Article III).

Another feasible methodology that was touched upon is autoethnography, which has recently been used in some organizational studies (see Parry & Boyle 2009 for an overview). The challenge with autoethnography was that, despite my being a member of the institution during the research period, my primary focus was on pedagogical development, which functioned as a source of data for the research. The closest definition of the nature of the research is therefore that of Alvesson (2003, 174), according to which "participation comes first and is only occasionally complemented with observation in a research-focused sense". The approach that Alvesson (2003, 174) calls self-ethnography "is a study and a text in which the researcher-author describes a cultural setting to which s/he has a 'natural access', is an active participant, more or less on terms with other participants".

The methodology of the substudy described in Article III also has features of narrative inquiry, in which individual experiences are gathered through construction and reconstruction that enable the telling and re-telling of events that have been the most influential on us. According to Webster and Mertova (2007, 2), the narrative approach allows the researcher to represent experiences in a holistic manner regarding the richness and complexity of these experiences, but acknowledging the fact that the understanding of people and events changes over time. Teachers, learners and researchers are all narrators as well as characters in their own stories and in those of others. Therefore it is seen as a proper method to investigate systemic change from different perspectives (Gill 2001). The researcher's challenge is to select the stories that represent the phenomenon under investigation. In this case, the researcher was also the narrator.

The development process described in Article III is based on multiple cases. One of the development cases is discussed in this dissertation: a reading comprehension course for Finnish as a second language. The research and development work has taken place in iterative cycles, the first of which began in January 2010. Since then, four cycles have taken place and two of them are reported in this dissertation. The first cycle is reported in Vaarala and Jalkanen (2010), the second cycle in Article IV and the third cycle in Article V. Following the steps in the development model in Article III, each cycle has had a development focus of its own (see Table 7).

Table 7 Course evolution (Jalkanen & Vaarala 2012)

	Cycle 1 (2010)	Cycle 2 (2011)	Cycle 3 (2012)
Issues to be addressed	How to bridge the multiple textual worlds (leisure, university education, language education). How to provide access to meaningful texts?	How to support the development of ownership in relation to texts?	How to support learner agency and authorship in relation to texts?
Implemented solution	The course was redesigned following the concept of blended learning. An e-learning platform was integrated.	In addition to the e-learning platform, personal blogs were created in order to facilitate reflection.	In addition to the e-learning platform, personal microblogs were established and personal tablets were provided for each student.
Design focus	eaching	Teaching and learning	Learning

In Cycle 1 (2009–2010), the pedagogical objectives were twofold: (1) expand the repertoire of the texts that students read in their daily life, and (2) determine how the course design supports the development of multiliteracies. The development work was expected to result in a new course structure, new forms of guidance and feedback, and more flexible ways of teaching and learning. Building on these objectives, the course was completely redesigned following the principles of multimodal language pedagogy. The existing learning objectives and the results of a core content analysis were used as a starting point.

Cycle 2 (2010–2011) focused on supporting the development of ownership in relation to Finnish texts. In addition to the e-learning platform implemented within the previous cycle, personal blogs were created in order to facilitate reflection.

Finally, the focus of the Cycle 3 (2011–2012) was on supporting the development of learner agency and authorship in relation to Finnish texts. Within

this cycle, blogs were replaced with personal microblogs (Twitter), and personal tablets (iPads) were provided for each student in order to facilitate the activities around texts. The e-learning platform was also in use during this cycle.

During the third cycle, the largest changes took place in the course design. Following the systemic framework illustrated in Figure 6, different learning tools and spaces were selected to support different aspects of promoting learners' agency and authorship in relation to texts that they were dealing with.

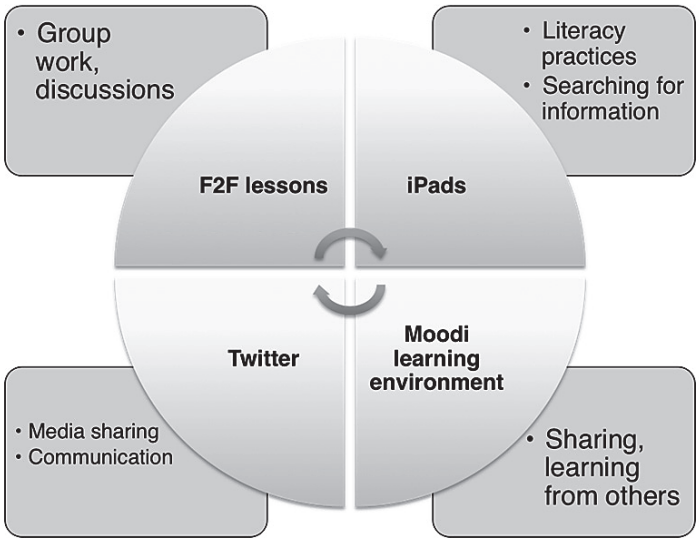

Figure 6 Design for teaching

Various activities around different types of texts (literacy practices) were central to the course. Moreover, these activities were also related to different ways of operating with information and knowledge. To support these practices, students were provided with personal tablets for the duration of the course. They were then encouraged to use these tablets inside as well as outside of the classroom.

An extensive corpus of data was collected during the development process, including video recordings of the lessons, students' course assignments, blog and microblog posts, and recordings of the reflective discussions at the end of the course.

4.2.1 Article III: Emerging structures for sustainable pedagogical development

Article III probes the cluttered reality of collaborative pedagogical development in a higher education language teaching organization. The aim of the article was to explore the organizational structures and processes that contribute to sustainable pedagogical development as well as to examine the process of the de-

velopment work. The lens through which the process is examined is that of a pedagogical developer, a new staff role established in the organization in question.

Methodologically, the study has features of self-ethnography and narrative inquiry. Of the two authors, I was responsible for translating my field notes as a pedagogical developer into a narrative, which I then used as a basis for qualitative analysis of the development process. I was also responsible for the development of the model presented in the article. To promote the validity of the analysis, the two researchers (Peppi Taalas and myself) compared and discussed the interpretations. Both researchers participated in the construction of the theoretical framework.

The three themes that emerged from the qualitative analysis of the narrative were expertise in design work, relationship of research and development, and sustainability of pedagogical development. Closer analysis of these themes indicated the following:

- In collaborative pedagogical development, expertise appears as shared and negotiated around different tasks.
- A structured and design-based development process raises a broad spectrum of pedagogical questions.
- Course design can provide windows into pedagogical thinking.

Furthermore, three types of resources for pedagogical development were identified in the analysis of the narrative: technical, pedagogical and professional. In practice, the technical resources meant that the teachers were provided with individual and ad hoc assistance in constructing new virtual spaces for their teaching. This was needed in many cases due to a lack of time or technical skills. The pedagogical resources, in turn, provided the opportunity to expand the horizon of pedagogical possibilities by combining different kinds of expertise in the design process. Finally, the professional resources were, in this case, operationalized in the form of design-based research. A main outcome of the study is the model for collaborative pedagogical development (Figure 7).

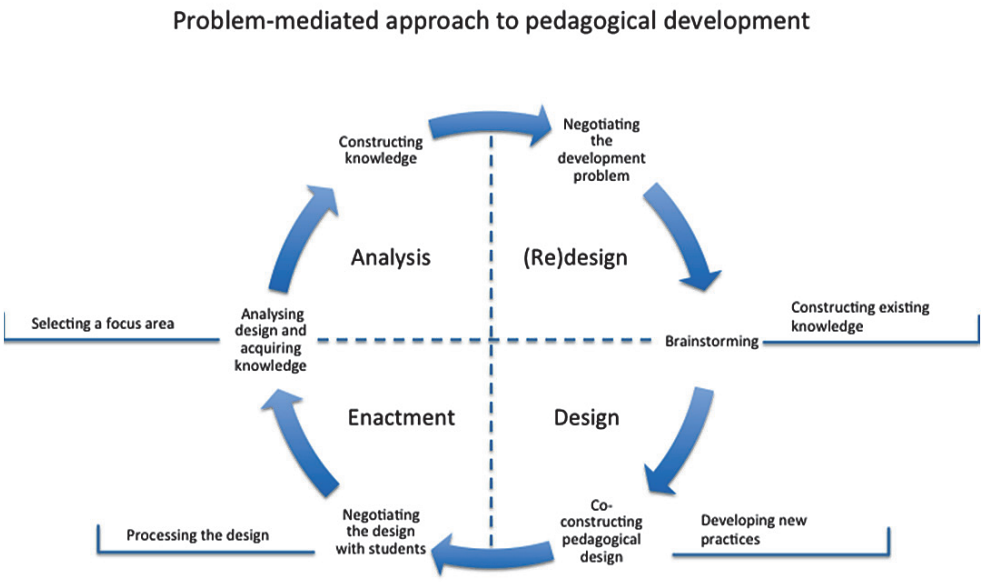

Figure 7 Problem-mediated approach to pedagogical development (Jalkanen & Taalas 2013).

The results are in line with the notion that designing for sustainable development necessitates a systems view of the learning setting that, in this case, is the organization. This view takes into account different contextual variables while acknowledging the unpredictable nature of learning. Due to this complexity it was not possible to pinpoint the moments where learning takes place without more intense methods for data collection in place. Instead, the article provided a description of the process from the pedagogical developer's perspective and some snapshots of the different parts of the process.

4.2.2 Article IV: Designing for multimodal literacy practices

In Article IV, the multimodal literacy practices of Finnish as a second language (FSL) learners were investigated. The context of investigation is an FSL reading comprehension course on which the students engaged in reading and writing blogs. The course is also one of the cases in the pedagogical development process described in Article III.

The article is co-authored with Heidi Vaarala. I was responsible for the theoretical and methodological parts, both of which were negotiated between the two researchers, because the purpose was to combine our different research traditions and areas of expertise. Vaarala's expertise lies in L2 reading and mine in literacy and language practices in technology-rich environments. The analysis was carried out collaboratively.

The following research question was posed: How are the dimensions of sharing, meaningfulness and adaptivity reflected in the multimodal literacy practices of Finnish language learners?

Methodologically, the study employed a critical design ethnography approach that is both interventionist and investigative, because the researchers participated in the learning community being analysed. Through three dimensions—sharing, meaningfulness and adaptivity—the study aimed to capture the diversity of the ways in which students operate in the digital text and media environment using the target language, Finnish. The data consists of blog posts written by the students. In an earlier cycle of the course, students read digital texts (including blogs) and kept a reading diary. The analysis was conducted in two stages.

Observing the students' blog writing activity was an ongoing process. During the course, the two researchers met each week to discuss the students' blog posts on the basis of observation notes that they made independently of one another. After the course, the dataset—consisting of all blog posts produced by the students—was analyzed qualitatively. The data were processed as follows: First, the researchers read all the students' blog entries separately, making notes. Second, based on the notes, the content of the blogs was divided into three categories (sharing, meaningfulness and adaptivity) drawn from the analytic framework developed during an earlier cycle (Vaarala & Jalkanen 2011). Third, the categorized data were studied in relation to the research question. To increase the validity of the research, all interpretations were compared and discussed by the researchers.

In agreement with the ecological approach, it was found that the activity determines what is picked up in the environment as a relevant resource for learning. In the process of appropriating these resources for the meaning-making activity, the learner constructs a new semiotic item that has a new meaning. These processes are shaped by the sharing of artefacts, the meaningfulness of the activity and the adaptivity of the digital environment.

The results also show that literacy as a social practice takes place, for instance, as an active sharing of various semiotic artefacts (e.g. texts, images, videos, links), which is an evident part of learners' activity within the digital environment. These shared resources become affordances for learning as learners find them to be relevant in terms of their interests and language skills. In van Lier's (2004) terms then, a blog, as a mediating artefact, provides a match between something in the environment and the learner.

In the data, it is evident that the development of digital technologies has changed the way people use languages in terms of where, why and how: Students use various artefacts (e.g. Facebook) with a target language interface and operate in online environments (e.g. Wikipedia) in multiple languages (e.g. by changing the language of the environment while searching for information). Environments then come to provide affordances for language learning, despite the fact that these environments have not been designed for language learning purposes. In these artefact-mediated chains of actions, we may observe an

emergent new kind of literacy. This literacy, or preferably literacies, is social by nature and it operates across different languages, spaces and timeframes.

4.2.3 Article V: (Re)conceptualizing designs from the language learning perspective

Article V looks into the (re)conceptualization of designs for language learning in technology-rich environments. The article is co-authored with Francoise Blin and the point of departure for the article was our joint presentation (2012), which focused on design-based pedagogies for language learning. The presentation was of a more theoretical nature, so as a follow-up, we were interested in using an activity-theoretical framework for conceptualizing findings from a pedagogical development process (Articles III and IV). I was responsible for the empirical data and Blin for the activity-theoretical framework. The authors co-constructed the theoretical background. To increase the validity, the two researchers discussed the interpretations.

The main concepts were agency and languaging as emerging approaches to language use and learning, which were placed within the design-based pedagogy framework. Building on Lund and Hauge's (2011) notion of designs for teaching and designs for learning, we first described the overall design for the teaching of a literacy skills course in Finnish as a second language (Article V, 161–162). Then, following the analytical procedure of Lipponen and Kumpulainen (2011) , I selected the episodes of design for learning where I identified evidence of agency and languaging emerging. Our interpretations of the data were discussed and compared, and the selected episodes were then conceptualized against the theoretical framework.

Throughout the two instantiations of the course (in 2012 and 2013, respectively), different contradictions within the enacted design emerged, which manifested themselves through focus shifts, misunderstandings or conflicts. For example, in the second instantiation of the course, it soon became apparent that students had little experience, if any, of Twitter and tablets, especially in a learning context. Similarly, the tools available through Moodi were configured in such a way that students encountered difficulties in using them. Intensive technical assistance was thus required to help students exploit the opportunities for learning that the various tools potentially offered. Finally, rules that were imposed from the outside, such as assessment regulations and standards, were not completely aligned to the course object and intended learning outcomes.

In the first instantiation of the course (2012), most students appropriated the initial design for teaching and developed it further by contributing to the evolution of the learning community as well as by repurposing tools and environments in line with their personal learning contexts and objectives.

By contrast, in the next instantiation of the course (2013), some students initially rejected the design for teaching by resisting the use of Twitter and tablets, because they did not perceive the connection between the object of the learning activity and the tools available to them. However, feedback discussions at the end of the course provided evidence of a transformation in the atti-

tudes of those students who were most critical towards the use of Twitter and the tablets. Students indicated that their understanding of literacy practices had broadened during the course and that they now perceived Twitter and tablets as valuable tools for learning. This transformation of students' attitudes and practices can be attributed to the sustained negotiation, co-construction, and reconstruction of the learning object by both teachers and students. Teachers had to redefine their design for teaching to make the pedagogical reasoning behind it more visible to and shared by students. Students progressively developed some critical design agency and eventually accepted the need tochallenge their old designs for learning.

Designs for learning were also sites for languaging. As students performed different tasks around texts, several instances of "making meaning and shaping knowledge and experience through language" (Swain 2006, 98) emerged. By examining some of these instances, and recalling Lund and Hauge's (2011) definition of design for learning, episodes where teachers and learners respond to immediate opportunities and serendipity, or where learners take initiatives, can be identified. In such instances, languaging directly contributes to the development of the design for learning.

4.3 Summary of the findings

The overall research questions of the study dealt with (a) the characteristics of pedagogical designs, and (b) the structures, processes and approaches that support the development of multimodal pedagogies. Substudy 1 focused especially on research question 1, regarding the pedagogical designs of LT students, and substudy 2 focused on questions 2 and 3, which dealt with, respectively, pedagogical designs in technology-rich environments and support for the development of language and literacy pedagogies.

As for the characteristics of language students' pedagogical designs, it seems that their pedagogical practices are static instead of dynamic. The teacher is frequently portrayed as a gatekeeper, controlling access to knowledge and information. Similarly, expertise is seen to be the property of the teacher and not as something students can provide. Technology, when used, is usually limited to a specific place. Furthermore, language students seem concerned that the use of ICT could even weaken the teacher's role as an expert. Such static views indicate a need in teacher education to revisit the concept of what an expert is. Too often, it seems, the discursive focus is on teaching instead of learning, the view of interaction in relation to digital technologies can be narrow, and the teacher is viewed as the agent.

The enacted pedagogical designs, in contrast, were characterized by sharing and making use of different types of resources. These resources are social, technological and linguistic. Especially the data analyzed in Article V provides insights into students' use of technology-rich environments as a resource for

language use. All in all, the enacted designs are complex, multilayered and unpredictable.

The structures, processes and approaches that support the development of multimodal pedagogies appear to be related to a systems view of the teaching and learning setting as well as to a relational view of expertise in the development work. The results also suggest there is a challenge in the conceptualizations of design, language use and literacy.

Table 8 presents an overview of the results.

Table 8 An overview of the results

Research question	Results (reference to article number in parenthesis)
What characterizes the pedagogical designs of language teacher students?	The teacher as a gatekeeper of information (I) Expertise as a property of the teacher (I) Technology as something disconnected, extra, add-on (I) (Discursive) focus on teaching instead of learning (I & II) Use is situated within a specific place (II) Narrow view of interaction in relation to digital technologies (II)
What characterizes the enacted pedagogical designs in multimodal environments?	Sharing, meaningfulness, and adaptivity (IV) Literacy as a social practice (IV) Shared resources as affordances for learning (IV) Use of various artefacts with a target language interface and activities in online environments in multiple languages (IV) Technology-rich environment as a resource for languaging (V) Complexity and unpredictability of pedagogical designs (V)
What kinds of structures, processes and approaches support the development of multimodal pedagogies?	Systems view of the learning setting as a basis for sustainable development (III) Relational view of agency and expertise in collaborative development work (III) Research-based, dynamic teaching and learning environments (III) Renewed focus on design that is cognizant of the rapid societal and technological changes that characterize contemporary knowledge creation and social practices (V)

The Chapter 5 discusses the main results of the study in more detail and link them to the theoretical background.

4.4 Reflections on the study

This section looks back at the study and discusses the quality principles of qualitative research as they relate to this study.

As a point of departure, Dörnyei (2007, 55–56) lists three basic quality concerns in qualitative research: insipid data, the quality of the researcher, and anecdotalism and the lack of quality safeguards. These concerns, combined with components of Maxwell's (1992) taxonomy of validity in qualitative research, form a basis for examining the aspects of this study that contribute to the notion of quality.

To address the first concern, multiple sources of data have been used to reveal the multivoiced nature of the phenomenon under investigation. The data include online discussions and course plan documents (Articles I and II), my own notes and reflections (Article III), blog entries (Article IV), and transcriptions of video recordings (Article V). These varied sources of data on pedagogical design help raise a range of issues that are interesting to different audiences.

The second concern, in turn, relates to the collaborative stance that the research has adopted. During the process, both data collection and analysis have been carried out together with senior researchers. Besides being a form of investigator triangulation, the collaboration has also contributed to my development as a researcher. Interpretations of multiple researchers have been discussed along with the process of analysis, which supports the descriptive validity (Maxwell 1992). Furthermore, due to the article-based nature of the dissertation, the articles have undergone a peer-review procedure, which in part contributes to the scientific quality of the research.

The core of qualitative research is captured in the third concern. Instead of anecdotes and randomly selected examples, the analysis has been carried out and reported in a systematic way. In the articles, the description of analysis procedures is compact, so in this dissertation the procedures have also been discussed to increase transparency.

In addition, it is reasonable to ask to what extent the results can be generalized. Maxwell (1992) has divided generalizability into two types: internal and external. The first refers to the extent the findings can be generalized among the community within which the research is carried out. The second one applies to a wider generalization of the findings. In this study, the communities consist of language students as well the international students participating in the language courses within a single university. The notion of generalizability is related to the interpretive validity of the study (Maxwell 1992), that is, to the interpretations drawn from the data. To ensure this validity, the findings have been presented and discussed at various academic conferences and professional seminars as well as in training sessions for in-service teachers. A question, however, remains: What do the data actually tell us? Do they reflect a performance and ideals or capture so-called real conceptions and opinions? Despite the strong practical orientation of the research, an appropriate level of theoretical abstraction has been developed to describe the phenomenon.

The challenges of the study regard the multiple theories and methods employed and the multiple types of data collected. If a smaller number of these had been used, it would have enabled a deeper understanding each theory and method. The microlevel analysis conducted in the second substudy manages to only partially pinpoint the affordances for learning in these complex environments. It does, however, allow a more detailed analysis of the situations where affordances can be identified.

This study reflects my various positions and identities as a teacher, a researcher and a pedagogical developer. Similarly to Saarinen (2007) , I have also balanced different disciplines. As discussed in the chapter on methodologies,

the double role of colleague and researcher has sometimes been challenging: For ethical reasons, many of the everyday observations cannot be used for research purposes. Furthermore, finding the right balance between research and development proved to be difficult. The research setting, data collection and reporting had to be planned within pedagogical and institutional constraints.

5 DISCUSSION

The purpose of this study was to explore the development of pedagogical design in increasingly technology-rich environments for language teaching and learning. More specifically, this research focused on the process of design, enactment, and analysis of language and literacy pedagogies. The study consists of two substudies reported in five articles, each of which approaches pedagogical design from a different angle.

In line with previous studies (Taalas 2005; Blin 2004; Lund 2003), it was found that pedagogical development in technology-rich settings is a complex and multilayered process. The results show that digital technologies increase the complexity and unpredictability of the pedagogical design. In Lankshear and Knobel's (2006) terminology, the designs are characterized by the properties of the post-industrial mindset: collective expertise, open learning spaces and hybrid forms of participation. Digital environments expand the possibilities for agency and languaging (V) and create spaces for emerging types of literacies to take place (IV). These literacies are social by nature and operate across different languages, spaces and timescales (IV).

Earlier research (Luukka et al. 2008) has suggested that the text and media landscapes in school and in free time can be divergent realities and that current pedagogical structures and practices fail to bridge the gap between the two domains. The present study explored this problematic in the context of language teacher education and found that the literacy practices in language students' pedagogical designs are mainly static and reflect Lankshear and Knobel's (2006) industrial mindset. In these designs, expertise appears as a property of the teacher and the discursive focus is on teaching instead of learning. The use of digital technologies is situated within a specific place (e.g. a language lab or a computer lab) and is mostly disconnected from other areas of pedagogical design (e.g. objectives, assessment). Furthermore, the results showed the view of interaction in relation to digital technologies is often narrow and does not reflect the contemporary notions of language use (I and II). The findings imply that there exists a vicious circle in language teacher education: If the education of future teachers does not challenge the practices teachers are socialized into

during their formal studies, they will easily end up repeating these practices in their own classrooms without critically reflecting on them.

Policies as well as research literature echo the importance of digital competence as a component of full participation in society (Ilomäki, Taalas & Lakkala 2012, Lankshear & Knobel 2008) . As the results of this study show, the discussion of language students regarding ICT is oriented more towards whether or not to use it in teaching than it is towards educational objectives and the development of digital literacies. Neither the objectives nor the activities in language students' course plans provided much evidence of practices that would support the development of such competence. Many of the language students built on the assumption that their learners live in the digital world, but without the awareness of the gap between an adolescents' capacity to act and move across digital spaces and their ability to use these spaces for learning (cf. Erstad 2010; Watson 2010).

The second part of the study looked into the process of pedagogical development in a higher education language teaching organization. In line with previous research on development endeavors (e.g. Edwards 2011) , the results indicate that in collaborative pedagogical development, expertise appears as shared and negotiated around different tasks. Furthermore, it was found that a structured and design-based development process brings up a wide spectrum of pedagogical questions open for further exploration (III). In order to understand the affordances of different designs, the notion of reflective practice becomes central, especially in technology-rich environments. A research-like process of planning, collecting data and analysis needs to be part of the pedagogical design, thereby increasing both students' and teachers' understanding of the learning process.

To address the emerging language and literacy practices in formal education, the notion of design needs to be revisited. This is in line with Bereiter's (2002, 4) argument that a fundamental challenge in developing education is conceptual. The present study expands and deepens the understanding of the design process in multimodal language pedagogy (Taalas 2005) by shining a light on the underlying views of pedagogical design. In the empirical studies, two types of views are constructed: an adaptive view (Articles I and II) and a transformative view (Articles IV and V). In Table 9, the views are presented in relation to the three phases of the design process (see section 2.2.2). Furthermore, the views have some resemblance to the two dimensions of design (Lund & Hauge 2011).

Table 9 Two views of the design process[3]

	Adaptive view	**Transformative view**
(Initial) design	Product	Process
Enactment	Learners as recipients	Learners as co-designers
Analysis	Disturbance as a sign of failure	Disturbances as a source of learning

The design phase is seen as either a product or as a process. Design as a product means that it is a one-time entity, typically planned beforehand and then carried out with respect to the plan. This plan can be multiplied (e.g. by using the same plan for different learner groups) and replicated (used again after a certain period of time). In line with the product metaphor, it has a certain life cycle and at a certain point in time it is replaced with another. Design as a product is adaptive in the sense that it adapts to the existing pedagogical conditions.

Design as a process, in turn, views the construction of the pedagogical setting as an evolutionary chain maintaining the notion of history: the design is always a result of a historical continuum of beliefs, values and practices. For this apparent reason it is always local and related to the context within which it is enacted. Because of the evolutionary view, it is possible to track the trajectories across time and observe the history of different versions of the design.

The enactment phase can be understood in terms of implementation or construction, which is closely related to the view of the design. In the adaptive view, learners are perceived as recipients of the design, travelling the paths the teacher has mapped for them. This is the case, for instance, when the Internet is used for retrieving information, and the teacher has identified the websites that students should visit beforehand. In the transformative view, learners are seen as co-designers, who contribute to the design by making connections to their life worlds, transforming the activity at hand through exercising their agency and bringing in resources beyond the reach of the teacher (e.g. different media, languages, cultures).

The analysis is the most critical phase of the process because it accounts for the successes and failures and contributes to the phase of re-design. In the adaptive view, the interpretation of success or failure is related to the question of what works whereas the transformative view focuses on the question of why something works. Consequently, in the adaptive view, a disturbance is typically interpreted as a sign of failure, but in the transformative view, disturbances are seen as a source of learning. The transformative view places the emphasis on collecting data that can account for learning processes (the role of assessment)

[3] This categorization is based on a paper presented at the WorldCALL 2013 conference (Jalkanen 2013).

and feed into the understanding of the factors affecting the local enactment of the design.

In this light, traditional models of initiation, implementation and institutionalization no longer apply. Instead, there is a need for more dynamic models that respond to changing conditions both proactively and reactively. In order to dynamically adjust the pedagogical design, information on learners' activities and progress is needed. The work conducted within the field of learning analytics shows significant potential to provide tools for the development of dynamic assessment and feedback practices.

What this means for language teachers is that design shifts from being an individual practice to a collaborative one. Traditionally, individual practice has dominated the domain of pedagogical development and teachers' work in general, whereas in the collaborative mindset the design is constructed and configured in interaction with various social and material resources.

In section 1.2, the discussion of pedagogical development started with a quote from the data, which brought up the question of "what works". As has been shown in the analysis of substudy 2 (Articles IV and V), the enactment of pedagogical design is context-sensitive, which in fact problematizes the whole notion of whether or not something "works". Both students and teachers interpret pedagogical events in different ways. The pedagogical challenge lies in the negotiation of objectives and ways to achieve them, which in an ideal scenario takes place between the teacher and the student. In substudy 1 (Articles I and II), not much evidence of such negotiation was found.

As discussed in section 2.2.4, the notion of expertise is increasingly seen as distributed across networks, negotiated around tasks and shared with other practitioners. This shift is related to the future of pedagogical development. Due to the complexity and unpredictability of the societies of today as well as of tomorrow, there is a need to view pedagogical design as a co-configured process (Article III). From the organizational perspective, this means that a dynamic combination of experts are brought together around a shared task. This type of process should take place at micro-, meso- and macro-levels of pedagogical development (see section 2.1). Furthermore, instead of pedagogical development it could be a good idea to start thinking about design as a local practice, an approach which would direct the focus to the design process and its situated nature.

This research has brought up many issues for further exploration. First of all, many findings from the data point to the discursive construction of mindsets that underpin the pedagogical design process. Future research could analyze these mindsets and other data through discourse analytical methods. Another central theme emerging from the data is that of expertise. This theme suggests that an examination is needed of how expertise in multimodal language pedagogy is constructed, manifested, contested and reconstructed in different pedagogical situations involving learners and teachers engaging in design work. Furthermore, studying expertise and the process of design in teacher teams or knots would provide new insights into pedagogical development within and

across educational organizations. In substudy 2, learner voices regarding the learning experience were only touched upon. This gap calls for a deeper investigation, through an analysis of critical incidents, of how learners experience the emerging pedagogies. Furthermore, a need has been shown to study and explore second language pedagogies that are conducive to the development of digital literacies. In addition, more research on assessment and the use of learning analytics as a window into learning activities is needed, because these themes were not addressed in this dissertation.

6 CONCLUSION

Educating future citizens that are multilingual and multiliterate poses great expectations for literacy pedagogies in schools. At the time this conclusion is being written, there are various ongoing projects in teacher education that aim to prepare language teachers for a rapidly changing world. Such projects are a good start, but they are not enough. Participants of this study, among many others, are doing their everyday work at schools and also need support in updating their knowledge and rethinking their practices.

The development of language and literacy pedagogies necessitates that language teachers have the means to design, enact and analyze dynamic and multimodal pedagogical settings in a formal context. From the perspective of language use and learning, there appears to be a need for pedagogical design models that would assist both teachers and students in structuring and analyzing the interaction and literacy practices that take place in technology-rich settings. And yet, pedagogical design models that would encourage reflective practice in technology-rich environments remain rare.

Policy documents set high expectations for the use of ICT in education and put pressure on teacher education to ensure the pedagogical transformation. Instead of "just putting into place the latest policy" (Fullan 2007, 7), pedagogical transformation requires re-culturing in classrooms, schools and universities. Teaching is, as Hargreaves (2003) puts it, becoming a young person's profession again and therefore the culture of learning that the future teachers adopt during their education will have an immense effect on the future of schools.

It is clear that models and practices that build on the post-industrial mindset are needed for educating the teachers of today as well as those of tomorrow. Furthermore, discussion is needed regarding the implications of these models and practices on various levels. All in all, language teachers should have the capacity and the possibility to respond to societal changes and to reflect on the implications of these changes for their work (see also Walsh 2013) . On the policy level, change is in many cases taken for granted and the complex mechanisms of change in educational institutions are not acknowledged.

In the work of teachers, there is not always time to develop a deep understanding of the results of certain pedagogical choices made in teaching and learning situations. Therefore, teacher students as well as practicing teachers should be supported in conducting small-scale development projects of their own. These projects could consist of cycles of design, enactment, analysis (reflection) and re-design. Documentation of these development processes would support teachers' professional development because it allows teachers to reflect on the enacted pedagogical designs afterwards against, perhaps, a theoretically informed framework. Ideally, these development projects would take place across language and discipline boundaries.

TIIVISTELMÄ (FINNISH SUMMARY)

Pedagogisen suunnittelun kehittäminen ja kehittyminen monimediaisissa kielen opettamisen ja oppimisen ympäristöissä.

Tausta ja teoreettinen viitekehys

Teknologian hyödyntämistä kielten opetuksessa ja oppimisessa on tutkittu jo 1960-luvulta lähtien ja se on vakiinnuttanut paikkansa tutkimusalueena, joka yleensä kuuluu soveltavan kielitieteen piiriin. Tutkimusta on määrällisesti paljon ja eri näkökulmista. Valtaosa tutkimuksesta on kuitenkin keskittynyt kielen oppimisen kysymyksiin ja toisen kielen oppimisen teoriat ovatkin olleet tutkimuksen keskeisin teoreettinen viitekehys. Laajemmin tutkimus kuuluu opetusteknologian (*educational technology*) tutkimusalueeseen. (Suomenkielinen katsaus tutkimusalueen kehittymiseen: Jalkanen & Taalas 2015.)

Tässä tutkimuksessa teknologiaa kielten opetuksessa lähestytään monitasoisena ilmiönä. Lähtökohtana on, että teknologia on ensisijaisesti toimintaympäristön osa, ei opetuksen väline. Näkökulmana on pedagoginen kehittäminen, minkä seurauksena tutkimuksessa tarkastellaan suunnitteluprosessia sen eri vaiheissa ja eri tasoilla.

Teoreettisesti tutkimus yhdistää kielen käyttöön, (kielen) oppimiseen, opetuksen suunnitteluun, teknologian opetuskäyttöön, asiantuntijuuteen, organisaation toiminnan kehittämiseen ja koulutuksen muutokseen liittyviä teorioita. Moninainen teoreettinen viitekehys erottaa tämän tutkimuksen monista muista samaa aihepiiriä käsittelevistä tutkimuksista.

Tutkimuksen keskeisin käsite on *design*, jota voidaan suomeksi käyttää kolmessa eri merkityksessä. Verbinä se viittaa suunnitteluun toimintana, substantiivina taas sekä suunnittelun prosessiin että prosessin tuotoksena syntyvään suunnitelmaan.

Tutkimuksen tavoitteet

Tutkimuksella on kolme päätavoitetta:

1. Tarkastella kielten(opettaja)opiskelijoiden (jatkossa: kieltenopiskelijoiden) pedagogisia suunnitelmia
2. Kehittää design-perustainen kollaboratiivisen pedagogisen kehittämisen malli
3. Analysoida, miten pedagogiset suunnitelmat toteutuvat paikallisessa opetuksen kontekstissa

Tutkimuksen tavoitteet operationaalistuvat kolmeksi tutkimuskysymykseksi:

1. Mitkä ovat kieltenopiskelijoiden pedagogisten suunnitelmien piirteet?

2. Mitkä ovat monimediaisissa ympäristöissä toteutuvien pedagogisten suunnitelmien piirteet?
3. Millaiset rakenteet, prosessit ja lähestymistavat tukevat kielten opetuksen pedagogista kehittämistä monimediaisissa ympäristöissä?

Osatutkimukset (aineisto ja analyysi)

Tutkimus rakentuu kahdesta osatutkimuksesta, joista ensimmäinen keskittyy tarkastelemaan kieltenopiskelijoiden pedagogisia suunnitelmia ja jälkimmäinen pureutuu pedagogiseen kehittämiseen organisaation sisällä tapahtuvana toimintana. Osatutkimukset on raportoitu viidessä artikkelissa.

Tutkimuksen aineisto koostuu kieltenopiskelijoiden pedagogisista suunnitelmista ja niihin liittyvistä reflektoinneista, opiskelijoiden blogi-kirjoituksista, videoiduista kielen oppitunneista sekä tutkivan kehittäjäopettajan narratiivista. Aineistoa on analysoitu pääasiassa laadullisen sisällönanalyysin avulla. Lisäksi tutkimuksessa on hyödynnetty etnografista lähestymistapaa, jonka avulla on tarkasteltu sekä opettajien että opiskelijoiden toimintaa.

Keskeiset tulokset ja johtopäätökset

Tutkimuksen tulokset osoittavat, että pedagoginen kehittäminen monimediaisissa ympäristöissä on kompleksinen ja monitasoinen prosessi; digitaaliset teknologiat lisäävät pedagogisen suunnittelun ennakoimattomuutta ja kompleksisuutta. Monimediaisissa ympäristöissä toteutuvia suunnitelmia määrittävät post-moderniin ajattelutapaan (Lankshear & Knobel 2006) liittyvät piirteet: jaettu asiantuntijuus, avoimet oppimisen tilat ja hybridit osallistumisen muodot. Sen sijaan kieltenopiskelijoiden suunnitelmissa korostuvat modernin ajattelutavan (emt.) piirteet: yksilön asiantuntijuus, suljetut oppimisen tilat ja kontrolli. Näissä suunnitelmissa asiantuntijuus näyttäytyi ensisijaisesti opettajan ominaisuutena. Digitaalisten teknologioiden hyödyntäminen sijoittui yleensä tiettyyn, ennalta määritettyyn paikkaan (esim. kielistudio, atk-luokka) ja näyttäytyi irrallisena pedagogisen suunnittelun muista osa-alueista (esim. osaamistavoitteet, arviointi).

Tulokset indikoivat, että tulevat kielten opettajat päätyvät helposti toistamaan omana kouluaikanaan oppimia malleja, ellei opettajankoulutus haasta kriittisesti pohtimaan opettamiseen ja oppimiseen liittyviä ajattelutapoja. Näihin ajattelutapoihin liittyy myös käsitys kielestä ja kielen oppimisesta.

Kieltenopiskelijoiden suhtautuminen teknologian hyödyntämiseen opetuksessa liittyi ensisijaisesti siihen, tulisiko teknologiaa hyödyntää vai ei sen sijaan, että olisi pohdittu miksi teknologiaa voisi olla tarpeen hyödyntää, mihin tarkoitukseen ja miten.

Opetuksen suunnittelun näkökulmasta tuloksia voidaan tarkastella kahden näkökulman kautta. Adaptiivisesta näkökulmasta tarkasteltuna suunnitelma nähdään kertaluonteisena produktina kun taas transformatiivisesta näkökulmasta katsottuna suunnitelma nähdään prosessina. Toteutuvassa suunnitelmassa oppijat voidaan nähdä joko vastaanottajina tai aktiivisina kanssasuun-

nittelijoina. Toteutunutta suunnitelmaa analysoitaessa poikkeamat alkuperäisestä suunnitelmasta voidaan nähdä joko häiriöinä (epäonnistumisina) tai oppimisen lähtökohtina.

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ORIGINAL PAPERS

I

CHANGING SOCIETY - CHANGING LANGUAGE LEARNING AND TEACHING PRACTICES?

by

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Changing society – changing language learning and teaching practices?

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Abstract

Swift and unexpected changes have taken place in society over the past few decades: globalisation, increasing mobility, labour market changes and fast technological development have transformed society, making it multicultural, multilingual and multimodal. Education – and here above all language education – is at the centre of most societal activities and should be able to react to the changes quickly and flexibly. However, the changes in education are slow, and the views of the parties involved in the various levels of education as to the changes and their consequences do not always correspond. The purpose of this article is to outline the field of language education in the midst of the current societal changes through the conceptions and activities of three different actor levels: teacher educators, practising teachers, and student teachers (i.e. future teachers). The article draws from the results of two studies. The first is used to outline the different actors' conceptions of the on-going societal changes and their effects on language education. In the second study, we will take a closer look at the phenomena behind the findings presented in the first study. More specifically, the aim is to examine the media uses, conceptions and mindsets from the perspective of the future teachers.

1 Starting points

Language education is facing remarkable pressures for change; such factors as technological development and globalisation have strongly affected our use of language in terms of how, why and when. Technologisation alone has greatly changed the way in which our social networks are shaped and developed, and the way in which we study or work (see for instance, Cope & Kalantzis, 2000; Kalantzis & Cope 2008a, 2008b; Gee 2003, 2004; Hargreaves, 2003; Jenkins, 2006; Kern, 2000; Pennycook, 2010). The conception of knowledge has simultaneously changed: an increasing number of people have access to information and knowledge, and particularly in the Western societies we are also relatively free to produce and share information. The interpretation by Lankshear and Knobel (2003) of two parallel but conflicting mindsets gives reason for reflection. In the world of mindset 1, people operate in a traditional way, and technology has primarily an instrumental value. It enables the use of new kinds of communication media and ensures that citizens have access to information, but the conceptions regarding the nature of knowledge and learning have remained largely unchanged. In this society products are still material, and society aims to educate citizens who have sufficient knowledge and skills to produce these products. The world thus appears rather similar to what it used to be; it is only slightly more technological. By contrast, mindset 2 of a post-industrial knowledge society differs, according to the authors, fundamentally from mindset 1. This new world is characterised by unpredictability and change. In addition to material products, the operation of societies is increasingly based on immaterial products, and their character and diversity are

difficult to predict. Economic success increasingly depends on one's ability to create, productise and sell different services, expertise, knowledge and skills. The entire society operates in a more networked and collaborative manner. Indeed, knowledge and expertise are not possessed only by individuals but ever increasingly by communities. The nature of knowledge is collective and shared, no longer stable, ad hoc and bound to institutions.

In a post-industrial knowledge society, technology does not only have instrumental value, but it affects above all people's activities with texts, language and other people (see also Kress, 2003). The operating culture is characterised by interaction, speed and multimodality. It is important to understand that people's participation in different multilingual and -cultural communities also shapes their identities and relationship to the surrounding world. This further changes and develops the way in which individuals interpret the world and participate in it in different languages and media (see e.g. Lankshear & Knobel, 2006; Kern, 2000). These kinds of practices related to communication and the use of languages should not remain too distant from language (including mother tongue) teaching at schools, and they should not be seen as separate and irrelevant from the point of view of learning and competence. Similar ideas have been presented by Scardamalia and Bereiter when they highlight the static attitude of schools to information and knowledge (see e.g. Scardamalia & Bereiter, 2006). They talk about 'knowledge of' and 'knowledge about' as two very different approaches to teaching and learning. They claim that the content offered at school is superficially 'nailed' to texts books, exams and curricula, which only seldom is constructed into authentic and meaningful knowledge for the pupil.

Extensive investments have been made in Finland in developing schools' information technology connections and teachers' IT skills. Unfortunately these investments have not had a sustainable impact on pedagogical thinking in schools. According to recent studies, particularly language and mathematics teachers utilise the various media in teaching only infrequently (see Kankaanranta & Puhakka, 2008; Kankaanranta & Ilomäki, 2009). The studies concerning language (including mother tongue) teachers also demonstrate that teachers have relatively little knowledge, in particular, of the social and multilingual uses of the various media (Luukka et al., 2008). One can assume this to be partly due to the fact that teachers simply have not seen the additional value of technology in their classrooms, nor have they experienced technology as an essential part of their teacher identity and pedagogical thinking. However, as the various media are an increasingly natural part of our lives (see for instance, Leppänen et al., 2011), we language teachers should at least begin to look for ways of bringing pupils' experiences of media use in their leisure, as well as their language use experiences, closer to the classroom. Our aim is to unravel practitioners' understanding of the societal changes taking place around us, and to explore how they reflect on their relationship to the changes and their ways of action in the midst of these.

3 Material and methods

3.1 Study 1

The objective of the first study was, on the one hand, to identify societal changes that presently affect language teaching and, on the other, to study how these changes are recognised in teacher education and in schools, how their existence is acknowledged, and how they are reacted to by

practitioners. Our aim was to stimulate discussion between the actors at the various levels of language education. The data were collected in March-April 2011 from language teacher educators, practising language teachers and student teachers in languages with an online questionnaire. As this was a pilot study, the number of respondents in each group was intentionally limited to 10–12 (33 in total), and all of them came from Central Finland.

The questionnaire was outlined to include three content sections: (1) awareness of the notion of changes to teaching and learning in general, (2) attitude to these recognised changes and ways of dealing with them in the workplace, and (3) main changes and their effects on existing practices in the classroom. In the first section, the respondents were asked what societal changes they thought were taking place and how these changes affect the future of language learning and teaching as well as teacher education. The second section included statements to which the respondents used a 5-point Likert scale for their replies. These statements were about whether teacher education and/or in-service training offered tools for coping with these changes. Some statements were attitudinal probes to the use and integration of technology in teaching and learning. In the third section, the respondents were asked to identify the most central on-going change and its impact on their own language learning and teaching practices. The questionnaires were largely similar for all three responder groups, but questions were naturally modified to accommodate for the context of each three groups. All three questionnaires were in Finnish and were created by using the Webropol online questionnaire tool. For the purposes of this article the questions and responses were translated by the authors.

The open-ended answers were analysed using content analysis, i.e. grouping the answers into thematic categories. The approach here is qualitative with the focus being on what themes come up in the responses and how the different groups weight them in their answers. Thus no quantitative comparisons between the groups were made. The sections with Likert scales were numerically processed. The numerical data were analysed using descriptive statistics, i.e. frequencies and percentages. Due to the small number of participants in each group, the groups were not statistically compared. The purpose of the analysis of this pilot sample was to uncover trends that could be further studied with larger groups of participants and therefore statistical significance was not sought.

3.2 Study 2

In the second, longitudinal study, we have observed the development of language students' pedagogical thinking in relation to the utilisation of ICT in language teaching. The research data have been collected since autumn semester 2009 in the 'Common European Framework of Reference for Languages and ELP' course organised by the University of Jyväskylä's Department of Languages. The course is attended yearly by dozens of students of foreign languages and Finnish, of whom 30 are presently participating in this study.

In the course, the students work on a concrete course plan for vocational education and examine how different perspectives (contents, objectives, assessment, learning environments) are concretised in the course plan. In their blogs the students simultaneously reflect on the things they may have realised while examining the plans from different perspectives. Student reflection

has also been supported through online discussions, in which the participants can exchange ideas as to the critical points in planning and take new initiatives regarding the teaching practices.

The online learning environment included in the course has been developed at the University of Jyväskylä since 2003. This learning environment has enabled us to develop the linear course design toward a more multilayered structure. The content of the online module consists of materials and assignments related to the pedagogical use of technology, assessment, and conceptions of language learning. The primary aim has been to find modes of study that would motivate students to think about the potential of new teaching models – but also to model good practices in multimodal pedagogy[i].

The data consist of course plans devised by these 30 students and of different assignments implemented in online learning environments (e.g. online discussions and blog entries). For the purposes of this article the responses were translated by the authors.

The aim of the study is to investigate the pedagogical designs that future teachers have created on this particular course. For this article, the following research questions are proposed:

1. Who has expertise in a language classroom? How is expertise manifested?

2. Do future teachers use technology in a classroom context? What purposes is technology used for?

3. What elements promote/hinder the pedagogical use of technology in language teaching?

The data have been analysed with the methods of qualitative content analysis in two phases. First, the data have been thematically categorised. Then, the themes emerging in the first phase have been studied against the research questions. The trends that apply to the whole data are reported in this article.

4 Changing society

This section presents the outcomes of the first study, grouped according to the content areas of the questionnaire: awareness, attitudes, and effects.

4.1 Awareness of changes

The results of the first content section in the questionnaire demonstrate that the actors at different levels perceive the changes, to some extent, in differing ways, each group naturally from their own perspectives. The answers did share some common features, but also brought out some interesting differences. These will be dealt in more detail below.

Multiculturalism and globalisation were changes that were highlighted as the most prominent ones in the responses of the teacher educators. It is curious here that even though multiculturalism is highlighted by most of the respondents in this group, multilingualism[ii] is not mentioned at all. Another theme that was brought up in the responses was an increasing social

inequality; in other words, the growing gap between the privileged and the underprivileged. It is again noteworthy that technological changes were almost completely ignored.

The practising teachers found that the most essential change was a growing social inequality and related changes in individuals' attitudes and values. Globalisation, internationality, technology and social media were also themes spotlighted in the answers. Some of the teachers also regarded the changes taking place in working life as a factor worth mentioning.

The future teachers emphasised the 'increasingly inhumane' social values and the changes in individual attitudes and values in their answers. Unlike the teacher educators and teachers, these student teachers frequently mentioned technological changes but multiculturalism only seldom. Consistent with previous studies (Luukka et al., 2008; Leppänen et al., 2011), we can also note that the changes associated with technology most closely touch young people. It is noteworthy that this was the only group that also regarded the changes as opportunities. In other words, the student teacher group had at least a partly positive attitude toward the changes, whereas the teacher educators and teachers often saw them in a negative light, almost as threats.

Thus it appears that all of the groups recognise similar changes in society but the weight that is given to each change varies between the groups. Teacher educators raise multiculturalism as a prominent change, teachers growing inequality, and student teachers the inhumane social values.

4.2 Attitude to changes

In the second section of the questionnaire, we focused on finding out how the respondents thought the identified social changes affect language education, as well as what their attitudes to the changes are.

One of the effects that the teacher educators highlighted was the danger that studying languages would no longer be valued and that the differences between 'good' and 'bad' schools would result in increasing differences in pupils' language competence levels. On the other hand, they thought that language teaching should be more holistic and that it, on the whole, is undergoing a phase of fundamental change. One should increasingly reflect on which languages to teach, to whom, at which educational levels, and how.

The ideas of the practising teachers seemed to be welling up – perhaps even naturally – from everyday activities. These teachers believed that, in parallel with the changes taking place in society, the use of technology should be increased in education and the focus of language teaching shifted toward communication and oral language competence. However, the teachers also shared the teacher educators' concern about students' declining interest in studying languages.

The future teachers' views differed rather clearly from both of the other groups' views. They thought that the most significant impact of societal change on teaching is manifested as growing requirements and heaviness of work. They also expressed their concern about pupils becoming more demanding along with the changes. Their ideas are clearly edged with a worry over their

own ability to meet the requirements of their future profession and with insecurity about the future.

The second section of the questionnaire also mapped the respondents' attitudes toward the consequences of the changes taking place in society. These results are presented in Figures 1, 2 and 3. Figure 1 represents the various actors' ideas of the role of language learning and their attitude toward migrants and multidisciplinary cooperation. Again the groups are not statistically compared. The percentages are meant to show tendencies in the responses of the different groups.

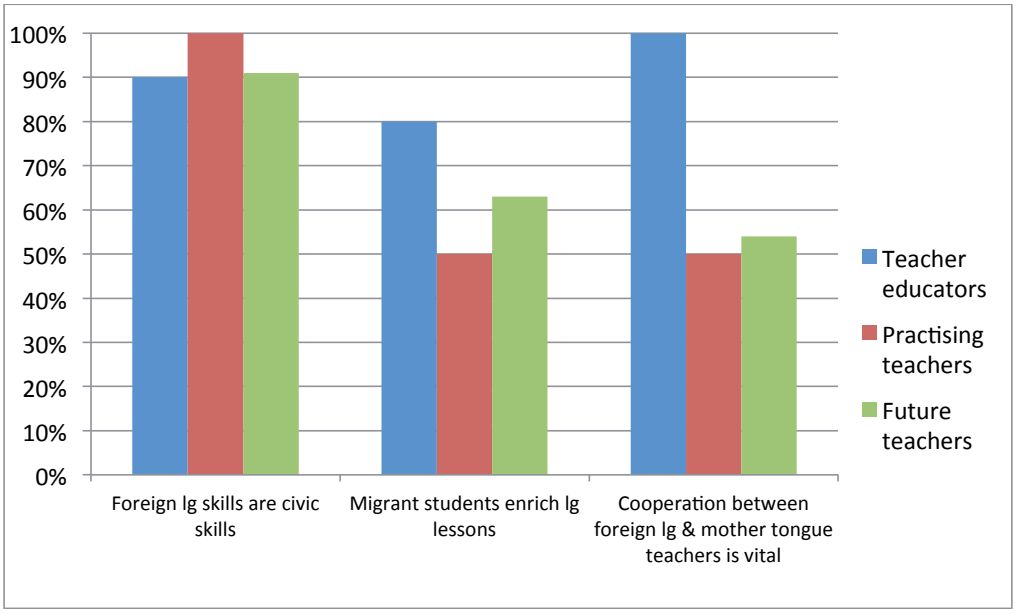

Figure 1. Respondents' ideas of the role of language learning and attitudes toward migrants and multidisciplinary cooperation

Figure 1 illustrates that all of the groups almost unanimously regarded foreign language skills as civic skills necessary for acting in society. The practising teachers held to this opinion even more often than the other groups. The attitudes toward migrant students in language lessons varied to some extent: the teacher educators' outlooks were the most positive and the practising teachers' the most negative. The teachers-to-be were placed between the two extremes. This may demonstrate how practical experience in teaching influences attitudes. As regards cooperation between mother tongue and foreign language teachers, the teacher educators' attitudes were unanimously positive. This attitude differed significantly from the outlook of the practising and future teachers: only approximately half of them regarded this kind of collaboration as indispensable. Does this mean that teacher education and school reality do not meet?

Figure 2 presents the distributions of statements concerning young people's language skills and use of technology.

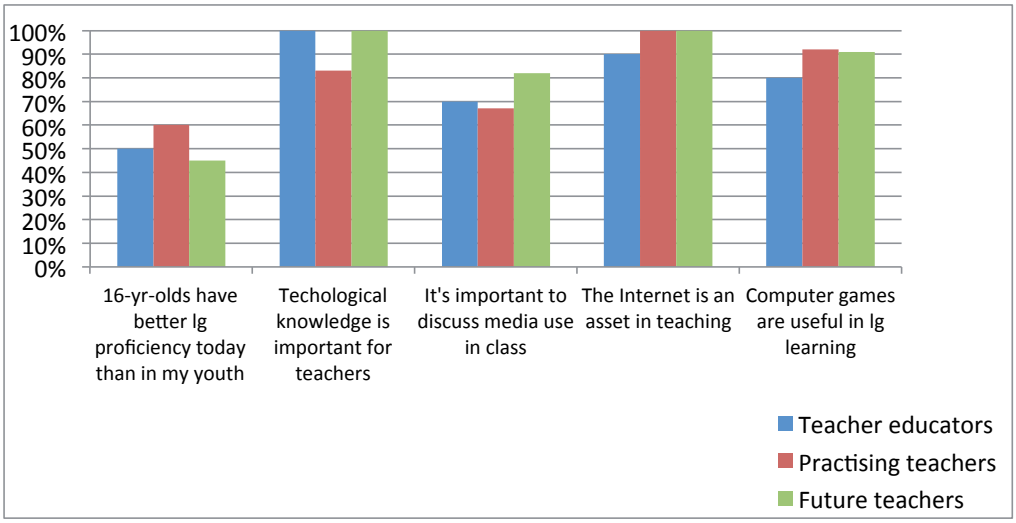

Figure 2. Distributions of statements concerning young people's language skills and use of technology.

Sixty percent of the teachers felt that today's 16-year-olds demonstrate better language skills than the teachers themselves at the same age, whereas the teacher educators and future teachers slightly less often thought so. Based on the statements concerning technology and media, we can summarise that all of the groups had a positive attitude toward them. The teachers' attitudes were the most positive on most of the questions. The teachers agreed slightly less than the other two groups only on the statement *technological knowledge is important for teachers*. Discussing media use in class was more important for the future teachers than for the others. The teacher educators, on the other hand, were slightly less in favour of the pedagogical use of the Internet and computer games than the practising and future teachers (cf. also Luukka et al., 2008).

The respondents were also presented statements concerning the role of either teacher education or in-service education in preparing teachers, teacher educators and student teachers for the changes taking place in society. Here the questions were different for the different groups: the question for the student teachers included teacher education both in their subject studies and in pedagogical studies, and for the practising teachers and teacher educators the question concerned in-service training only. Only 30 % of the teacher educators and 36 % of teachers were of the opinion that in-service training gives tools to cope with the changes in society. This is alarming and can either indicate that the amount of in-service training, on the whole, is insufficient, or that the educational contents do not meet current needs.

Figure 3 presents the student teachers' opinion concerning the role of teacher education, both in their subject studies and in pedagogical studies, to equip them with tools to cope with societal changes.

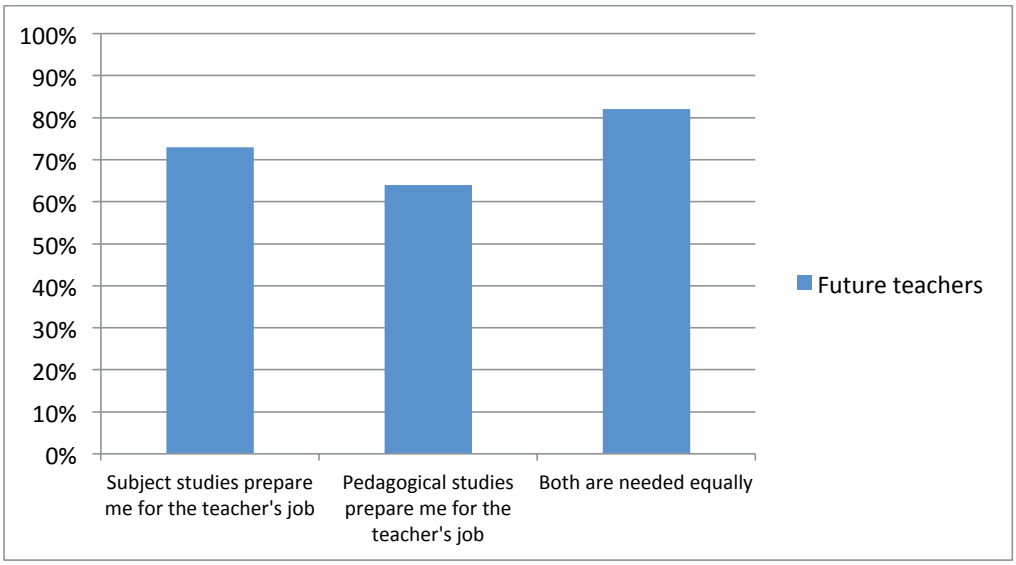

Figure 3. Student teachers' opinions on the role of teacher education in providing tools to cope with societal changes

From the perspective of organising teacher education, it was gratifying to note that the student teachers found both their subject studies and pedagogical studies useful for their future teaching profession, and the subject studies were even regarded as slightly more useful. As the sample was small and all of the respondents were students at the University of Jyväskylä, the result only tells about this unit's teaching arrangements and contents. However, the qualitative data collected from the same context (Jalkanen, 2010) strongly indicates that teacher education does not prepare future teachers to, for example, meet the challenges related to the pedagogical use of technology. The respondents may have found subject studies beneficial for their future teaching profession partly because of the fact that the University of Jyväskylä has persistently developed 'direct selection' to teacher education, which allows student teachers to orientate toward language teaching at an early stage in their studies.

5 The changing language learning landscape

So far we have been outlining the views of the various parties involved in language education regarding the on-going societal changes and transitions, as well as their relationship to these changes and conceptions of their impact on language education. In this section we will focus on exploring how the changes in society are manifested in teaching practices, and even in practical activities. First we will examine the various actors' own practices at a general level based on a

survey (study 1), and then concentrate more thoroughly on the future teachers' views regarding the designs for language teaching and learning (study 2).

5.1 Changing practices?

In light of our results, the teacher educators, practising teachers and future teachers all seem to be aware of the present societal changes, even though their conceptions differ to some extent – both from each other's and from the presuppositions we as researchers had. It is of primary importance to hear from the actors themselves which of the changes they find the most critical with regard to their own activities, instead of relying on changes that have generally been postulated, even in research (such as globalisation, technologisation, multiculturalism). Which changes do the respondents then regard as the most crucial, and how have these changes affected their own practices as well as the practices in language learning and teaching at a more general level?

The teacher educators and practising teachers highlighted in their answers the same two changes as the most crucial: growing inequality and technological changes. In the student teachers' answers, technological changes were also ranked first, but they considered the inhumane values gaining more ground in society to be a visible change as well.

When asked about their own teaching and learning practices, the teacher educators brought to the fore the following experiences: as a consequence of the changes, one is forced to continuously develop oneself and re-evaluate one's practices, as well as to react to the development at school and in society; this also seems to require the adoption of a new mindset, which is not quite easy.

The practising teachers found that the changes directly affect the languages taught at school, reducing the language offerings. On the other hand, they also thought that the utilisation of technology in education has increased. The student teachers highlighted as a changed practice the increased use of technology both in their personal lives and at school.

As the respondents were specifically asked about the potential effects of technological change on language education, interesting and clear differences could be observed between the three groups. The teacher educators found that no effects could be noticed, at least not yet. The practising teachers found that technological innovations are more commonly utilised in schools, but that this is not yet visible in teacher education. According to the student teachers' views, technology has certainly affected language learning, particularly through the everyday utilisation of technology, but it has had no impact at all on language teaching

5.2 Change in the making?

The results of the first part leave many questions unanswered. In order to get a more holistic view of the on-going changes and their impact on language teaching there is a need to look at the actual design work of future teachers. In this section we will present the results from our second study and aim at illustrating how the results from study 1 are translated into teaching activities. We realize that the plans do not translate into action until the actual teaching situation that is a complex and multidimensional event. In the light of our research questions (described in section

3.2) it is our aim here to investigate how future teachers plan their teaching activities and what kind of discussions take place around the design work.

5.2.1 Expertise

The data strongly echo the idea of the teacher as the gatekeeper of information (cf. Scardamalia & Bereiter 2006). In the course plans, this is manifested by the assignments given to the learners: the plans typically enable the teachers – and often also the learners – to stay in their own comfort zones. Expertise clearly appears in the data as a property of the teacher, even if 'enhancing professional competence' were listed among the objectives in the students' course plans.

Several student teachers share the concern that the use of ICT could weaken teachers' expert role. This concern is curious, because it is associated with one of the subareas of teachers' expertise in the new millennium. Australian researchers Kalantzis and Cope (2008a) have suggested that teachers' 'new' expertise consists of the ability to operate in different environments, which are characterised by such things as shared expertise. As illustrated by the following example, it seems to be an unpleasant idea for the future teachers to think that the learner would know the applied technology better than the teacher:

> "Many pupils or students can find the teacher's attempts to use the computer as one-sided and awkward – particularly if the pupils spend a lot of their free time using IT applications and clearly know more than the teacher." (K10-02-T1)

The data often explicitly refer to teaching. As shown by the following example, (future) teachers are often interested in technology and use it abundantly in their leisure; this has also been evidenced in other recent research (see for instance Luukka et al., 2008; Taalas, 2005). Nevertheless, the respondents do not feel that technology promotes language teaching in practice.

> "Even though I'm interested in IT and use it a lot, I've never felt it would significantly improve language teaching in actual teaching situations." (K10-02-T1)

This is in line with the results of the survey presented in the first section of this article: the change processes have affected language learning – but not teaching. This can result from the fact that the use of technology in the language classroom is teacher-driven, whereby the teacher provides the learners with access to a specific resource, irrespective of whether this is material or a tool. In reality, an approach like this does not promote the idea that the learners construct their ownership in relation to the activity and environment in question.

Particular attention has been paid to the following perspectives: in what kind of spaces do the learning activities take place and who carries out the action in a school context. In the following excerpt, the student teacher contrasts 'traditional teaching' with technology-oriented teaching. However, a closer examination of the example still reveals that it is not necessarily a question of media choice, but rather of 'who the agent is': in the student's example, the pupils get the opportunity to write on the blackboard, whereas the 'power points' mentioned by the student could be understood to refer to the teacher's activities.

> "On the other hand, there's the danger that pupils tire of continuous technology-centred lessons. In my classes I've let pupils come and write answers on the blackboard; their feedback on this was that writing on the blackboard was real fun as an alternative to the constant 'power points'. I do think technology is a genuinely good thing in teaching, provided that you can find a balance between 'traditional teaching' and technology-oriented teaching." (K09-06-T1)

When the student teachers speak about the utilisation of technology, the teacher is often the agent. The learner is seldom assigned the role of an active information processor or producer. Rethinking the roles of teacher and learner is one prerequisite for innovative teaching and learning models (Jalkanen & Toomar, 2011; Lipponen & Kumpulainen, 2011).

5.2.2 Traditional mindsets

In the beginning of this article we described the two mindsets proposed by Lankshear and Knobel (2006). At the beginning of the course (described in section 3.2) the student teachers were asked to reflect on their own relationship to the utilisation of technology in language teaching, and to briefly tell about their own experiences as technology users. These were compared to the participants' later blog entries, online discussions and course plans in order to capture the participants' perceptions of technologies, language and language learning.

Taken into account that during their (university) studies students are being informed of the latest learning theories, it is interesting in the student teachers' responses that their mindsets in terms of language and learning seem to be very traditional. Even though some of the participants also try to accomplish innovative solutions in their course plans, their blog entries, online discussions and course plans still echo a concern as to whether the learners also will have access to 'traditional' teaching.

> "My own relationship to IT as a pedagogical tool is quite positive. One must keep up with development and adapt to new challenges, be constantly well-informed. IT can be utilised in order to add different intriguing dimensions to teaching and learning, and to add variety to pedagogical practices. Of course, it should not outcompete 'traditional' teaching, but they should exist side by side." (K10-08-T1)

In other words, it seems that student teachers are lacking confidence as regards the sufficiency of the new pedagogical models. It occasionally even seems that they feel somehow guilty if they do something less traditional in class. One of the students reflects on the phenomenon as follows:

> "Perhaps the most important thing I learned through the planning assignment was that I am not the only one with a slightly… if not suspicious, at least… contradictory attitude toward the potential uses of technology in education. One could commonly see in the assignments that the use of technology at some level is almost self-evident. Even if it had not been explicitly told in the data collection section that the pupils would use the Internet, what else could it have meant? In practice, it is unavoidable that at that stage the pupils rush to Google and Wikipedia. For many of us, technology is thus so useful and self-evident that we don't feel it's necessary to expressly say it aloud. That's why it is

> extremely interesting that many of us shun the use of IT in the classroom. I don't know if this is due to reflections from our own school years or to the characteristics of educational philosophies; in any case, we really often heard speeches for the defence of 'traditional' methods." (S10-10-K2)

Data acquisition is a central way of action in almost all of the course plans, and the development of data acquisition skills and source criticism has commonly been mentioned as an objective in the plans as well as in the students' online discussions. However, it is worth noting that only in very few plans are these skills systematically developed. Data acquisition is carried out in the plans mainly in two ways: the learners are either assigned to independently search for information on the Internet, or they are to locate online pieces of information that the teacher has in advance sought for them, like in the following example:

> "One problem in the use of IT is exactly how and from where the material is chosen. The actual data collection can begin to wildly meander in class, if the teacher does not sufficiently clarify in advance what they want to show the students, for instance, on the Internet." (K10-07-T1)

The example distinctly elucidates that the focus is on contents, not on developing data acquisition skills (for similar results, see Taalas, 2005: 143–144). Of course, it is evident that goal-oriented planning is needed in order to achieve additional value, and predefined contents sometimes facilitate the management of teaching situations. The essential point is what kinds of objectives are determined for teaching and learning. The development of data acquisition skills also calls for systematic training. However, the kind of approach described above does not help students to control the information flow around them, nor does it prepare them for the knowledge society.

None of the respondents explicitly state what they mean by 'traditional', but based on the analysis of the course plans it can be argued that traditional in this context indicates the teaching methods students have acquired during their own studies.

5.2.3 Learning or entertainment?

Taalas (2005) has made a distinction between the *add-in* and *add-on* use of technology. The distinction can also be applied to examine the role of technology in this context. With *add-in use* the author refers to such use of technology in which the applied technology is integrated into the activities and goals, and is thus an integral part of the learning environment. However, it seems that the participants in our study mainly saw technology as something disconnected, extra, an *add-on*. Technology is often used as a diversion in teaching:

> "I would be very willing to use IT as an aid in my teaching. If only the classroom allowed me to do so, I think I would use IT to some extent in every lesson. A brief music video to break the ice, language drills, newspapers in the target language... I don't mean that all of the learners should have a personal computer under their noses, but one computer and video projector would do." (K10-17-T1)

The example also demonstrates that it is the teacher who manages the activities by presenting the learners contents from his/her computer via the beamer. It is also interesting how the gap between school and young people's modes of action in their leisure is concretised in the participants' perceptions. One participant's statement in the following extract shows that the direction of influence is clearly from school to leisure:

> "I think that IT provides greater depth in teaching and helps us get closer to today's adolescents – teenagers spend a lot of time on the computer anyway, so they might accidentally also have a look at the websites handled in class." (K10-17-T1)

In the data, the role of technology is twofold: it either does not benefit teaching at all or its utilisation automatically motivates learners. This is visible in some course plans, for example, so that the choice of technology has not been planned in relation to the activities and objectives; as a consequence, the idea of broadening the learning spaces is concretised by booking a computer classroom for work. The choice of medium commonly appears in the material so that when one returns to 'traditional teaching', a more traditional medium is also adopted – in the following extract, the blackboard:

> "I believe that in the future I will also utilise the net, the language studio and a video projector. Of course, more or less, I still want that the sentences in assignments are written on the blackboard, so that I can 'play' a little with coloured pieces of chalk while correcting the sentences. :) But at the moment I'm particularly interested in the SMART Board, which has been advertised on TV and newspapers. I've heard there are now such things in some classrooms at our teacher training school, and it would be really interesting to see and try one." (K10-03-T1)

SmartBoards are found to be fascinating and there is an interest to try them. This opportunity has been provided at least at the University of Jyväskylä's Teacher Training School. However, it is still problematic that this kind of user training that focuses only on one medium, in which the examples given have scarcely been planned from a pedagogical perspective, easily remains distant from real-life teaching situations and their objectives. The following example illustrates that, in addition to developing the users' technological skills, there is a distinct need to discuss, as a whole, the basic reasons for using technology:

> "I find technology a good servant but a bad master. Its use should not be opposed just for the fun of conservatism, but there are too many experiences of how teachers' insufficient IT skills only impair learning. It makes me wonder if technology occasionally is used just because a) that is simply what we are expected to do, or because b) it is so cool and gives us street cred. Things can be taught in different ways, but if something works well, why should we change it?" (K10-04-T1)

In a way the question is returned to the definition of objectives and teachers' expertise: what is the purpose of the activity, who is the active agent, and what kind of expertise are the different agents expected to have at the different stages of the activities?

5.2.4 From objectives to activities

One key result at this stage is that, in many cases, the objectives are not translated into activities at all. For example, the course plan may include the objective of promoting professional competence and lifelong learning, but the activities performed include mechanical vocabulary exercises and grammar tests. It is thought-provoking that even though the focus is on planning a course for vocational education, the connection of language proficiency and its development to vocational competence is chiefly manifested at the level of learning field-specific terminology.

Nearly all of the plans concentrated on activities within one's own subject. One student actually planned to integrate the language portfolio course with a basic IT course in order to free resources for the technical implementation of course projects. Cooperation between different subjects is highlighted in the discussions but not in the plans.

As the main benefits of technology-assisted learning, the data highlight flexibility in terms of time and place, and the authenticity of materials (from Internet sources). A closer analysis of the plans shows that the utilisation of the tools is seldom linked to the objectives and assessment. A new medium frequently replaces the former one, and the activities performed around the contents remain unchanged. Language learning outside of school is mentioned in some of the plans, but it is not systematically developed as an integral part of learning at school. Technology is commonly used for entertainment purposes, as is also stated by one of the participants:

> "I admit that I like to try and take technology into account when planning my courses, but I usually don't have a pedagogical reason for it – I do so to have some variety in the classes." (S10-14-K1)

We do not intend to claim that learning should not be entertaining. However, it is essential to pay attention to the fact that learning is not set as the objective of technology utilisation – which is, after all, typical of informal learning. The above student later notes:

> "I think teacher education offers no tools for teaching technology, but each student is personally responsible for it. Teacher education does present some ways of utilising IT (chiefly the Smart Board), but no time is reserved for learning how to use it. – – I find that it would be easier for teachers to enhance the utilisation of IT in their teaching if they received collegial support, as I might not be the only one whose IT skills are still very much in its infancy." (S10-14-K1)

The role of teacher education as a change agent is also highlighted in the other student teachers' comments.

5.2.5 Room for discussion

In the midst of all the development, it is good to remember that the focus is not always on inventing something new, but also on exploiting good old ideas as parts of a goal-oriented continuum. The following student comment is an example of this:

> "All things considered, this online course discussion forum is a really great idea for sharing experiences, opinions and ideas. It is nice to hear the others' experiences of the topics and get good, innovative tips to be applied later. It's true that networking is also otherwise a 'must' today! ;)" (S10-15-K1)

In addition to instructed discussion assignments, the student teachers got carried away discussing the pedagogical use of technology and related challenges, and sharing good practices. There was clearly need for this kind of discussion, which made it genuinely meaningful for the participants. In this case the course and its online environment offered a natural forum for the discussion. One of the participants reflected on her own work in the course as follows:

> "This kind of online discussion enables co-reflection and co-learning. The knowledge construction process will in any case be recorded for observation by us students and by the teacher." (S10-08-K1)

The student teachers clearly believe in change. However, it seems that there are insufficient resources for changing deeply-rooted teaching cultures and practices – which is actually no wonder, as the change would involve re-thinking the entire multi-level system. There is certainly need for structures that promote change in teacher education, and this research project is one concrete initiative to that end.

6 In conclusion

Based on the two studies presented in this article, it seems that the different parties involved in language education have different ideas of the changes taking place in society, as well as of their effects both on their own activities and on language education in general. The student teachers were the most optimistic about the opportunities provided by the changes – in other words, they also saw these changes as opportunities, not only as threats. On the other hand, they were concerned about their future work and the continuously growing demands. Currently practising teachers had the most concerns about changes that are clearly visible in their daily work, such as pupils' decreasing interest in language studies and everyday problems in class. As for the teacher educators, they were perhaps the most conscious of and concerned about the changes and their effects. They also reflected more on the practices and the implications of the changes for teacher education. Neither the teachers nor the teacher educators felt that in-service training meets the current needs, which is probably indicative of current developmental needs. It is alarming from the perspective of language teaching that multiculturalism was frequently mentioned in the participants' answers, but not multilingualism as its consequence. From the standpoint of ICT, it is interesting that the teacher educators admitted that knowledge of technology is an essential element of teacher's professional competence, but they also stated that technological changes are not yet visible in language education. This may result from the fact that there still are but few structures that support the pedagogical use of ICT in teacher education. Based on the results of our second study, it seems that the student teachers feel that they are insufficiently supported in teacher education in order to be empowered as designers and implementers of innovative pedagogical models. This study strongly highlights that the student teachers repeat the practices and mindsets they have acquired during their studies (for similar results, see for instance Jalkanen, 2010). Teacher's changing expertise is crystallised as the core of both of our studies.

Different strategies and initiatives have long tried to portray and promote the future knowledge society. In order to achieve the goals set in these strategies, permanent and systemic structures are needed in teacher education. These structures will support the growth of expertise in teaching and offer future teachers the resources for which they are ready at the different stages of their studies. For instance, the system of direct selection to teacher education enables orientation to a teaching career at an early stage of the studies. More dialogue between the various parties involved in language education is also needed, as the readiness to respond to the changes calls for a shared idea of the ongoing social changes and their implications for language education. Our case example (study 2) comes from a subject department course; in the future, it will be necessary to outline the student teachers' learning path as a whole, to reinforce the bridges between the subject departments and the teacher education department, and to try to ensure that all aspiring teachers, at some stage of their studies, are familiarised with the themes (and even have a chance to internalise them) that we identify as the core areas of expertise in teaching. We need space and opportunities for the problematisation and collaborative development of these central themes, as well as dynamic operating environments, in which student teachers have the opportunity to try novel teaching practices under supervision and guidance. It is also of utmost importance that the student teachers are provided with practical examples of how the boundaries of traditional teaching can be crossed and broadened. The way they themselves have been taught simply will not cut it anymore, and the student teachers will need time and space for both realising that and for developing their own pedagogical identities. Agency to function in dynamic learning environments, which is the foundation for future teachers' expertise, should be promoted throughout the entire learning path. Efficient teacher education should naturally also be supported through systematic in-service training.

Changes in society are inevitable and unpredictable, and many of these have significant repercussions on language education. It is essential that the parties involved in language education are engaged in a constant dialogue. This is a must if we want to ensure a common understanding of the changes affecting language teaching. We need a willingness to continuous reassessment of language learning and language teaching practices across all stages of language education.

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[i] In this arcticle, we use the concept of multimodal pedagogy which means that the different technologies and media are used for designing for learning, the terminology is thus not limited to learning technologies as such. See for instance, Taalas (2005).

[ii] We use the term ”multilingualism” to refer to the societies and not to individuals (cf. plurilingualism)

II

FUTURE LANGUAGE TEACHERS' PEDAGOGICAL LANDSCAPES DURING THEIR SUBJECT STUDIES

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Future language teachers' pedagogical landscapes during their subject studies

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ABSTRACT

This article examines the experiences, attitudes and perceptions language students have regarding the use of ICT in language teaching. In addition, the article analyses the key characteristics of language students' pedagogical designs. The data come from a pedagogically oriented subject-studies course that focuses on the Common European Framework of Reference for Languages and the European Language Portfolio. The data, which consist of language students' reflections and course plans, have been analysed using qualitative content analysis. The findings imply that language students' pedagogical landscapes reflect their own experiences as learners. Furthermore, the literacy practices in language students' designs are mainly static and do not respond to the needs of the knowledge society.

Keywords

pedagogical designs, literacy practices, language teaching, ICT use

INTRODUCTION

It has been posited that there is the danger of a vicious circle within teacher education. If the education of future teachers does not challenge the practices teachers are socialized into during their formal studies, they will easily end up repeating these practices in their own classrooms without critically reflecting on them (Ruohotie-Lyhty & Kaikkonen, 2009; Taalas, Kauppinen, Tarnanen, & Pöyhönen, 2008). In the case of ICT, the issue is that student teachers may lack, as teachers and as learners, experiences of systemic pedagogical designs in technology-rich environments.

The current technology-rich environment affords a multitude of ways in which the pedagogical setting can be orchestrated using the tools and spaces available within different contexts. Pedagogically meaningful use of these artefacts requires an understanding of the roles and processes that constitute the pedagogical event and an informed design for them that is in line with the learning objectives (Lund & Hauge, 2011). Biggs (1996) uses the term *constructive alignment* to make a point regarding the importance of a systemic view of the

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pedagogical setting. In this line of thinking, objectives, modes of working, available (social and material) resources and assessment practices are aligned, that is, they support each other.

This article examines the pedagogical landscapes of language students. It attempts to illuminate the trajectories of pedagogical design practices in technology-rich environments. The motivation for the study stems from the need to develop the expertise of future language teachers in what Taalas (2005) calls multimodal pedagogy. In other words, language teachers need to be able to build the learning tools, working modes and the use of different media around the learning process – not around the learning content – in order to address both individual and group learning needs.

Language teacher education in Finland consists of subject studies (organized by the subject department) and pedagogical studies (organized by the department of teacher education). Due to the fact that so many language students become teachers, the trend has been, to some extent, to incorporate the pedagogical approach to language and language learning in the subject studies as well. The study reported in this article is based on the data collected from a pedagogically oriented course organized by the subject department. The data consist of language students' reflections and course plans. The article's aim is to map the participants' pedagogical landscapes[1] by first examining the language students' experiences, attitudes and perceptions of ICT in language teaching and then by analysing the students' pedagogical construction of course plans. The research questions are as follows:

1 What kinds of experiences, attitudes and perceptions do the language students have regarding the educational use of ICT?

2 What are the key characteristics of the language students' pedagogical designs?

The exploration is begun by discussing policy and research perspectives in the development of pedagogical designs in technology-rich environments. Next, the collection and analysis of the data are described, followed by a discussion of the results. Finally, the key issues emerging from the results are highlighted.

BACKGROUND

Great expectations meet reality

On a policy level, national and international strategies have, for some time, recognized the need to rethink and redesign education to match changing societal conditions. For instance, from the European perspective, the EU strategy

1. The notion of pedagogical landscapes was chosen because the exploration is situated within the context of subject studies.

Rethinking Education (2012) calls for a fundamental shift in education and stresses the role of technology and teacher education as change agents. The OECD Innovation Strategy (2010), in turn, envisages curricula and pedagogies that would develop the capacity for learning new skills and take full advantage of information and communication technologies. Nationally, in regard to the use of ICT in education, the development plan for education and research in Finland for 2011–2016 (Ministry of Education and Culture, 2012) states:

> Information and communications technology (ICT) is an essential part of education, working life and the operation of the whole society. The use of ICT makes for more flexible and personalised learning and renews instruction. Care will be taken in both initial and continuing teacher education to make sure that teachers are able to use ICT in education. (p. 18)

Building on the illusion that the use of ICT will renew teachers' practices, the quotation above paints a vision of a dynamic education system. It states teacher education will ensure that teachers are able to use ICT in education. To date, a great deal of training for teachers has focused on developing their technical skills, but a link to pedagogy has been lacking. In part, this explains why many studies report a low level of renewal in education. As Cope and Kalantzis (2009) provocatively put it, 'digital technologies arrive, and almost immediately, old pedagogical practices of didactic teaching, content delivery for student ingestion, and testing for the right answers are mapped onto them and called a "learning management system"' (p. 4). On the basis of recent research, the lack of new thinking in regard to pedagogical practices seems, however, to be the status quo (Ilomäki & Kankaanranta, 2009; Kankaanranta & Puhakka, 2008; Luukka et al., 2008; Taalas, 2005). Unsuccessful training has been accompanied by large investments in technological resources in schools, leading to a situation where technology in education is, in Cuban's (2001) famous words, oversold and underused. Future teachers play a key role as change agents. This role, however, requires that the vicious circle in teacher education is broken.

Rethinking language and literacy practices: confronting complexity

Language education, like education in general, is under pressure to change, renew and rethink its practices, structures and learning goals. New forms of language use emerge, and new competences are needed to cope with the diverse literacy and language practices of contemporary society (Coiro, Knobel, Lankshear, & Leu, 2008; Gee, 2004; Kress, 2010; Lankshear & Knobel, 2006). For instance, the spread of technology and globalization have shaped the way people use languages in their everyday lives in terms of where, why and how: 'As the communicative landscape grows in possibilities, so the artefacts and media are taken up by people in different and diverse ways in order to take and make meaning, communicate and do things through meaningful activity' (Ivanič et al., 2009, p. 15). This means that both students and teachers need tools to structure, guide and conceptualize different types of

processes in often multilingual, multicultural and multimodal environments of language use and learning. Moreover, continuously evolving forms of participatory publishing, often linked with the concept of Web 2.0 (O'Reilly, 2005), such as blogs, microblogs, image and video services as well as environments based on peer production, blur the boundaries of ownership and authorship, and the roles of producer and consumer merge (Drotner & Schroder, 2010; Jenkins, 2006).

At various times, literacy has been considered to be a manifestation of power. It has enabled access to knowledge as well as to the processing and production of it. Knowledge, in turn, is central to the ways contemporary society operates. Many of today's jobs, therefore, are knowledge-intensive: practitioners search, process, evaluate and produce information for various purposes. Against this background, it appears that the literacy developed during today's formal education does not sufficiently correspond to the social, cultural and multimodal nature of information in contemporary societies (Brown & Duguid, 2002; Kress, 2010; Lantolf, 2000). As Erstad (2011) suggests, there is a need to reorient the approach to literacy:

> The different literate worlds that young people move between, online and offline, relating to different ways of getting access to and interpreting information ('reading') and producing content in different modalities ('writing'), informs us about how we need to reorient what we mean by 'being literate' in our culture. (p. 100)

Ideally, the future citizen would skilfully employ various linguistic resources combined with digital competence in order to cope with information-rich processes associated with the knowledge society (Kern, 2000; Taalas et al., 2008).

Designs for teaching and learning in technology-rich environments

From a pedagogical standpoint, the many new technologies make possible a variety of activities that support the learning process, including publishing, sharing, discussing, constructing knowledge, and networking (De Freitas & Conole, 2010). Although the emerging technologies offer new possibilities for orchestrating the pedagogical setting, they also increase the complexity of teaching and learning. This phenomenon calls for new ways of making sense of pedagogical complexities.

In recent times, many researchers have pointed to the need for conceptual models that would structure the pedagogical design process and support the analysis of the resulting learning activity for further enhancements (Conole, 2013; Laurillard, 2012; Lund & Hauge, 2011). This interest in pedagogical designs has led to the development of new design methodologies as well as of new frameworks for evaluating and enhancing designs.

In this article, design is seen as a concept bridging theory and practice. It thus encompasses 'both a systematic approach with rules based on evidence, and a set of contextualized practices that are constantly adapting to circumstances' (Beetham & Sharpe, 2007, p. 6). In addition, the article adheres to Lund and Hauge's (2011, p. 263) definition of *didactics* as 'the design of social practices in which learners, teachers and (social and material) resources are configured and re-configured in activities that make knowledge domains and knowledge advancement visible, and that continuously create opportunities for reflective participation in such activities'. In this line of thinking, the teacher is seen as a designer who creates a blueprint for action, which functions as a roadmap in complex pedagogical situations. This roadmap unfolds in the pedagogical situation as the learners bring their own life worlds into play (Cope & Kalantzis, 2000; Lund & Hauge, 2011).

Development of pedagogical designs is, however, a multidimensional issue. According to, for instance, Fullan (2007, p. 30), there are at least three dimensions or levels of *new* when introducing a change: the use of new *materials* (instructional resources such as curriculum materials or technologies), the use of new *teaching approaches* (i.e. new teaching strategies or activities), and the alteration of *beliefs* (e.g. underlying pedagogical assumptions and theories).

The degree of change within these levels is related to the change in the modus operandi of schools. All of the dimensions are needed to bring about a systemic change, but very often the change takes place on the first level only (e.g. when introducing new technologies). However, according to Woods and Luke (2012, p. 313), a pedagogical innovation 'amounts to an attempt to reframe and reconstitute knowledge in classrooms, to alter and shift the social, interaction and discourse work that teachers and students "do" in face-to-face relations'. In other words, it means a profound alteration of the traditional roles in the classroom. The role of technology can be examined through Twining's (2002) computer practice framework, which consists of three modes: *support* for the learning process, *extension* of the learning process, and *transformation* of the learning process.

TABLE 1. THE TWO MINDSETS (LANKSHEAR & KNOBEL 2006).

Mindset 1	Mindset 2
The world is much the same as before, only now it is more technologized in more sophisticated ways: – The world is appropriately interpreted, understood and responded to in broadly physical-industrial terms – Value is a function of scarcity – An 'industrial' view of production: - products as material artefacts - a focus on infrastructure and production units (e.g., a firm or company) - tools for producing – Focus on individual intelligence – Expertise and authority 'located' in individuals and institutions – Space as enclosed and purpose-specific – Social relations of 'bookspace'; a stable 'textual order'	The world is very different from before and largely as a result of the emergence and uptake of digital electronic inter-networked technologies: – The world cannot adequately be interpreted, understood and responded to in physical-industrial terms – Value is a function of dispersion – A 'post-industrial' view of production: - products as enabling services - a focus on leverage and non finite participation - tools for mediating and relating – Focus on collective intelligence – Expertise and authority are distributed and collective; hybrid experts – Space as open, continuous and fluid – Social relations of emerging 'digital media space'; texts in change

Finally, Lankshear and Knobel (2006) have described the transition from industrial society to post-industrial society as continua between the various dimensions of two mindsets. The first mindset builds on the assumption that the contemporary world is essentially the same as it has been, only now it is more technologized. This world relies on the same economic, cultural and social principles and routines. The second mindset, conversely, takes the stand that the world is different in many respects from industrial times. The change is related to new ways of doing and being in the world made possible by the new technologies. These mindsets serve as a lens for the interpretation of this study's results.

PEDAGOGICAL CONTEXT AND DATA

Pedagogical context

The empirical analysis presented here is based on qualitative data collected at one Finnish university between 2009 and 2010. The data were collected on a course which was targeted at language students in the Department of Languages. The objective of the course was to familiarize students with the Common European Framework of Reference for Languages (CEFR) and the European Language Portfolio (ELP). During the course, each student created a course plan for a vocational school programme of his or her own choosing.

TABLE 2. STRUCTURE OF THE PEDAGOGICAL CONTEXT

Theme 1: focus on perceptions and previous experiences	Theme 2: focus on ELP, curriculum and goals	Theme 3: focus on media choices	Theme 4: focus on assessment	Reflection on the process
	Literature, discussion and blog reflections			
	First version of the course plan	Second version of the course plan	Third version of the course plan	
Lectures and face-to-face meetings				

To support pedagogically meaningful use of ICT based on the core ideas of CEFR, the course structure (Table 2) incorporated a virtual learning environment (VLE), which was structured into four themes: perceptions and previous experiences; the ELP, curriculum and goals; media choices; and assessment. The purpose of the first theme was to orient the participants to the theme of teaching and learning in technology-rich environments as well as to make them more aware of their perceptions. In this part, the students were asked (1) to reflect on their experiences of ICT use in language teaching as learners and (2) to position ICT in relation to their teaching philosophy as future teachers.

The second, third and fourth themes aimed at supporting participants in creating their course plans. These themes therefore functioned as checkpoints in which the course plan was examined critically from the predefined perspective. After each checkpoint, the participants uploaded a revised version of their course plan to their personal folder in the VLE. All of the themes included a section that provided participants with relevant literature. To reflect on the ideas presented in the literature, participants wrote personal blogs and participated in group discussions on topics related to the literature.

Data collection and analysis

An extensive corpus of data was collected in three sets during the research period. The data corpus consists of web discussions, blog reflections and the course assignments of the twenty-eight students that participated in the study. For this paper, two of the course assignments have been analysed: reflection (in theme one) and the final version of the course plan that the participants created during the course. All data are in written form.

TABLE 3. PARTICIPANTS PER EACH PERIOD OF DATA COLLECTION

Period of data collection	Participants		
	Male	Female	
Autumn 2009	2	8	10
Spring 2010	0	7	7
Autumn 2010	1	10	11
	3	25	28

The number of participants in each period of data collection is presented in Table 3. The strong representation of females is a typical gender distribution in language teacher education in Finland.

The analysis of the data builds on the operational framework created for the Towards Future Literacy Pedagogies (ToLP) project (Taalas et al., 2008). The framework consists of the core elements of a typical pedagogical situation, that is, *objectives*, *working modes*, *materials*, *media choices*, and *assessment and feedback*. The operationalization of these elements is shaped by various sets of motivations, attitudes, beliefs and values. For the purposes of this study, the framework has been slightly modified. Materials and media choices have been combined as a single element and motivations, attitudes, beliefs and values have been replaced with *experiences*, *perceptions* and *attitudes*.

In the first stage of analysis, coding schemes for participants' reflections were developed inductively. In a further stage, the coding schemes were refined through connecting them with previous research. As a result, five themes were developed: *experiences of technology use*, *add-on use*, *add-in use*, *gap between two domains*, and *preservation of the tradition*. The course plan documents have been coded using the ToLP framework mentioned above. Thus the codes referring to the elements of pedagogical design have been assigned to the corresponding parts in participants' course plan documents. Next these parts were analysed part by part, and subcodes were assigned to units in the plan that represent a certain theme. The purpose of this phase was to identify the themes that emerge within each part of the course plan document. In the analysis of both participants' reflections and their course plan documents, the consistency of coding has been assessed throughout the process as well as after coding the entire data set (Miles & Huberman, 1994).

DISCUSSION OF RESULTS

In this section, the question of the vicious circle is explored in two parts. In the first part, the participants' experiences and perceptions of ICT use as well as their attitudes towards it are described. In the second part, the course plan documents are analysed with a focus on the themes discussed above.

Experiences, perceptions and attitudes

In order to examine 'the design of social practices' (Lund & Hauge, 2011, p. 263), the fact that social practices, such as teaching and learning, are the result of a long historical development needs to be taken into account (Säljö, 2000). During their formal education (primary, secondary and university), the participants in this study have been socialized into certain practices that are part of this development, and these practices have most likely shaped their experiences and perceptions of using ICT in the educational context as well as their attitudes towards such use.

Experiences of technology use

The experiences of the participants paint a monomodal picture of the media landscape: encounters with digital technologies for learning in language studies have been minimal. For a majority, the most common use of digital technology in language teaching has been in the form of web-based drills focusing on grammar and vocabulary. The view of language use and learning attributed to the use of digital technologies is rather narrow. Even though most of the experiences draw on the notion of schooling as 'completing tasks', it appears that there are also experiences characterized by interaction, creativity and collaboration:

> At the university I've used different programs, such as Optima and Moodi, in language studies. They provide possibilities for considerably more diverse and creative ways to study languages. With their help, studying and completing tasks are more interactive and one often gets new thoughts and ideas from other students. (SL-09-T1-A-002N)

In the experiences of ICT use, the teacher and learner roles are mainly predefined. From the perspective of learning environments, a joint aspect of the experiences is that the use is situated within a specific place, in many cases a language lab or a computer lab. Furthermore, the tools and environments used are mainly institutional.

Add-on use

The participants are aware of the spread of technology in society and thus refer to technology as a trend that has found its way to the domain of formal education. As one participant puts it:

> I do however think that even though ICT use in language lessons is almost a trend these days, it's still better that these kinds of enhancements appear in lessons in small, refreshing doses. (SL-10-T1-B-010N)

As an indicator of the participants' relationship to technology, the notion of technology use as 'refreshing doses' is related to add-on type of integration, where technology 'is used only as something extra, a dispensable supplement

to the teaching setting, and is only accessible when the timeframe or the teacher favours the use' (Taalas, 2005, p. 62). This type of technology use is also described as a reward for the students if they study hard enough. A common denominator for the add-on type of approach is the amount of use. One participant representing this view comments on the 'overuse of technology':

> I myself have experienced the use of technology as part of teaching to be good in teacher-led learning. I also see a variety of possibilities for more independent study with the help of computers (e.g. blogs, language portfolios, learning diaries, international friends, Skype conversations, sister classes), but in my opinion real communication situations can't be allowed to suffer due to the overuse of technology. Students should also practice interaction skills and not just sit in front of a computer, because language skills include interaction skills as well. (SL-10-T1-B-009N)

The participant clearly perceives technology-mediated action distinct from face-to-face activities that she considers as 'real communication situations'.

Add-in use

Participants perceive digital technologies' transformative effect on ways of teaching and learning, but for many, the role of technology in teaching appears as an issue of contradictions: on one hand, its advantages are acknowledged, but on the other its use is problematized. The difficulty of positioning 'themselves around the ICT potential on the basis of their own pedagogic coordinates' (Taalas, 2005, p. 186) seems to be challenging:

> I have to admit that technology fits into my teaching philosophy a little problematically at this point. I continually think about it – I get it that you can't in any way escape from it, nor do I want to. (SL-10-T1-B-002N)

Yet, it is clear that some of the participants consider the role of the technology in relation to the change in the pedagogical culture, which is reflected, for instance, in the observation of one technology replacing another without a notable change in the practices:

> I've noticed that things like document cameras are used in much the same way as overhead projectors used to be, so I'm not sure that this technology, for example, has brought anything meaningful to teaching. Another example is the teaching of multimodal texts, in which technology is without a doubt an essential teaching tool. Technology therefore sits in my own teaching philosophy in a kind of grey area, which is a continual process. For me, processing issues is a long-term thing, so I have to try and go easy on myself. Not everything has to be liked right away. Using technology could make the relationship between the student and the teacher more interactive, more discussion-oriented and more open. This effect is one of technology's luxuries. With few exceptions, technology is, for example, some-

> thing young people know and can use, so it's at least reasonable that in the school system the available possibilities are considered – that's the way to close the gap between school and free time at least somewhat. (SL-10-T1-B-002N)

The participant also mentions multimodal texts, which can be interpreted as a reference to digital literacies. In this transformative or add-in (Taalas, 2005, p. 62) approach, the use of technology is tied to a change in the roles of teacher and learner toward a more interactional, conversational and open relationship. This kind of approach is, however, unusual in the data.

Gap between two domains

The participants often describe the role of technology as a bridge between the domains of school and free time. At the same time, they also construct and maintain the borders of these two domains. As one participant puts it:

> In my view, ICT use is definitely an opportunity that should be taken advantage of. The possibilities of using it in language teaching are almost limitless. IT has benefits for teachers as well as students. It can help make teaching and learning more diverse, more enjoyable and it can bring students' lives inside and outside of school closer to each other. (SL-09-T1-B-005N)

This view represents a positive attitude towards technology as a possibility, but it also either implicitly (as above) or explicitly (as below) builds on the assumption that the pupils live in the digital world. Technology is also seen as a link between the life worlds of teachers and students:

> I think it's great that information technology solutions have brought new dimensions to today's classroom. It's especially good because computers are, for most of our students, an everyday thing and in this way we teachers can get closer to them too. (SL-10-T1-A-101N)

The gap between the domains is also reflected in the amount of technology use:

> ICT should be used enough in teaching. What is enough is the teacher's own decision, but in my opinion a good amount would be one that reflects, in a realistic way, the use outside of school. This means students wouldn't come to school thinking they are entering some vacuum that doesn't relate to their lives outside of school. In this way ICT could create meaningfulness for students in the subjects and issues that are being taught. (SL-09-T1-B-007M)

As the quotation implies, technology use has value in itself, so the focus is not on what is done with technology or why it is used.

Preservation of the tradition

Finally, the participants often discuss the notion of preservation in relation to something that is referred to as 'traditional'. Through this discussion the participants construct the notion of a tradition, which is most likely the way the participants themselves have been taught and thus the culture of teaching and learning that they have been socialized into:

> I myself use a computer daily to communicate with my friends, to check email, to read news, etc. I want to include information technology in my teaching because for young people these days it's a way of life. Information technology brings variation and fun to learning. I don't, however, see a future in which IT would marginalize traditional books and traditional classroom instruction, but that in itself presents a problem. For example, it's very difficult to get students to concentrate on certain tasks instead of surfing the web. I don't have any experiences with online courses, but in my teaching I'd like to utilize them, maybe in process essay writing at the start. (SL-10-T1-B-008N)

The example above draws on change in the modes of being and doing, but it also emphasizes the problem of shifting students' focus from surfing on the Internet to the task at hand. This concern is related to the notion of predictability and reflects the challenge of navigating the complexities of learning in technology-rich pedagogical settings (see Lund & Hauge, 2011). Interestingly, this challenge is related to the use of technology only. The added value, in turn, seems to be emerging from the aspects of fun and variation that the technology brings to learning.

Summary

Overall, the participants have had only a few encounters with digital technologies during their formal language studies. The use has mainly been based on individual rather than collaborative ways of learning and represents a rather narrow view of language use and interaction. Furthermore, the use has been situated within a specific place in an institutional domain. The participants' relationship with technology appears to be multivoiced: digital technologies are seen as an externally imposed element ('a trend') as well as a normalized part of everyday life. Some participants recognize the gap between media practices at school and during free time, which implies that normalization has not yet taken place in schools. Furthermore, the voices also echo a certain culture of learning, which is referred to as traditional. In this type of learning culture, technology has an add-on role, and the roles of teachers and learners remain fixed.

Construction of pedagogical design

How then will future language teachers construct their pedagogical designs? This second part takes a look at the course plans created by the participants.

The focus of the analysis is on the description of objectives, working modes, materials and media choices, and assessment as well as feedback. Table 4 summarizes the key results as they relate to each focus of analysis.

TABLE 4. FOCI OF ANALYSIS AND KEY RESULTS

Focus of analysis	Key results
Objectives	– National curriculum as the basis – Strong role of teacher's personal experiences and principles – Description of learning activities rather than outcomes – Emphasis on grammar and vocabulary – Defined by the teacher (learners not involved in the construction and/or negotiation of the learning objectives)
Working modes	– Strong orientation towards teacher-led approaches – Expertise a quality of the teacher – Learners portrayed as tabulae rasae – Activity sequence of presentation, practice and production – Strong role of teacher's preconceptions
Materials and media choices	– Materials selected and/or developed by the teacher – Learners seldom given the role of content producer – Central role of Internet: access to multimodal texts – Internet: access to multimodal texts – Learning spaces and tools, often associated with a specific time and place
Assessment and feedback	– Feedback depicted as a continuing process – Benchmarks or descriptors not often used – Assessment descriptions lack the means to evaluate group processes – Peer feedback used regularly, but not systematically

Objectives

Objectives create the overall space for activities and define the horizon towards which learners navigate on their learning path. In light of the data, the curriculum functions as the basis for defining the objectives, but the teacher's personal experiences and principles have a strong role too: it is ultimately the teacher who decides what is important. Thus the role of the learner in defining and negotiating the learning objectives is downplayed in most cases. The focus of the objectives is, in many cases, on grammar and vocabulary, and the formulation of the objectives often refers to course activities rather than to outcomes. In addition, there are more general objectives, such as supporting lifelong learning, developing awareness of (language) learning, preparing for working life and supporting students in becoming autonomous learners.

Working modes

As for working modes, the data show that there is a strong orientation towards teacher-led approaches (similarly to Luukka et al., 2008, p. 153), especially in situations where a new theme or content area is introduced. Expertise thus appears as a quality of the teacher and learners are portrayed as tabulae rasae.

In terms of practices around texts, most of the writing tasks are carried out individually, but in some plans the formulation of working modes leaves open the possibility of collaboration. This possibility is usually related to less common text types such as posters, advertisements and websites. In small groups, students present, for example, dramas. Dialogues and some writing tasks are also conducted as pair work. While there is a variation in terms of text types, the activities around texts mainly repeat the same sequence: presentation, practice and production. In many cases, students have the possibility to produce different types of texts, but the qualities of these texts types are seldom explored. A teacher's preconceptions of the learner cohort also play a role in how the pedagogical setting is organized. The participants position the learners within a certain frame of interests and attitudes. Then, based on the expectations of the students, the pedagogical setting is organized in a certain way so that, for instance, the students conduct their work under the teacher's supervision at a certain place and time. In many cases, these preconceptions and assumptions are related to learners' digital competence.

Materials and media choices

In addition to national and institutional curricula, teaching materials have a significant impact on classroom-level activity, because they create the pedagogical and textual space within which the teachers and learners work (Luukka et al., 2008, p. 90). Thus materials are related to the modes of working. According to the data, it is most often the teacher that creates or selects the materials to be used. To enrich the repertoire of materials, the Internet is described as a central source of multimodal texts. Again, it is usually the teacher who expands the textual landscape using the Internet as well as other media as a source of exploration. The role of the Internet is also visible in offering students links to websites in the target language. Perhaps due to the nature of the portfolio-based course (ELP), the textbook does not have such a strong role in these data, a trend that has become evident in other studies regarding classroom practices (Luukka et al., 2008; Pitkänen-Huhta, 2003). In addition to websites, the word list still seems to be the most typical text that is produced. The plans subscribe to process-like writing to some extent, but the texts are usually submitted to the teacher for feedback (see the next section on assessment and feedback). Students are provided with learning spaces and tools which are often associated with a specific time and place, such as the classroom and the computer lab. The physical space is occasionally expanded into a virtual space that is often somewhat consistent with the container metaphor, but activities in the digital domain are sporadic. In addition to the portfolios, learners are seldom given the role of content producer. Neither other studies nor other teachers are framed as resources.

Assessment and feedback

Assessment practices have an immense role in socializing students into certain views of learning, language and knowledge, which has also been noted in rela-

tion to the use of technology (Selwyn, 2007). The data show that it is the teacher who primarily carries out the assessment. Neither benchmarks nor descriptors are mentioned as part of the assessment process. In the course plan documents, feedback is often depicted as a continuing process. Peer feedback, as one form of feedback, is used frequently, but there is often no explicit reason why it is used in a certain phase of the learning process. Also, the assessment descriptions lack the means to evaluate group processes or the trajectories of certain skills and competences mentioned in the objectives (e.g. awareness, autonomy). All in all, the descriptions of assessment procedures in the course plans vary in both quantity and quality.

Summary

In a nutshell, the participants' pedagogical designs create a teacher-centred view of the language classroom. Learners are not given an active role in any phase of the pedagogical design process: the teacher defines the objectives, materials and media, the working modes and the assessment and feedback practices. In other words, there is a lack of space for learners to select the tools, environments and ways of working around a type of content that is meaningful for them. In line with the results described in the previous section on experiences, perceptions and attitudes, the learner's role is often that of a recipient. As for content, grammar and vocabulary play a central role, which resonates with the participants' own experiences as learners that were examined in the previous section. Different print-based materials dominate the literacy practices, which are rather static despite the variation of text types.

Contrary to Bigg's (1996) principle of constructive alignment, the objectives, materials and media choices, the working modes, and the assessment and feedback practices are not in line with each other. In other words, technology is often adapted to the design without changing anything else in the pedagogical setting. Looked at through Fullan's (2007) three dimensions of pedagogical change, it appears that the change is mostly occurring on the level of materials, but not so much in practices or beliefs. However, there are many assumptions about, for instance, students' motivation and digital competence underlying the pedagogical choices. Assumptions such as these highlight the importance of understanding how perceptions affect the construction of the pedagogical design.

CONCLUSION

Policy documents lay out high expectations for the use of ICT in education and put pressure on teacher education to ensure the pedagogical transformation. The results presented in this article imply that language students' pedagogical landscapes reflect their own experiences as learners. Combined with results from other studies conducted within the school context, the results of this study support the existence of a cycle of repetition within teacher education. In other

words, language students are socialized into certain ways of teaching and unless these ways are challenged during their studies they will repeat them in their own teaching. Instead of 'just putting into place the latest policy' (Fullan, 2007, p. 7), pedagogical transformation requires re-culturing in classrooms, schools and universities. Teaching is, as Hargreaves (2003) puts it, becoming a young person's profession again and therefore the culture of learning that future teachers adopt during their education will have an immense effect on the future of schools.

Policies as well as research literature echo the importance of digital competence as a component of full participation in society (Ilomäki, Taalas, & Lakkala, 2012; Lankshear & Knobel, 2008). As the results of this study show, the discussion of language students regarding ICT is more oriented towards whether or not to use it in teaching than it is towards educational objectives and the development of digital literacies. Neither the objectives nor the activities in language students' course plans provided much evidence of practices that would support the development of such competence. Many of the participants built on the assumption that their learners live in the digital world, whereas it has been pointed out that adolescents' capacity to confidently act and move across digital spaces is not directly associated with their ability to use these spaces for learning purposes (Erstad, 2010; Watson, 2010).

The literacy practices represented in the course plans are static and reflect, in Lankshear and Knobel's (2006) terminology, the industrial mindset. This may be due to the fact that the language students do not have the means to design, enact and analyse dynamic and multimodal pedagogical settings in a formal context. Thus, from the perspective of language use and learning, there appears to be a need for pedagogical design models that would assist both teachers and students in structuring and analysing the interaction and literacy practices that take place in technology-rich settings. And yet, pedagogical design models that would encourage reflective practice in technology-rich environments remain rare.

It is clear that models and practices that build on the post-industrial mindset are needed for educating the teachers of today as well as of tomorrow. Furthermore, discussion is needed regarding the implications of these models and practices on various levels. Finally, research on pedagogical design practices can help not only student teachers but also teacher educators to critically reflect on the current practices that are being mediated to the future generations of teachers.

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III

DESIGNING FOR SUSTAINABLE PEDAGOGICAL DEVELOPMENT IN HIGHER EDUCATION LANGUAGE TEACHING

by

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DESIGNING FOR SUSTAINABLE PEDAGOGICAL DEVELOPMENT IN HIGHER EDUCATION LANGUAGE TEACHING

Juha Jalkanen & Peppi Taalas

Introduction

In the field of education, as well as in language teaching, major efforts have been undertaken to support and encourage teachers to use information and communication technologies (ICTs) in their classroom. All this has been done with a policy-level goal of a permanent transformation in educational practices. However, very few of these initiatives and plans have had sustainable effect on teachers' pedagogical practices (Cuban, 2001; Taalas, 2005). In retrospect it can be assumed that this is at least partly due to the lack of ownership of the change processes, of their objectives, and even more importantly, of their benefits to an individual teacher (Fullan, 2007a; Hargreaves & Shirley, 2009).

Amidst the rapid and unforeseen changes in society, learning has become the very core of all societal activities and functions (OECD, 2000). Globalisation, increasing mobility, labour market changes, and fast technological development all have had a tremendous impact on how our lives and the context in which we live have become more multicultural, multilingual, and multimodal.

This chapter builds on our recent research into onsite pedagogical development in higher education language teaching (Jalkanen, 2010; Taalas, 2005). We will argue that there is a growing need for a better understanding of the mechanisms of change and to develop research methodologies and approaches that enable us, together with teachers, to develop and create new practices. The central concepts in this chapter are agency, expertise, sustainability, and organisational learning, which we place

within a design framework for pedagogical development with qualitative evaluation tools. These concepts are operationalised in an organisational context where research and development are combined to create a dynamic environment for action.

Changing operational environment

Language education, too, is under pressure to change, renew, and rethink its practices, structures, and learning goals. Technologisation alone has greatly changed the way in which our social networks are shaped and developed, the way we communicate and use language, and the way in which we study or work (Cope & Kalantzis, 2000; Gee 2004; Hargreaves, 2003; Jenkins, 2006; Kern, 2000; Pennycook, 2010; Weller, 2011). The concept of knowledge has simultaneously changed: an increasing number of people have access to information and knowledge, and, particularly in Western society, we are also relatively free to produce and share information.

The interpretation by Lankshear and Knobel (2003) of two parallel but conflicting mindsets outlines the conflicting views on the existing practices and transforming practices of education, existence, and thinking. In the world described in the first mindset, people operate in a traditional way, and technology has primarily an instrumental value. It enables the use of new kinds of communication media and ensures that citizens have access to information, but the conceptions regarding the nature of knowledge and learning have remained largely unchanged. In this society products are still material, and society aims to educate citizens who have sufficient knowledge and skills to produce these products. The world thus appears rather similar to what it used to be; it is only slightly more technological. By contrast, the second mindset of a postindustrial knowledge society differs fundamentally, according to the authors, from the first mindset. This new world is characterised by unpredictability and change. In addition to material products, the operation of societies is increasingly based on immaterial products, and their character and diversity are difficult to predict. Economic success depends increasingly on one's ability to create, productise, and sell different services, expertise, knowledge, and skills. The entire society operates in a more networked and collaborative manner. Indeed, knowledge and expertise are possessed

not only by individuals but ever increasingly by communities. The nature of knowledge is collective and shared, no longer stable, ad hoc, and bound to institutions.

In a postindustrial knowledge society, technology does not only have instrumental value, but it affects above all people's activities with texts, language, and other people (see also Kress, 2003). The operating culture is characterised by interaction, speed, and multimodality. It is important to understand that people's participation in different multilingual and multicultural communities also shapes their identities and relationship to the surrounding world. Furthermore, this changes and affects the way in which individuals interpret the world and participate in it in different languages and media (see, e.g., Lankshear & Knobel 2006; Kern 2000). These kinds of practices should not be isolated from language teaching at schools (including teaching mother tongue), and they should not be seen as separate and irrelevant even from learning and competence development. This is supported by Scardamalia and Bereiter as they highlight the static attitude of schools to information and knowledge (Scardamalia & Bereiter, 2006). They talk about 'knowledge of' and 'knowledge about' as two very different approaches to teaching and learning. They claim that the content offered at school is superficially 'nailed' to texts books, exams, and curricula, which only seldom is constructed into authentic and meaningful knowledge for the learner.

This prompts us to rethink and reform language teaching and learning pedagogies but also to develop research methods that take into account the complexity of the research setting and that give support to more sustainable structures of change to develop as part of the research and its implications for teaching and learning. These methods should include teachers as codesigners and codevelopers of their own work. This way, the development efforts are neither top-down nor bottom-up, but something in between, something that takes place in the space created in the development process. So far, the development has often happened outside the classroom, during data collection visits in the classroom, or in a 'researcher's chambers', and the teachers are the recipients of the results if the results ever reach them.

Conceptual framework

The most central concept in this chapter is the notion of design, which carries different meanings and refers to different aspects and perspectives of the development process and the research around it. Pedagogical design refers to the act of structuring and analysing the teaching practices and their outcomes in a given teaching setting. Organisational design, in turn, highlights the processes taking place and planned for the development of organisational learning, development of new structures, and the act or rethinking of current practices. The interplay of these concepts is discussed at the end of the chapter.

Dynamics of sustainability in education

Sustainability is a complex concept as it has various connotations, some of them even political. Although there has been prominent research interest in educational change for the past few decades, the issue of sustainability has, however, remained largely unexplored. More recently, it has become a research agenda of its own, and the meaning of sustainability has also evolved. Whereas in the 1980s and early 1990s sustainability referred mainly to the maintenance of innovation (Rogers, 2003; Elmore, 1996), the contemporary definitions stress the dynamic nature of sustainability (Fullan, 2005; Hargreaves & Fink, 2006; Docherty et al., 2009), often linked with ecological metaphors. The role of higher education as a change agent for sustainability is also acknowledged (Gough & Scott, 2007). A great body of literature dealing with sustainability is concerned with environmental issues, but common ground for all sustainability research is the orientation toward future.

Sustainability in the educational context seems to be threatened, especially in situations where an initiative has the aim of permanently changing current practices while the practitioners see it only as one event in the flow of never-ending initiatives and interventions. In many cases, the existing structures in the school or teaching organisation are not negotiated properly nor are they aligned with the goals due to the lack of systemic thinking. According to Senge (2000), most schools are drowning in events and simply resort to quick fixes to survive the day-to-day pressures. This creates an 'attention-deficit culture' in which people become very skilled at solving crises instead of looking for ways to pre-

vent them. In this way, they lose sight of the cause and effect chain and concentrate on correcting problems instead of the reasons behind them. This in turn creates an environment where development cannot become sustainable and there are very slim chances of establishing permanent practices at any level of the organisation.

Many teachers do take part in various development projects and initiatives. Bielaczyc (2006, 302), however, states that long-term development work calls for a theory-level understanding of the reasons why certain practices are effective for learning while others are not. The theoretical aspect is often lacking in school-based development projects and can partly explain why many of these development projects are short lived and over when the funding ceases or when the project has come to an end.

In this paper, we define sustainability as informed and future-oriented decision making that incorporates being proactive (rather than reactive) in designing for future development. Moreover, we emphasise the dynamic nature of sustainability. In other words, the point is not to push for a continuous change or to maintain something that has been developed earlier, but rather to respond to the changes taking place in the operational environment. Creating sustainability is a collaborative endeavour that places learning at its core (Shani & Docherty, 2003). As Docherty et al. note (2009, p. 11), learning-based change for sustainability underpins organisational change for sustainability. In our context, the major changes in the operational environment are the transforming student body and the heterogeneity of it combined with the media rich environment within which students live, study, learn, and work.

Organisational development

It seems evident that learning has become a condition of survival for organisations in modern society (Engeström, 2001; Senge, 1990; Taalas, 2005). In the early 1990s, Senge introduced the learning organisation model based on systemic thinking. According to him (1990, p. 3), learning organisations are 'organisations where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning how to learn together.' Since the 1990s, a

vast body of research on learning at work has drawn from theories of situated learning (Lave & Wenger, 1991; Wenger, 1998). However, in recent years, discussion has arisen about whether new kinds of theories for organisational learning are needed as work life has become increasingly complex and multidimensional (Blackler, 2009; Engeström, 2009; Wenger, 2010)[2] . Respectively, Engeström, Kerosuo, and Kajamaa (2007) point out that 'some recent studies of organisational transformations have begun to approach learning as a more multilayered, multisited and temporally dispersed phenomenon, simultaneously both incremental and radical'.

In organisational learning, the subject of learning is often the individual. According to Senge (1990, p. 139) 'organisations only learn through individuals who learn. Individual learning does not guarantee organisational learning but without it no organisational learning occurs'. As Huysman (2000) notes, Argyris and Schön (1978), for example, talk about organisations while in fact they are referring to learning individuals within organisations. The subject of learning can, however, be a community or an operational system from which case learning emerges as an expansion or transformation of activity (Engeström, 1987/2001). In line with the preceding view, Huysman (2000, p. 315) defines organisational learning as 'the process through which an organisation constructs knowledge or reconstructs existing knowledge'. As noted by Boreham and Morgan (2004, p. 308):

> *[M]ost contemporary researchers define learning as organizational to the extent that it is undertaken by members of an organization to achieve organizational purposes, takes place in teams or other small groups, is distributed widely throughout the organization and embeds its outcomes in the organization's system, structures and culture.*

This is also echoed by Docherty et al. (2009, p. 10), who state that in sustainable development learning 'must take place at all levels in the orga-

2 Even though Argyris and Schön, and Engeström come from very different backgrounds and traditions, they do have some similarities, for instance, their interest in the work of Bateson (1972).

nization: the individual, collective, and organizational levels, and indeed, beyond that … '.

Profound changes have taken place in ways we access, consume, and produce information. The accelerating pace of technological development highlights the importance of proactive action instead of reactive or, as Senge's (1990) states, more *generative learning* is needed to ensure sustainability along with *adaptive learning*. In other words, pedagogical development should be in advance of technological development, not the other way around. Thus, this is an organisational challenge since many educational organisations lack the structures of supporting learning at work. It is also worth noting that, while learning, organisations also create their futures. Similarly, Engeström (2009, p. 58) goes on to say:

> *People and organizations are all the time learning something that is not stable, not even defined or understood ahead of time. In important transformations of our personal lives and organizational practices, we must learn new forms of activity which are not yet there. They are literally learned as they are being created.*

However, the problem is that, due to the dynamic nature of change, there is no such thing as a competent teacher, as Engeström (2009) declares. In this view, organizational development endeavours are based on learning together rather than training. This approach indicates a shift from content-based designs to activity-based designs, in which the ability to gain ownership and authorship of the activity is the key. This kind of a shift requires agency, and therefore we suggest that agency should be placed in the central focus of organisational and professional learning.

To summarise, the challenge is in combining the 'Engeströmian' and 'Sengeian' perspectives into a functional frame of action and analysis. Where Engeström states that change is dynamic, fluid and unpredictable, Senge reminds us of the importance of understanding the systemic nature of change and to see all levels of action affected by change efforts. Engeström talks about the artefacts around which the (group) learning activity takes place, whereas Senge talks about the individual's need to understand the purpose of activity. Engeström also highlights the importance of cultural and historical aspects in understanding development.

All in all, both of these views are relevant and important and genuinely complement, not conflict with, each other.

Agency and expertise

A growing interest has been placed on designing environments that support the development of agency in the learning process (Ellis, Edwards, and Smagorinsky, 2010; Lipponen and Kumpulainen, 2011). Agency is a central concept in learning and in becoming an expert. It is directly linked to concepts related to self-regulation and learner autonomy (see Hunter and Cooke, 2007; Benson, 2001). Expertise and being an expert are complex concepts. From the point of view of competence and knowledge, expertise is built on three areas of knowing/knowledge: theoretical knowledge and understanding, practical knowledge including self-regulation, and reflective and metacognitive knowledge (Bereiter, 2002; Bereiter and Scardamalia, 1992). There are various subconcepts under the main concept of expertise; for instance, *an adaptive expert* may refer to the behaviour of a person who is constantly willing and able to extend his or her expertise outside the core competences and become a novice once again (see Bransford et al., 2006). This behaviour is characterised by a desire and ability to discover new solutions and interpretations. Schön (1983), in turn, talks about *the reflective practitioner* who is able to become aware of and criticize his or her tacit understandings through reflection, which is a basis for professional learning.

In this chapter we have framed the concepts of expertise and agency in a three-tier concept of access, ownership, and authorship. These concepts portray a level of agency in relation to the ability to create and design pedagogical activities that incorporate new types of elements that support learning – in this case, various technologies. Access refers to the stage where the teacher has in general good access not only to technology, but also to different examples of integration in the form of activities and plans. Ownership in turn happens where the teacher starts to feel in control of the constant change and uncertainty of school and classroom events. S/he feels that there is territory to explore and that there are no right or wrong solutions to the way in which teaching should be organized and structured. Authorship can be considered the highest level of agency, and autonomy in dealing with change -- trying out new things –

is actually transforming not only the teachers' outlook on classroom practices, but the way in which learners are offered opportunities for taking charge of their own learning. The stages aren't always clearly separated, nor is the expanding teachers' thinking always tied to certain behaviours or goals. We use these concepts as tools for analysing and understanding what actually happens during the different phases of pedagogical development.

Opportunities and challenges in onsite research

The starting point for the research is two-fold:

» As members of the organisation in question, we are interested in organisation structures and processes that contribute to sustainable pedagogical development.

» As educational researchers, our interest is in the learning processes involved in the development work.

Consequently, the research prods into the cluttered reality of collaborative pedagogical development in a language teaching organisation in higher education. This is done through examining aspects of different local development projects in which authors have been involved in different ways. Documenting the development processes from an organisational perspective also allows us to go beyond the end products and investigate the learning trajectories and the tensions involved. One of our main concerns and interests is to see if and how we can create coherence, continuity, and structure for development in the teachers' increasingly fragmented and turbulent work.

Conducting the onsite research described in this chapter raises many methodological questions. First of all, the researchers have a dual role, as they are simultaneously members of the organization and researchers conducting research into the organisation. Second, because the objective of the research is to produce a sustainable infrastructure for pedagogical development and workplace learning, traditional means of data collection are too narrow for capturing the multilayered process of action. The data collection should ideally result in data that both accounts for the learn-

ing processes and helps the organization to adjust its actions. Third, the research must have a solid theoretical foundation that is also adaptive to the complex organisational context within which the research takes place. Finally, the number of cases under the lens of investigation is limited, which has to be taken into account in the description of research ethics.

Design-based research

Design-based research (DBR) has been proposed as a research approach that can help bridge the gap between research and practice (van den Akker et al., 2006) as it seeks to explain how design functions in authentic settings. However, Engeström (2007) very rightfully criticizes *design experiments* for being too superficial. According to him, '[t]he emphasis is on completeness, finality, and closure may be partly explained by the idea of design experiments as "refinement". The implication is that the researchers have somehow come up with a pretty good model which needs to be perfected in the field'. He claims that no model is ever finished or ready, but in a constant state of change. He draws on von Hippel and Tyre (1995, p. 12) for support and continues to claim that an approach such as this overlooks the fact that one might never 'get it right, and that innovation may be best seen as a continuous process, with particular product embodiments simply being arbitrary points along the way'. The approach adopted in this chapter adheres to this idea.

Design-based research is often described as a development and research process that transpires in an iterative cycle of design, enactment, analysis, and redesign (Design-Based Research Collective, 2003). Mixed methods can be applied to collect and analyse data; the approach does not in itself dictate certain methodological choices. In the current study, the design-based research approach has been complemented with narrative research methods (Webster and Mertova, 2007).

Design-based research has a dual objective: on the one hand, it seeks to respond to local needs, for example, by developing the learning environment. On the other hand, it strives to increase our understanding of learning (Barab and Squire, 2004; Barab, 2006; Design-Based Research Collective, 2003). In other words, DBR as a research strategy allows for conducting research on multiple sites, timescales, and levels. The objectives are intertwined and can be considered as the main feature of

design-based research in addition to its iterative nature. As Barab and Squire (2004, p. 5) note, the 'design-based research strives to generate and advance a particular set of theoretical constructs that transcends the environmental particulars of the contexts in which they were generated, selected, or refined'. Furthermore, the researcher's role is dynamic: s/he can function as the teacher or cooperate with the teacher (Barab, 2006; Confrey, 2006), as is the case in this study. We see these principles as key from the perspective of the research project in question.

The design-based research approach allows for multilayered research design and use of data. On the organizational development level, a qualitative analysis took place. The field notes written by the researcher were translated into a narrative that was then used as a basis for the analysis of the process. To promote the validity of the findings, the analysis and interpretations were discussed by the two researchers.

Problem-mediated approach to pedagogical development

The ability to pose relevant questions, set up problems, and develop plausible solutions have been considered elements of high level expertise. In the contemporary knowledge society, collaborative problem solving is a key feature of expertise (Engeström et al., 1995). Even if this chapter does not directly adapt problem-based learning as an approach or method, we strongly see a link between our conceptual framework and PBL. As PBL is defined as an 'approach to structuring curriculum which involves confronting students with problems from practice which provide a stimulus for learning' (Boud & Feletti, 1997, p. 15), our research setting aligns very well with the core idea. Our development projects can be seen as the curriculum within which the teachers taking part in the study are faced with problems where they have to reflect on their current practices to create and combine new approaches and solutions. The problems mediate pedagogical thinking and can be shared, discussed, and analysed. The mediation process functions as a lens through which all participants focus on the same themes and issues. Eventually and as an outcome of the process, the teacher's learning becomes visible in the transformed activity.

The model introduced here is derived from the design-based research process; thus, it is an outcome of this research. However, for the sake of

clarity it is described here as a foundation for discussion of the process in section 7.

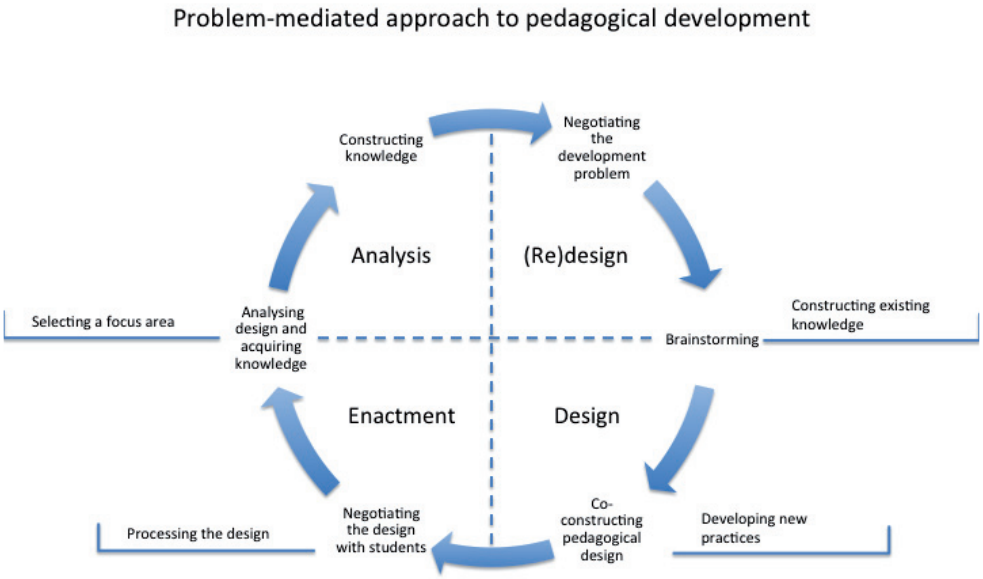

Fig. 1. Problem-mediated approach to pedagogical development.

The first step of the process is selecting the course to be developed that works as the mediating tool for problem-solving activity. The process structure has been influenced by the ideas presented by Cope and Kalantzis (2000), by Engeström's concept of expansive learning (1987), and finally by the Linköping PBL model (Abrant Dahlgren et al., 2005). The first stage of the cycle is design, within which the development design problem is negotiated between the teacher and the researcher. The key principle is that the development work is initiated by the teacher, but the object of the activity is negotiated. Following the definition of the problem, ideas for development are brainstormed. Brainstorming is based on constructing existing pedagogical knowledge. Based on the ideas developed in the brainstorming session(s), an initial design for the course is co-constructed. The design is the basis for the development of new practices.

In the next stage, the design becomes an action, as it is reconstructed in the actual classroom situation. A prerequisite for establishing the new design is that it is negotiated with the students. The negotiation process requires a clarification of the learning objectives (both shared and individual) and the alignment of the objectives to the new practices. During the enactment stage, the design is processed by the teacher and the students. In this phase, the researcher acts mainly as an observer.

The third phase of the cycle is analysis. Reflection on the new practices and the new design lay the groundwork for selecting a focus area for a more detailed analysis. This phase includes a literature review conducted by both researcher and teacher, combined with regular meetings for discussion. Data collected during the course are analysed in light of the focus area, and the results are aligned with educational theory. The results are the basis for redesigning the course for the next cycle. Redesign begins with a redefinition of the design problem.

The development phases have their counterparts in the design-based research design. Research stages are placed on the inner cycle. The problem-based approach and the design-based research are very similar in the way in which the activities are organised within a predefined cycle of activities. Both approaches lead to a deeper understanding of the issue or theme introduced at the start of the process, and both aim at deepening the theoretical underpinnings of the issue.

Language teaching organization as the context for action

Following the idea of *multimodal pedagogy* (Taalas, 2005), an e-learning platform[3], Moodi, has been in development since 2003 at the University of Jyväskylä. The development has been coordinated by Peppi Taalas and her coauthor has also been actively involved in the development process. The most significant goal motivating the development work has been to encourage teachers to rethink their pedagogical designs in terms, for instance, of the core content and working modes. The environment itself is not locked within a certain pedagogical ideology but rather allows the

3 We use the term e-learning platform (also platform) here to refer specifically to the technological construct. In our view, it becomes a virtual learning environment (VLE) or to some extent a personal learning environment (PLE) as a result of the pedagogical practices taking place.

teacher to make new constructs and learning paths quite freely for the learners.

To initiate a discussion about learning environments and pedagogical practices, the new platform was introduced to teachers in May 2009. The introduction was made by explaining the pedagogical thinking behind the creation of the platform. With the help of case examples, the teachers were given a walk thru as to how things might be done differently and even in an exciting way. After the first presentation, more than 20 teachers expressed their interest in hearing more, and some even scheduled a personal meeting to look at their course plans to see how these could be developed further using the platform.

The meetings with teachers led to a development of several courses. The courses represented different ways to integrate technology into teaching practices: some of the courses took place completely online whereas others expanded the face-to-face teaching space into virtual environments. In the following section we will examine aspects of these cases in greater detail.

Pedagogical development in the design framework

This section draws on several local development cases within which the authors have been involved and within which the problem-mediated design framework has been developed. In this exploration, we will discuss emerging issues in the development work in the light of our conceptual framework.

Rethinking expertise in the design work

Recent research on agency and expertise supports the view that some workplace activities are too complex to be managed individually (see, for instance, Edwards, 2011). This can be considered to be the case in developing new kinds of structures and practices for language teaching and learning. The teachers and researchers involved are all experts in their own fields, but the new practices and structures are an unknown territory and thus require new kinds of expertise that do not yet exist. Against that background we suggest that combining different kind of expertise at different stages of the design process fosters the creation of new pedagogical artefacts (both conceptual and material) that go beyond contemporary

uses of tools and environments and aim at the transformation of practices and cultures. The notion is well aligned with the concept of an adaptive expert discussed above. This line of thinking has been the point of departure for the design work.

Traditionally, designing a course is a process that relies to great extent on a teacher's individual expertise. In the organization in question, we have established a new staff profile, namely, the post of a pedagogical developer[4]. This new staff role has been introduced to teachers as a resource for rethinking existing practices and developing new ones. From the expert point of view, this has provided teachers with an opportunity to bring different kinds of expertise into pedagogical development. It can thus be seen as an organizational resource.

In this approach the course design functions as a kind of 'boundary object' for the shared meaning that can be further negotiated. Therefore, to construct a space for sharing expertise, the course design needs to be created at an early stage (step 3 in the model). The course design, then, facilitates the pedagogical discussion. Whereas different kinds of artefacts have been created to guide the design work and to construct a shared understanding of the process, the most significant artefact that has mediated the negotiation of meaning has been the course design itself. During the design process the teachers and the researchers discussed questions that relate to language learning in a broader sense than merely activities, tasks, or course materials. Drawing upon this observation, we claim that the course design mediates the teacher's pedagogical thinking and makes it accessible for the researcher[5].

In terms of agency, this stage could be seen as the construction of access (discussed above). When the new course design is coconstructed and negotiated, ownership and authorship of the design as well as the process are expected to develop.

4 The pedagogical developer is the same as the other author of this chapter. For the sake of clarity he is referred to in the text as a researcher. When we talk about researchers, we mean the both authors.

5 This can be compared to the pedagogical discourses that teachers often echo when discussing their beliefs and perceptions of pedagogical concepts. Either way, it is a question of researcher's interpretations.

In our minds, expertise is considered as situational, and the repertoire of expertise expands as the development process unfolds. In this case it means that during the development process the stakeholders gain a deeper understanding of the new practices, processes, and structures that eventually become a part of their expertise. This form of professional learning takes place through reflection on the action. However, the notion of expertise can also be a barrier to professional learning. For instance, shared space for expertise might be constrained if a teacher resists taking the position of an adaptive expert and holds onto the position of being an expert.

Research and development intertwined

Retrospectively we can identify three kinds of resources with which our project has provided the teachers: technical, pedagogical, and professional. In practice, the technical resources meant that the teachers were provided with individual and ad hoc assistance in constructing new virtual spaces for their teaching. This was needed in many cases due to lack of time or technical skills. The pedagogical resources, in turn, provided the opportunity to expand the horizon of pedagogical possibilities by combining different kinds of expertise in the design process (as discussed above). Finally, the professional resources were operationalized in this case in the form of design-based research.

Some members of the organization who were involved in the development work were also interested in engaging themselves in research on the development work, and the cooperative nature of design-based research provided an opportunity to make use of it as a resource for professional learning. In the stage of analysis, the data were analysed by the teachers and the researcher in a collaborative manner[6] . During the data analysis sessions, different types of expertise were combined: the teachers were experts in the content area they were teaching and the researcher was the expert in learning in multimodal settings. To mediate the discussion during the data sessions, the researcher provided

6 For information on teachers engaging in research as professional development, see Honan (2007).

the teachers with relevant literature – and vice versa.

The flexibility of the development setting also allowed involving more people in the stages of enactment and analysis. Some future teachers were interested in engaging in data collection and conducting their theses on the development work. As their research progressed, the issues arising were discussed with each other, which presented opportunities for professional learning.

From the design perspective, the development work has staked a claim for research-based pedagogy. Following the design-based research strategy, the design has been theoretically supported, but the research has also contributed to the understanding of the design in context.

Dissemination of the results in peer-reviewed academic journals and conferences have served three purposes: first of all, it has supported teachers' academic careers and made the professional learning visible in that sense. Second, the new practices have been negotiated with the academic community to ensure a scientific quality of the development work, and third, the dissemination has documented the development work as part of organisational activity.

Sustainable pedagogical development

The pedagogical development described in this chapter has been underway for three years. During that time, several courses have been developed in different ways. The guiding principle in the development work has been supporting t he construction of agency in the development setting. Following the principles of design-based research, the development work has taken place in iterative cycles, and the organization-level understanding of how to guide and support the process has increased.

The introduction of new pedagogical practices and structures is usually followed by conflicts within working and learning cultures. These tensions between the old and the new are arenas for mutual learning and from which new cultures of learning and working emerge. Thus, it is by analysing these tensions and conflicts that we begin to understand the enacted design, its affordances and its constraints. In retrospect, it seems that it is of utmost importance to support *critical reflection* between the development cycles. In the development process, critical reflection has taken place in discussions between the teachers and the researcher. In line

with our view of sustainability, recognizing the points where the direction of the development needs to be adjusted is one of the most important aspects of the process.

Teachers often claim that the lack of certain technical skills prevents them from using technology for pedagogical purposes (cf. Sulla, 1999), but despite the major efforts to develop teachers' ICT skills, only a little transformation has taken place on the level of pedagogical practices. The underlying idea has been to help the teachers to eventually become familiar with the e-learning platform, not as a technological tool but as a vehicle to expand the teachers' pedagogical thinking and learning opportunities for the students. The focus was heavily on pedagogical development and to ensure it, the teachers were not expected to handle the technological side but were offered technological assistance. Instead, technological competence and autonomy in using the platform were built gradually during the process. This approach establishes the evolution of pedagogy as the sustainable element.

The design process has also been discussed with the administration to ensure support and interest on the organisational level. As has been the case before in the larger development undertakings at the organization, the development goals have always been combined with administrative commitment for allocating time and resources needed for the work.

Discussion and conclusions

The aim of this chapter was to examine learning trajectories and emerging tensions in the pedagogical development work within the organisational context. A set of development cases was examined from the perspectives of expertise, research and development, and sustainability.

The chapter adheres to the notion that designing for sustainable development necessitates a systems view of the learning setting that is, in this case, the organization. This view takes into account different contextual variables while acknowledging the unpredictable nature of learning. In other words, the development is planned and carried out together with teachers and the larger organisational goals and factors in mind, while also recognising the possibility that something completely unplanned and unexpected might emerge as a result. Due to this complexity it is not possible to pinpoint the moments where learning takes place without

more intense methods for data collection in place. Instead, this chapter has tried to provide a description of the process from the researcher's perspective and some snapshots of the different parts of the process.

The rapid pace of changes is often exhausting for teachers whose main responsibility is to teach and to 'produce results' in one form or another. Learning how to use new tools is not really part of the job, and opportunities and time for pedagogical development are not always available. For that reason, we have originally started to develop the kind of activity-centred design framework that places the teacher's capacity to act (agency) in the central focus and emphasises the negotiation of meaning where the teacher is encouraged and expected to bring his or her own pedagogical thinking to the discussion. The development of the framework has been complemented with organizational resources, such as the post of pedagogical developer.

By looking at the teachers' design practices, it is possible to see patterns of change and presume how change takes place. The development process as we have discussed it here supports the view that, in the development work, agency and expertise are relative and progress from access to ownership to, finally, authorship. This, however, presupposes that the teachers are offered the chance of being codesigners and the teachers are willing to take on that task. As a result of the cooperation between the teacher and the researcher, something new is created and new practices emerge. At this point, it can be only assumed and predicted that these new practices have sustainable elements on the microlevel.

At the organisational level, both the pedagogical and technological resources were allocated for the development work as needed, and it is important to ensure that both are available for the teachers whenever they are needed. A constant dialogue between the teachers and the administration is needed to ensure the goals are negotiated and renegotiated as things progress.

The dissemination of these new practices takes place more naturally through academic channels, i.e., journals and conferences, but not as horizontally within the organisation. However, our preliminary observations indicate that the dissemination has made the new practices more accessible to other teachers, too. This can be interpreted from the fact that, following the dissemination of our different cases, many of the teachers

have contacted the researcher and have proposed collaboration in terms of pedagogical development.

Drawing on these results, we argue that designing research-based, dynamic teaching and learning environments supports sustainable educational development. Most, if not all, development work should be built on teachers' existing pedagogical thinking, and not on the objectives laid out in the research and development project. During the research-based design process the teachers need to share freely their current thinking and course designs, and, likewise, and the researchers need to share their thoughts. When this happens, a negotiation of meaning will take place, and a shared understanding can be reached. As Fullan (2007b) advises, it might be useful to tone down the term 'professional development' and start talking about 'professional learning'.

In this chapter we have described a research setting that is still very experimental and exploratory. The results so far seem quite encouraging even if only time will tell how sustainable the practices developed during this research will be. Nevertheless, we feel it is crucial that more research is done in the area. The research should focus specifically on the mechanisms involved in supporting and developing authorship as part of the sustainable development of teaching. For instance, qualitative accounts of the negotiation of meaning in the development work could provide some new insights into the dialogic relationship between teachers and researchers.

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IV

DIGITAL TEXTS FOR LEARNING FINNISH: SHARED RESOURCES AND EMERGING PRACTICES.

by

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DIGITAL TEXTS FOR LEARNING FINNISH: SHARED RESOURCES AND EMERGING PRACTICES

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Recent studies in the field of new literacies have indicated that a remarkable change in the way we access, consume, and produce information has taken place. The boundaries between concepts such as authorship and ownership have become blurred. This paper will deal with using digital texts in teaching reading comprehension on a university-level course with a special focus on Finnish as a second language. Furthermore, the benefits and challenges of teaching L2 reading comprehension in a multimodal learning environment will be discussed. The three main perspectives utilized are meaningfulness, sharing, and adaptivity. The students attending the course described in the paper were advanced university students from various European countries, who studied Finnish as a second language. The study examines the literacy practices that take place when learners of Finnish as a second language engage in reading and writing blogs in a reading comprehension course. The results of this study indicate that sharing, meaningfulness and adaptivity promote learners' engagement with reading as a social practice and thus support the claim that using blogs represents opportunities to enhance L2 reading comprehension skills.

Keywords: Digital Texts, Literacy, Reading, Multilingualism

INTRODUCTION

Recent research has produced widely varying accounts of literacy practices and the contexts in which they occur. Today, our textual and media landscape is considerably more multifaceted than it used to be: texts are significantly more multilingual and multimodal, integrating different ways of creating meaning (Pennycook, 2010; Gee, 2004; Kress, 2003, 2010; Lankshear & Knobel, 2006). With regard to literacy practices, this means, for example, that social media has assumed a central role. Furthermore, new literacy practices are typically part of a culture of participation and sharing (Jenkins, 2006). Emerging technologies enhance language learning experiences by providing the possibility to use language in situations where technology is an artifact that mediates activity (Thorne & Reinhardt, 2008; Thorne, 2009; Lund & Hauge, 2010).

The present study examines the literacy practices that take place when learners of Finnish as a second language (FSL) engage in reading and writing blogs in a reading comprehension course (for comprehensive overviews of blog use in language learning and teaching, see Sun and Chang, 2012; Yang, 2011). The study relies on literacy research theories that view literacy skills as social practices. The paradigm is grounded in the socio-cultural idea of language and its respective processes (Lantolf, 2000). Instead of an individual's activities, the focus is on interaction and social activities. Particular attention is paid to literacy that has been shaped by the emerging technologies (Kress, 2003; Lankshear & Knobel, 2006).

Finnish as a Target Language

Approximately 5.3 million people speak Finnish as their mother tongue (Statistics Finland, 2012), making it one of the less-commonly-taught languages in the world. However, the increase in immigration over the past two decades has dramatically increased the instruction of Finnish as a second language (FSL). Approximately three percent of Finland's population are immigrants (Statistics Finland, 2012), most of whom are provided with language instruction. In compliance with their internationalization strategies,

universities have also increased the volume of Finnish language courses provided for both exchange and degree students. Outside of Finland, Finnish is taught as a foreign language at approximately one hundred sites in different parts of the world (Centre for International Mobility, 2012).

Research Scope in FSL Research

In the field of Finnish as a Second Language, research has been mainly concerned with speaking and interaction (Kurhila, 2003; Suni, 2008; Lilja, 2010), writing (Kalliokoski, 2005; Tarnanen, 2002) and structures (Martin, 1995; Kaivapalu, 2005). Thus, reading comprehension and literacy skills have received less attention (Vaarala, 2009). Many of the studies focus on language development at an early stage of learning a new language (Suni, 2008), whereas more advanced language learners (or, preferably, language users) have not been an area of research concentration. Moreover, the pedagogy of FSL has not been sufficiently explored.

Some literacy research on FSL has been carried out, but it has mainly focused on traditional literacy skills; this approach has been relevant until recently. In the context of Finnish language, digital texts have so far received only sparse research attention (see Vaarala & Jalkanen, 2010, 2011). Even so, changes in the surrounding textual world have generated the need for new initiatives in research as well. In other words, there is an obvious research gap concerning the pedagogy of multiliteracies (Cope & Kalantzis, 2000) in the field of Finnish as a Second Language.

CONCEPTUAL FRAMEWORK FOR DIGITAL TEXTS IN LANGUAGE LEARNING

New Dynamics of Reading

Reading is in a profound state of change. The Internet has reshaped our mode of reading from a linear to a more multimodal approach that requires new kind of competences (Burke & Rowsell, 2008; Leu et al., 2008; Coiro & Dobler, 2007). The traditional text is not the only constructor of meaning; videos, music, social media, and multidimensional hypertexts also carry the reader along paths of meaning-making during which the reader is an active agent. These processes, in which texts are mixed and reconstructed, blur the boundaries of textual ownership and authorship. This kind of change encourages a pedagogical shift of focus from content-based to activity-based design, where the learner's ability to transform the activity into a meaningful one is key (Blin & Jalkanen, 2012). Through the transformation process, learners manifest their agency and ownership of the learning process.

There has been a conceptual change from reading as a psycholinguistic concept to a wider understanding of literacy both as individual and social practice (Lankshear & Knobel, 2006). Nowadays, the concept of literacy refers to a broad utilization of texts that encompass both reading and writing (Barton, 1994) as well as the aspect of multimodality (Kress, 2010), for instance, the reading of images and video clips and commenting online on one's own and other people's texts. The process of reading more and more incorporates a variety of material and social resources, such as videos, images and other people. From the pedagogical perspective this means that the focus is on the activities stimulated by texts rather than on measuring or evaluating an individual reader's ability to understand an individual text.

Textual activities are practices rather than skills or competences. These practices are related to a certain way of thinking and talking, as well as to a certain set of values and beliefs. They link an individual to a specific social group, family, workplace community, or school class. Literacies are thus seen as something done by a group of people, and accordingly, are the opposite of an individual's process (Scribner & Cole, 1981; Barton, Hamilton, & Ivanic, 2000).

Teaching reading comprehension in a foreign or second language (L2) context typically begins with lexically and syntactically simple texts. The traditional mindset has been that one must master the system of a language before processing and understanding entire texts. Learners with reading difficulties are also frequently offered easier texts. This is inconsistent with the fact that learners continuously run into

complex texts in their everyday activities and actually need strategies for dealing with these texts. Literacy plays a crucial role, particularly in the context of L2 learning.

The fundamental change in reading poses multiple challenges to the pedagogy of L2 literacy. It urges us to reflect from a new perspective on the criteria for a good assignment (for instance, how to create an assignment that genuinely encourages learners to interact). Learners today also have easier access to texts that they find meaningful; taking this into account in teaching typically dismantles the roles of teacher and learner.

Affordances and Language as a Local Practice

Many of the contemporary views on language and language use posit that language practices are situated and local. According to Pennycook (2010), language emerges from the activities it performs. What this means is that "...grammars and structures of language, from this point of view, are always emergent rather than predefined" (p. 129). Consequently, "once we accept that language is a social practice, it becomes clear that it is not language form that governs the speakers of the language but rather the speakers that negotiate what possible language forms they want to use for what purpose" (Pennycook, 2010, p. 129). This kind of approach puts the concept of competence in a new light. Citing Canagarajah (2008), he further suggests that "if we want to retain a notion such as competence, it refers not so much to the mastery of a grammar or sociolinguistic system, as to the strategic capacity to use diverse semiotic items across integrated media and modalities" (Pennycook, 2010, p. 129).

Language as emergent can be perceived as an ecological system that affords language users the ability to act on it, both globally and locally. Drawing on Gibson's (1986) legacy, many studies that examine language learning from an ecological viewpoint make use of the concept of *affordance*. Following Gibson (1986), for instance, van Lier (2000) defines an affordance as "a particular property of the environment that is relevant—for good or for ill—to an active, perceiving organism in that environment" (p. 252). However, as van Lier further notes, "an affordance affords further action (but does not cause or trigger it)," (p. 252) which means that "what becomes an affordance depends on what the organism does, what it wants, and what is useful for it" (p. 252). While being aware of the purpose(s) for which a certain tool can be used (e.g., blogs for reflection), it is good to bear in mind that affordances are situational and mediated through cultural and historical development. This is reflected by Gibson (1986), who points out that perceiving an affordance is not the same as classifying an object:

> The fact that a stone is a missile does not imply that it cannot be other things as well. It can be a paperweight, a bookend, a hammer, or a pendulum bob. It can be piled on another rock to make a cairn or a stone wall. These affordances are all consistent with one another. (p. 134)

This is the case with many technological innovations that over time can be used to do something entirely different than what they were designed for. In other words, "it is the activity that determines what is picked up, not the complex environment" (van Lier, 2004, p. 93). Framing this in terms of learning, van Lier rightfully remarks that "a simple learning activity is possible in a complex environment (given appropriate guidance), and the environment remains there as a potential proximal source of instigative processes" (p. 93). He also describes how affordances are "those relationships that provide a 'match' between something in the environment […] and the learner" (p. 96). Thus, it is the enacted pedagogical design that either affords or constrains these relationships.

Reading as a Social Practice

A great body of research on literacies holds the view that literacy is a social practice that takes place within a social group, a community. This view is based on an assumption that through learning the practices of a community, learners gradually become acknowledged members of the community (Lave & Wenger, 1991). However, in participatory endeavors in social media, the typical features of a community,

such as membership and belonging, are situated and fluid. This is reflected by Thomas and Brown (2011) in their attempt to define a new culture of learning, which makes a distinction between a community and a collective:

> We call this environment a *collective*. As the name implies, it is a collection of people, skills, and talent that produces a result greater than the sum of its parts. For our purposes, collective is not solely defined by shared intention, action, or purpose (though those elements may exist and often do). Rather they are defined by an active engagement with the process of learning. [...] In communities, people learn in order to belong. In a collective, people belong in order to learn. (p. 52)

According to Jenkins (2006), "[A] participatory culture is also one in which members believe their contributions matter, and feel some degree of social connection with one another (at the least they care what other people think about what they have created)" (p. 3). The same spirit is echoed by Gee (2004), who argues that "people learn best when their learning is part of a highly motivated engagement with social practices which they value" (p. 77). Thus, the activity is meaningful to them.

Our textual and media landscape is considerably more multifaceted than it used to be. Texts are significantly more multimodal and integrate different ways of creating meanings. With regard to textual activities, this means, for example, that social media has assumed a central role. Furthermore, textual activities are typically part of a culture of participation and sharing (Jenkins, 2006). Let us use a small vignette to illustrate this: A Facebook user recommends a journal article, either by reading an online journal and then clicking on the *Share on Facebook* button or by posting a direct link to the article on their Facebook Wall. Facebook users can then comment on the recommendation—it can be "liked" and forwarded to other people. In addition, the reader can go to the journal's website and take part in conversations pertaining to the article. A blog or social bookmark may also function as a channel for sharing such material. The writers of different blogs and microblogs can communicate with their readers online. Never before has such a close relationship between the reader and the author been possible.

The reading process no longer needs to end with reading and discussing a text. Instead, the output can be a video, in which the reader responds with his or her own interpretation of the text. A video uploaded to YouTube may receive a momentary burst of attention in the form of views and comments. The video might even go on to be disseminated via other social media channels, and new versions thereof may be created.

In this way, new media forms facilitate a dialogue in which different languages and cultures mix and go on to form new operational cultures. This kind of intercultural dialogue is particularly interesting from the perspective of language teaching, but adopting new textual syntheses in the classroom also calls for new pedagogical practices. Teachers are in fact faced with the challenge of students' increasingly varied backgrounds in terms of culture, identity, prior knowledge, and ways of thinking and behaving. This is the new setting in which learners develop their language skills, identities and new ways of thinking and operating.

RESEARCH DESIGN

This qualitative study employs a *critical design ethnography* approach (Barab, Thomas, Dodge, Squire, & Newell, 2004). Critical design ethnography is "a process that sits at the intersection of participatory action research, critical ethnography, and socially responsive instructional design" (p. 254). Contrasting this approach with traditional ethnographic research "in which the researcher seeks primarily to understand (not change) the conditions of the community being studied," (p. 254) the authors claim that "participatory action research assumes a critical stance, in which the researcher becomes a change agent who is collaboratively developing structures intended to critique and support the transformation of the communities being studied" (p. 254–255). Implementation of the critical design ethnography method can

assist the researcher in developing an understanding of the use of blogs from the perspective of language as a situated practice, as well as in development of the course.

Multimodality of the new literacies is the point of departure for the analytical framework developed in an earlier stage of this study (Vaarala & Jalkanen, 2011). In this framework, literacy events are seen as social sites for being, doing, and learning. The analytical framework aims at explaining the dynamics of reading as a social practice in a digital environment by providing an ethnographic account of the literacy practices that take place when learners engage in reading and writing digital texts (in this case, blogs). Through three dimensions—namely sharing, meaningfulness and adaptivity—this study attempts to capture the diversity of the ways in which students operate in the digital text and media environment using the target language (that is, Finnish). We pose the following research question: How are the dimensions of sharing, meaningfulness, and adaptivity reflected in the multimodal literacy practices of Finnish language learners?

Study Context and Participants

The course considered in this article is part of the Finnish as a Second Language (FSL) curriculum offered at the University of Jyväskylä Language Centre. The course's intended learning outcome is for students to have more confidence in reading Finnish texts and finding information even in difficult texts, as well as to develop their reading strategies. Moreover, students can expect to improve their knowledge of Finnish structures and vocabulary. The pedagogical challenge stems from the short duration of each course (12 in-class sessions, 4 ECTS credits), which is why it is particularly important to build a pedagogical progression that extends across course boundaries.

The course included twelve FSL students (n = 12) from across Europe and Japan. Their language proficiency levels varied, but broadly corresponded to the B1–B2 levels of the Common European Framework of Reference for Languages (2003). Some of the students were in Finland for a six-month exchange period, whereas others had lived in the country for several years. The proficiency levels of the students were also affected by how long they had previously studied Finnish and how many Finnish-speaking contacts they had. The major subjects of the students varied from economics, educational science and intercultural communication to different languages.

Data Collection and Analysis

Data collection is described in Table 1. Blog posts written by the students comprise the main data source of this study.

Table 1. *Data collection of the study.*

Content of Data Sources	Data Source
Literacy practices	Assignments
	Reading diaries
	Blog posts
	Class discussions
Experiences, perceptions	Survey
	Feedback form

In an earlier cycle of the course, students read digital texts (including blogs) and kept a reading diary. To analyze data from that cycle, an analytical framework consisting of three dimensions (namely sharing, meaningfulness and adaptivity) was developed (Vaarala & Jalkanen, 2011). In this cycle, the same analytical framework was used to analyze the students' blog writings. The analysis was conducted in two stages.

Observing the students' blog writing activity was an ongoing process. During the course, the two researchers met each week to discuss the students' blog posts on the basis of observation notes that they made independently from one another.

After the course, the dataset—consisting of all blog posts produced by the students—was analyzed qualitatively. Data was processed as follows: First, the researchers read all the students' blog entries separately, making notes. Second, based on the notes, the content of blogs was divided into three categories drawn from the analytic framework mentioned above. Third, the categorized data was studied in relation to the research question. To increase the validity of the research, all interpretations were compared and discussed by the researchers.

RESULTS

The results have been divided into three sections: sharing, meaningfulness, and adaptivity of digital texts. The concretization of these three components in the learning situation is illustrated by the following figure:

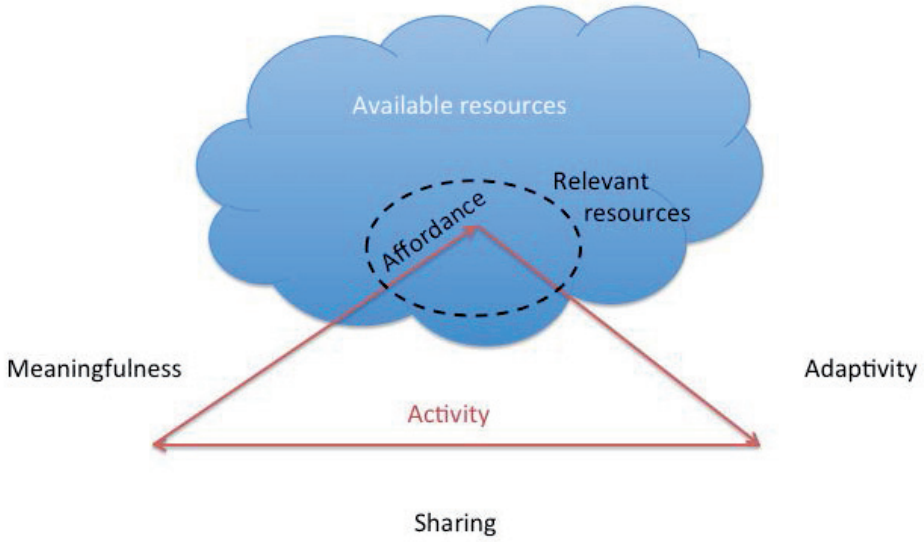

Figure 1. Sharing, meaningfulness, and adaptivity in a learning situation.

In the figure above, the cloud illustrates the available resources for meaning-making and learning. As discussed in the section on affordances, it is the activity that determines what is picked up in the environment (i.e., what becomes a relevant resource (affordance) for the learner). In the process of appropriating these resources for the meaning-making activity, the learner constructs a new semiotic item that has a new meaning. These processes are shaped by the sharing of cognitive and material artifacts, meaningfulness of the activity, and adaptivity of the digital environment.

Sharing

New forms of participatory publishing are continuously developed in online environments based on sharing, collaboration, feedback, increased interaction and evaluation. Blogs are a form of participatory

publishing clearly associated with the revolution taking place in media culture. The author's ownership is concretized in blogs in various ways: for instance, authors are free to modify the blog's layout and user settings to suit their personal preferences.

From the viewpoint of sharing, the blog is a particularly interesting type of text. Images and text are circulated in blogs in the form of quotations and hyperlinks. Blog texts can be shared within a limited group or even with the whole world. Experiences and perceptions are shared in blogs, and readers can take part in the writing process by commenting on the blog texts.

Blogs were included in the course texts because of their multifaceted nature in terms of content and language. The students both wrote and read blogs in the course. In the blog assignments, students were asked to choose a blog written in Finnish that interested them personally, and to explore it over a one-week period. They were also advised about where to find blogs, for example, depending on the topic. After the week was over, they were assigned to answer some questions about the blogs. These questions were related to the blog's theme, style, content and visual aspects. The answers provided a basis for the discussions held in class, in which each of the students could present the blogs they had been reading. We were astonished to hear that only a few of them had ever read blogs before.

In addition to familiarizing themselves with other blogs, we asked the course participants to keep a "reading blog", a record in their own blog space of what they had been reading that week. The purpose of this was to increase the students' awareness of their individual reading practices, to give the participants the opportunity to see each other's reading blogs and, above all, for the course teachers to find out what the participants read in their leisure. The reading blogs indicated that the students mainly read digital – usually shared – texts in their free time.

Two types of content could be identified in the students' blogs: "what am I doing now?" (i.e., *lifecasting*, in which authors tell about the things they see or experience at that very moment) and "what am I thinking now?" (i.e., *mindcasting*, in which authors share their thoughts and reflect on matters more profoundly. For more on lifecasting and mindcasting, see Jay Rosen's http://jayrosen.tumblr.com/post/110043432/mindcasting-defining-the-form-spreading-the-meme).

Lifecasting

In the following example of lifecasting, the author describes her own course activities in the context of a Finnish poet's commemoration day and the tarts traditionally served then. She also linked to a picture of the food and its recipe in the blog. We have translated student grammar errors into the English gloss.

Nyt istun tekstejä suomeksi-2:n kurssilla ja kirjoitan tätä tekstiä.	Now I'm sitting in Texts in Finnish 2 course and writing this text.
En ole varma voinko jatkaa kirjoittaa jotain suomeksi pitkään aikaan...katsotaan.	I am not sure if I can continue write something in Finnish since long.. let's see.
Tänään on 18. tammikuu ja se tarkoittaa, että meidän vain noin vain 20 päivää kunnes tämän vuoden Runebergintorttun 'sesonki' menee loppuun.	Today is 18 January and it means that our only about only 20 days until this year's Runeberg tarts 'high season' goes to an end.

5.helmikuu on Runebergin päivä joka vuosi, tietysti.	5 February is Runeberg's Day every year, of course.
Suomessa se voidaan ostaa vain tammikuusta helmikuun viides päivään asti.	In Finland it can be bought only from January to day fifth of February.
Tämä oli aika yllättävä juttu minulle ja kysymys 'miksi näin?' oli ja on vielä mysteeri.	This was quite a surprising thing for me and the question "why like this?" was and still is a mystery.
Muuten, tämän ajan voidaan maistaa sitä joka päivä jos haluamme.	By the way, during this time it can be tasted every day if we want.
Reseptin mukaan, ainet näkyvät tosi yksinkertaisia, vaikka jauhetta, sokeria, munaa ja hillo.	According to the recipe, the ingredients show really simple, as some powder, sugar, egg and the jam.
MUTTA, maistuu hirveästi ihanaa!!!	BUT, tastes awfully of wonderful!!!
Tänä vuonna, yritetäänkö leipoa sitä itse, miksi ei??	This year, we'll try to bake it ourselves, why not??
Runebergintorttu-resepti	Runeberg's tart recipe

(18.1.2011, babochan)

On the following day, the student tells that she has baked the delicacy described in her blog text. She also links to a photo of her tart in this blog post.

Muuten, leivoin runebergintorttua. Siitä tuli aika kuivempi kuin toivoin, mutta maistuu ihan hyvältä. Toivittavasti, siitä tulee parempaa seuraavana kokeiluna.	By the way, I baked some Runeberg's tart. It became rather drier than I hoped, but tastes quite good. Hopofully it will be better as the next experiment.

(19.1.2011, babochan)

In the context of language learning, an activity like this indicates that the student has understood the Finnish text she has read on the Internet and acted accordingly, but it also indicates that the student is willing to share her own text and activity with the other course participants. In addition, the learner refers to "the next experiment," which indicates that she is going to read the text again, and consequently, the learning activity is likely to continue.

In this case, the learner has utilized a semiotic item (recipe) to conduct an activity (baking). She then reports the activity by elaborating on the description with another semiotic item (image) and a link to the original recipe that breaks the convention of a linear text. This process of action can be seen as the strategic capacity to make meaning as described by Pennycook (2010). Moreover, language can be seen as (social) action. In other words, language emerges from the process of activity, starting from reading the

recipe and moving to reporting it in social media. This activity is a potential site for learning.

Mindcasting

The following extract exemplifies mindcasting. The student reflects on the Eurovision Song Contest and invites others to join the discussion both via the interrogative heading and the questions at the end of the post. She also gives a link to a video of the Finnish participant's performance in her blog post, with the intention of introducing others to the issue.

Tykkäätkö Euroviisuista ?	Are you into the Eurovisions?
Tänä vuonna oli ensimmainen kerta kun minä katsoin Euroviisujen karsintakilpailut. Katsoin niitä Jyväskylässä suomalaisen ystävän luokse, muiden Erasmusten kanssa. Suomalainen finaali pidettiin viime lauantai-iltana. Suomalainen voittaja on Paradise Oscar, joka lauloi "Da Da Dam". Minusta tâmä laulu on yksinkertainen, mutta on miellyttävää kuulla sitä koska se on rauhallinen. Mutta, voi ei kun laulaja laulaa englanniksi!!	This year vas the first time I watched the Eurovision national finals. I watched them in Jyväskylä to a Finnish friend's house, with other Erasmuses. The Finnish final was held last Saturday night. The Finnish winner is Paradise Oscar, who sang "Da Da Dâm". I think this song is simple, but it is pleasant to hear it, because it is peaceful. But, oh no why the singer sings in English!
Minusta on tosi tyhmää se, että Euroviisuissa on paljon englannin-kielellä lauluja. No ok, englannin ansiosta on helpompi ymmärtää sanat, mutta sitten, lauluissa ei enää ole sitä jotakin eritysta ja eksoottista. Euroviisujen ansiossa voisimme kuulla "tuntemättomia" kieliä. Esimerkiksi tykkään kuulla turkkilaista kieltä koska en ole tottunut siihen. Mutta jos kaikki laulaa englanniksi ei ole mitään omaperäistä...	I find it real stupid that the Eurovisions have lots of in-English songs. But ok, thanks to English it is easier to understand the words, but then, the songs no longer have that something specil and exotic. Thank to the Eurovisions, we could hear "unknown" languages. For example, I like to hear the Turkish language, because I'm not used to it. But if everybody sang in English there is nothing original...
... Entä sinä? Oletko katsonut Euroviisut? Mitä sä ajattelet siitä? Oliko sinulla lempilaulu?	What about you? Have you watched the Eurovisions? What do u think of it? Did you have a favorite song?
http://www.youtube.com/watch?v=Wx5KvnpCjpY	
Suomen voittaja Paradise Oskar laulamassa hänen laulua.	Finland's winner Paradise Oskar singing the song of his.
(18.2.2011, emilie89)	

In the extract above, the learner makes use of the affordances of the digital environment by using audiovisual components (video), which enable the interaction between learners in a different way than a situation where sharing of video was not possible. In other words, sharing the video creates a shared ground for interaction.

Meaningfulness

The utilization of authentic texts in teaching a second or foreign language is a much-debated topic (see Gilmore, 2007). Instead of focusing on text authenticity, we would like in this article to pay attention to the meaningfulness of the activities around texts. In this context, we refer to meaningful activities associated with situations and tools of language use outside of the classroom. These activities have a genuine purpose and audience.

Individual Perspective

How is meaningfulness related to the instruction of reading comprehension? We can illuminate the question by means of two examples: A student who has not had problems with reading has a hard time understanding why one should learn reading strategies. Conversely, a student may find reading a text meaningless if it requires prior knowledge of the topic, which the student does not have, or if he or she is not interested in the theme. This is evident in the following student's blog text:

> Toisaalta lopetan nopeasti lukemista, kun huomaan sen olevan tylsä eli se ei kiinnostaa mua ja vielä nopeammin kun teksti on monimutkaisempi. Hyvä esimerki on SANEn sähköpostit, usein aiheet eivät kiinnostaa mua ja sitten en edes avaa sitä, vaikka siinä olisi mahdollisuus lukea jotakin suomeksi. Muutamat tekstit, jotka ehkä eivät kiinostaa mua, mutta on luettava, saan aina oppettajiltani kursseilla.
>
> On the one hand, I quickly stop read, when I notice it is boring or not interests me and even more quickly when the text is more complicated. A good exampl are SANE's emails, often the topics not interest me and then I don't even open it, even if it would be a chance to read something in Finnish. A few texts that maybe don't intrest me, but must be read, I always get from my teacchers in the courses.
>
> (pikkumaja, 23.2.2011)

Meaningfulness may thus be learner-based. This is the case, for instance, when a student's life circumstances make something meaningful. Particularly in education, one should consider that making something meaningful sometimes requires a process that consists of various phases, by means of which the student is led to understand the meaningfulness of the issue at hand. Based on the data, it seems that meaningfulness of the course texts was crucial for the students:

> Toisaalta luulen, että on vaikea löytää tekstiä, joista kaikki on kiinnostnut, mutta totta kai on helpompi lukea teksti, kun se kiinnostaa mua.
>
> On the other hand, I think that it's hard to find a text which would intrest [sic] everybody, but of course it's easier to read a text when I'm interested in it.
>
> (andin blogi, 21.3.2011)

As seen in both examples, there seems to be a discrepancy between the texts that are perceived as meaningful by the learner and those seen as meaningful by the teacher. In the first example, the learner argues that it is the teacher that chooses the most uninteresting texts. This suggests that texts chosen by the learner are more meaningful than the texts chosen by the teacher. However, the second extract indicates that learners also understand the difficulty of choosing meaningful texts.

Social Perspective

A digital learning environment offers excellent opportunities for the implementation of spontaneous meaningfulness. Instead of static groups, it could be more useful to speak about dynamic spaces, in which people with similar interests form momentary affinity spaces (see Gee, 2004). When building a learning environment, we have tried to offer spaces for these kinds of encounters. For instance, the blogs

constituted a space for sharing different multimedia elements (e.g., links, videos, graphics) for writing about topics that one finds meaningful and for commenting on other students' entries.

It is interesting to observe how students utilize these spaces. It very often seems that when students comment on each other's blogs, they address topics that the author has explicitly presented as meaningful. In the comment threads of blog texts, students form temporary affinity spaces, in which they discuss meaningful themes and consequently improve their mastery of vocabulary and reading comprehension through reactions to the asynchronous dialogue.

One of the students kept a reading journal in her blog. In one of her entries, she writes about various topics, linking related articles, images and videos to the blog. The second paragraph of the entry—concerning the aurora borealis—seemed to distinguish itself as meaningful for the other students:

Eilen juoksin kaverin luo joka asuu 9. kerroksessa. Se kertoi, että voi nähdä sieltä revontulia. Kello oli jo 23.59 mutta ei se ollut ongelmaa, juoksin. http://www.iltasanomat.fi/ulkomaat/Valtava%20auringonpurkaus%20-%20luvassa%20revontulia%20ja%20uhkaa%20radioliikenteelle/art-1288369815886.html - Tämän kirjoituksen mukaan uskoimme, että ehkä tapahtuu jotain :) Valitettavasti ikkunasta näimme vain sumua ja oranssi taivasta, mutta ehkä toisella kerralla tulee se ihme. Sanotaan, että Lapissa ilmestyy useammin, mutta koskaan ei voi tietää. (meriloma, 18.2.2011)	Yesterday I ran to a friend who lives on the 9th floor. This guy told that he can see the aurora borealis from there. It was already 23.59 but it was of no problem, I ran. http://www.iltasanomat.fi/ulkomaat/Valtava%20auringonpurkaus%20-%20luvassa%20revontulia%20ja%20uhkaa%20radioliikenteelle/art-1288369815886.html - According to this writing, we believed that something perhaps happens :) Unfortunately from the window we saw only mist and orange sky, but maybe another time that miracle will come. They say that in Lapland appears more often, but one can never know.

The student's entry elicited the following comment thread:

pikkumaja kirjoitti... voi ei, varmasti näet joskus revontulia!! Niin kuin kerroin sulle jo, näin niitä Lapissa perjantaina. Mutta! Eras ranskalainen poika kertoi mulle, että hän näki revontulia maanantaina illalla myös Jyväskylässä!!! 20. helmikuuta 2011 9.16	pikkumaja wrote... oh no, certainly you will see the aurora borealis some time!! As I told u before, I saw them in Lapland on Friday. But! Ä French boy told m' that he saw the aurora borealis on Monday evening also in Jyväskylä!!! 20 February 2011 at 9:16 a.m.
meriloma kirjoitti... Niin Maja, olen tosi kateellinen :)! Maanantaina? Oliko se oikeasti revontuli? Kaverikin luuli, että kyllä se on, mut sanoin hänelle et se on vain oranssi sumu =) 20. helmikuuta 2011 9.41	meriloma wrote... Well Maja, I'm real jealous :)! On Monday? Was it really an aurora borealis? The friend also thought it was, but I said to 'm it's just the orange mist =) 20 February 2011 at 9:41 a.m.
pikkumaja kirjoitti...	pikkumaja wrote... hahaha I don't believe he only saw mist...,

hahaha en usko, että hän näki vain sumua..., mutta oli poika..siis...kaikki on mahdollista!! XD
28. helmikuuta 2011 0.57

Hanna kirjoitti...
kyllä, sehän oli mahdollista kun sinä viikonloppuna oli mahdollsita nähdä revontulia jopa Puolassa, koska sitä auringonsumua (vai mitä se oikeesti on) oli siihen aikaan todella paljon ja se levisi etelään. harmi kun mä itse en nähnyt mitään jyväskylässä :(
12. maaliskuuta 2011 23.44

but the boy was...altogether...everything is possible!! XD
28 February 2011 at 12:57 a.m.

Hanna wrote...
yes, it was possible indeed as that weekend it was possible to see the aurora borealis even in Poland, because then there was really a lot of that solar nebula (or what is it actually) and it spread to the south. it's a pity I personally saw not a thing in jyväskylä :(
12 March 2011 at 11:44 p.m.

The aurora borealis arose as an important, meaningful topic for the learners in the discussion. Their language skills are demonstrated even by the use of *revontulet* (aurora borealis, or the northern lights), an uncommon Finnish word which some of the learners had discovered and employed as part of their personal expression. The participants also expressed their emotions, which is something known to strengthen vocabulary acquisition and retention. Conveying cultural information—such as where the aurora borealis can actually be seen—was also one of the discussion themes. The appearance of all of these elements in the same comment thread suggests learning.

The extracts above illustrate the formation of momentary affinity spaces is something typical for digital text environments and the social aspect (i.e., sharing and interaction) highlights even more the meaningfulness of these spaces for the learners. These affinity spaces, however, do not usually last for long periods of time, but their evolution can be seen in an ad hoc fashion.

Adaptivity

The ubiquity of technology has altered many of our everyday practices to a great extent. Here we are not only talking about technology meant for language learning or teaching, but also about the presence of different technologies in many of our daily activities—often without us paying particular attention to their use (see Cope & Kalantzis, 2009).

We stated earlier that the digital environment casts the concepts of second and foreign languages into a new light: on the Internet, learners can operate in the target language environment and surround themselves with target language resources (Vaarala & Jalkanen, 2011) as if they were operating in a country in which the target language is actually spoken. Target language resources can include multilingual websites, social media, dictionaries and translation software, which especially promote comprehension of the target language.

Digital Multilingual Competence in Adaptive Environments

When analyzing the data, we noted the interesting ways in which the learners commented on their own ways of utilizing social media. Here one of the participants reflects on her own multilingual textual worlds through an example of her Facebook use in the studied language:

Tietysti käytän facebookia ja olen vaihdellut kieli suomeksi jo kauan aika sitten.
(pikkumaja, 13.2.2011)

Of course I use facebook and I have switched language to Finnish already long time ago.

This kind of activity advances the learner's receptive skills and promotes the development of functional language competence. The ability to operate in different languages in a digital environment does not necessarily mean that the learner is able to use these languages in the same way in other contexts (for example, face-to-face communication).

The process of moving between texts is typical of online environments. This feature is also interesting in the context of L2 learning. The learner can easily change, for instance, the language of a website:

Kun käytän wikipediaa teen sen kahdella tavalla, toisaalta etsin sana saksaksi ja vaihtan sitten suomeen kielteen tai etsin heti suomeksi. (pikkumaja, 23.2.2011)	When I use the wikipedia I do it in two ways; on the one hand, I search for a word in German and then chanqe to Finnish lanquage or immediately search in Finnish.

The students' activities indicate that multilingualism can—from the perspective of a digital environment—be examined in a new light. This digital multilingual competence represents the ability to operate in various languages in digital environments. In other words, learners have the capacity to make use of available resources in their learning environment that become affordances as the activity unfolds.

The development of various web applications has considerably increased the number of available resources. In addition to different mobile devices, we have access to online dictionaries and translation tools that facilitate operation between languages. The learner can translate texts quickly. Even though these translations aren't always completely accurate, we can say that the existing tools significantly affect reading comprehension in digital environments. Because the digital environment can be adapted to meet the learners' needs, the environment can thus be said to be adaptive.

Adaptive Assignments

The digital texts and assignments used in the course allowed for flexibility in terms of the students' language skills and the demonstration of different competence levels. Both the texts read in the course and the assigned tasks were flexible and enabled learner participation. The aim was naturally to achieve the course objectives, but these can and even should be achieved at different levels.

If learners personally select their meaningful texts, upon doing so they will probably also consider how the texts are suited to their respective levels of language proficiency. Students can introduce into the formal learning environment texts that they find interesting in an informal environment. This can be illustrated with another blog assignment. Students were assigned to find and read an interesting blog in the blogosphere. They then analyzed the blog based on, for example, the following open-ended questions:

- What do the blog title and the author's name (or username) tell about the content?
- How has the author presented him/herself?
- How often is the blog updated?
- What topics are addressed in the blog?

The blogs chosen by the participants differed considerably from each other. All of the learners found relevant information with which they could respond to the questions, but their outputs still varied a great deal: one of them reported in very simple language, another one posted almost nothing original and was content to merely copy from the blog suitable answers to the questions, and a third one clearly understood the content of a challenging folklore blog and took risks with language use when reporting her observations.

Another example of the assignment's adaptivity was an information retrieval assignment. One of the key skills in operating within the world of digital text is the ability to find information quickly. When information is searched for in a target language environment (in this case a Finnish environment), data

collection includes an additional challenge factor. The students were assigned to look for information on the topic *uni voimavarana* (sleeping as a human resource) (Kiili, Laurinen, & Marttunen, 2008). The exact phrase does not yield results in search engines (for example, Google). The students thus had to be able to parse the topic in segments: What does *resource* mean? And what about *sleep as a resource*? The type of information needed by each learner is determined by his or her individual views and prior knowledge of the topic, and the end result in an assignment like this can thus be very unpredictable. Precisely because students can arrive at a final point via very different paths, we wanted to phase the assignment so that these paths, or at least some points of reference, became visible. The assignment had three phases, in which the participants had to stop and specify what they were going to do next and why.

1. Determining the keywords
2. Selecting the most important websites
3. Comparing the selected sites

The opportunity for sharing was present in the different phases. This is to say, when students defined their own keywords, they could share them with the other participants in the virtual learning environment. Even when defining their keywords, the learners headed off in different virtual directions: one of them used the keywords *article*, *research outcome*, and *sleep*, and ended up with scientific articles on sleep, whereas another utilized the keywords *sleep*, *rest*, and *sleep symbols*, and arrived at astrology.

The assignment allowed the students to demonstrate very different kinds of adaptive competencies. The learners' choices of links were extremely varied. They also presented diverse justifications for their choices, such as personal interest and adequate scientific nature.

DISCUSSION

In this study, it was our attempt to employ the categories (sharing, meaningfulness, and adaptivity) drawn from an earlier study to examine the literacy practices that occur when students read and write blogs as a part of a reading comprehension course. The results of this study indicate that sharing, meaningfulness, and adaptivity promote learners' engagement with reading as a social practice.

Reading as a social practice that takes place, for instance, as an active sharing of various semiotic artifacts (e.g., texts, images, videos, links) is an evident part of learners' activity within the digital environment. The data indicates that learners actively participate in Finnish society, as can be seen in the extracts from the students' blogs. Learners form temporary learning communities around blogs and discuss topics that are at the core of current discussions in various media in Finland. These shared resources become affordances for learning as learners find them relevant in terms of their interests and language skills. Thus, in van Lier's (2004) terms, as a mediating artifact a blog provides a match between something in the environment and the learner.

It is noteworthy that even though some students claim to be passive Internet users, they may actually be very active in digital environments. A reason for this may be that the use of social media like Facebook is an everyday practice for many students and, as was pointed out earlier, technology has become ubiquitous. However, some tensions between different mindsets of learning remain. Some of the learners were socialized to a certain culture of teaching and learning that does not entail sharing and learning from others. In addition, in the case of social media, students were concerned about privacy issues.

Meaningfulness of the activities around texts can be observed on two levels: individual and social. On the level of the individual, the meaningfulness of texts appears to be a key factor that increases one's motivation to read various texts. The students, for instance, pointed out that "boring" or uninteresting texts do not sustain enough interest to keep reading them. However, we argue that to a certain degree this is a question of pedagogical design, as sometimes students need guidance in order to understand the meaningfulness of issues that may not seem relevant to them at the time. On the social level,

meaningfulness becomes apparent in the blog posts and discussions that take place in the comment threads. These writings and comments deal with culture-specific themes and are often emotionally charged, an element that has been shown to strengthen vocabulary acquisition and retention.

Technologies have to a great extent changed the way we use language in terms of where, why and how. This is also evident in our data. Students use various artifacts (e.g., Facebook) with a target language interface and operate in online environments (e.g., Wikipedia) in multiple languages (for example, by changing the language of the environment while searching for information). Thus, environments provide affordances for language learning, despite the fact that these environments have not been designed for language learning purposes. In these artifact-mediated chains of actions, we may observe a new kind of literacy taking place. This literacy, or preferably literacies, is social by nature and it operates across different languages, spaces, and timeframes.

CONCLUSIONS

This study investigated what affordances digital texts provide for reading as a social practice. It focused on one part of a reading comprehension course (blogs), which were adopted in the second cycle of the course development.

It can be argued that a wide range of semiotic resources—both in physical and virtual environments—are available to learners, but only a small part of these function as affordances. What becomes an affordance is affected by the learner's preferences (i.e., what is meaningful for the learner). The kind of micro-level analysis that we have conducted in this study manages to only partially pinpoint the affordances for learning in these complex environments. It does, however, allow a more detailed analysis of the situations where affordances can be identified.

The results of this study support the claim that using blogs represents opportunities to enhance L2 reading comprehension skills. Blogs are environments for interaction, not only with other learners but also with a wider audience. In this interaction, students make use of vocabulary they have acquired to discuss issues that relate to Finnish culture. They express experiences, opinions, values and feelings in their own words. This brings us back to Pennycook's (2010) notion of speakers negotiating different language forms for different purposes.

From the perspective of course design, it can be argued that through adaptivity and sharing, students can transform the course activities into meaningful experiences. This does not mean that learners should be left on their own in complex environments. On the contrary, both the objectives and the means to achieve these objectives should be negotiated with the learners. This kind of negotiation promotes the learners' sense of ownership regarding their own learning. Language teachers should thus guide students to choose content that suits them and tools for operating with this content. By enabling different paths for learners, the focus shifts from content to learning processes (e.g., meaningful reading) and, in the ideal case, the learner can choose from texts in the learning situation that will be experienced as meaningful.

The digital, informal textual and media landscapes of learners essentially include lifecasting, which through sharing becomes a learning resource both for the learner him/herself and other learners. In order to offer linguistic as well as cognitive challenges to learners, it is important that instruction also encourages them to engage in mindcasting activities.

It would be of interest to find out through further research:

- how different formal and informal environments (online learning spaces, social media, etc.) can effectively be used in education, and what their interrelationship is;
- what kinds of communities are formed at the interface of different learning spaces and tools, and what promotes/prevents the creation of these communities;
- how the concept of privacy changes as the learners' formal and informal environments are

integrated; and
- how the emerging forms of language use (e.g., in digital learning environments) affect the learners' identities (the real and the virtual egos).

The realization of the aforementioned components in a learning situation presumes flexible course design, taking into account the dynamic nature of the digital environment. The learning space must be extended outside of the classroom, to informal learning milieus in which students' activities are not restricted and in which the end result is unpredictable. This is a new mindset for language teaching.

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V

DESIGNING FOR LANGUAGE LEARNING: AGENCY AND LANGUAGING IN HYBRID ENVIRONMENTS

by

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Designing for Language Learning: Agency and languaging in hybrid environments

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Since the beginning of the 21st Century, we have witnessed a remarkable shift in the ways learning takes place across networks, multiple sites and timescales. As the world changes, language teaching is facing growing pressures to rethink and redesign language learning environments to respond to the demands of the 'knowledge society'. While new digitally enhanced learning spaces offer new affordances to language teachers and learners, they also increase the complexity of language teaching and learning. Furthermore, it has become evident that the affordances of new tools and spaces for learning are not always realised in formal education. Language teachers, who are willing to embrace new technologies and transform their teaching practice, need to reconceptualize their approach to language, language learning, and language teaching. In this paper, we argue that a renewed focus on design is needed. Following a brief discussion on languaging and agency, we present three educational design models and approaches, namely learning design, designed based research and activity theoretical designs, which are being used to assist course designers and teachers with the design of technology-rich learning environments and activities. We argue that design models rooted in cultural historical activity theory (CHAT) in particular can help us address the challenges briefly outlined above. Drawing on CHAT principles and their applications to design for language teaching and learning, we revisit the design of a Finnish literacy skills course offered to international students at the University of Jyväskylä (Jalkanen & Vaarala 2012a, 2012b, 2013) and its enactment, with a particular focus on the development agency and languaging episodes.

Keywords: agency, learning to design, designing for learning, teacher education

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1 Introduction

Since the beginning of the 21st Century, rapid societal changes have been emerging as a result of globalization and technologization. We have witnessed a remarkable shift in ways people access, process and produce information and in how learning takes place across networks, multiple sites and timescales (Castells 1996; Bliss 1999; Ludvigsen et al. 2011). Both learning and technologies have become ubiquitous (Cope & Kalantzis 2009). One example of the technologization of society is the ever increasing adoption of social media applications in personal, professional and educational contexts, along with the emergence of new social learning spaces such as those making use of augmented reality, gaming technologies or 3D-graphical immersive environments (e.g., Second Life). However, while technologies, and more specifically social media applications, offer new affordances to language teachers and learners, they also increase the complexity of language teaching and learning and present new educational challenges. In particular, the emergence of informal technological spaces requires from the students and teachers an ability to make use of the tools and resources available to them and to combine them to construct and shape their own personal learning environments (Laakkonen 2011). Yet, as McLoughlin and Lee (2008) remark:

> "Student-centred" and "constructivist" learning has become somewhat of a mantra in higher education, yet there continue to be significant gaps between the espoused and enacted pedagogies of teachers, both in face-to-face and online environments. (McLoughlin and Lee 2008: 641)

Furthermore, teachers often replicate, at least initially, their face-to-face teaching practice in new digital spaces as stated by Conole (2008):

> A disappointing aspect of current practice when using new technologies is that it often seems to offer more of the same, replicating, mirroring existing practice in the new medium rather than exploiting the opportunities of creating a truly new learning environment and associated experience. (Conole 2008: 188)

It has indeed become evident in many studies that the affordances of new tools and spaces for learning are not realised in formal education (Taalas 2005; Luukka et al. 2008; Kankaanranta & Puhakka 2008; Blin & Munro 2008; Jalkanen et al. 2012). As the world changes, language teaching is facing growing pressures to rethink and redesign language learning environments that respond to the demands of the 'knowledge society', in other words, that "match the needs of our learners to a world that is changing with great rapidity" (Jacobs 2010: 7).

Among many others, Wiggins and McTighe (2005: 15) argue that "too many teachers focus on the *teaching* and not the *learning*". Teachers "spend most of their time thinking, first, about what they will do, what materials they will use, and what they will ask students to do rather than first considering what the learner will need in order to accomplish the learning goals" (*ibid*). We suggest that a renewed focus on *design* might provide some new prospects for this

educational dilemma. Pre-service and in-service language teachers, who are willing to embrace new technologies and transform their teaching practice, need to reconceptualise their approach to language, language learning, and language teaching. This reconceptualisation is likely to lead to profound focus shifts, such as:

- a shift from language viewed simply as a code to *languaging*;
- a shift from a focus on learner autonomy to *learner agency*;
- a shift from teaching to *designing for learning*.

Following a brief discussion on languaging and agency, we present three educational design models and approaches, namely *learning design*, *design-based research* and *activity theoretical designs,* which are being used to assist course designers and teachers with the design of technology-rich learning environments and activities. We argue that design models rooted in cultural historical activity theory (CHAT) in particular can help us address the challenges briefly outlined above. Drawing on CHAT principles and their applications to design for language teaching and learning, we revisit the design of a Finnish literacy skills course offered to international students at the University of Jyväskylä (Jalkanen & Vaarala 2012a, 2012b, 2013) and its enactment, with a particular focus on the development agency and languaging episodes.

2 Rethinking language and language learning in digitally enhanced environments

The concept of *languaging* is frequently used in the literature to capture and explain the dynamic and multidimensional nature of language (Swain 2006, Swain et al. 2009, Pietikäinen et al. 2008, Dufva et al. 2011, Zheng & Newgarden 2012). By using a verb instead of a noun, the focus shifts from language as an object of study to language as an action or process. According to Swain (2006: 98), languaging is "the process of making meaning and shaping knowledge and experience through language". In particular, languaging about language is an integral part of the language learning process itself:

> Languaging about language is one of the ways we learn language. This means that the language (the dialogue or private speech) about language that learners engage in takes on new significance. In it, we can observe learners operating on linguistic data and coming to an understanding of previously less well understood material. In languaging, we see learning taking place. (Swain 2006: 98.)

Although primarily concerned with 'languaging about language', Swain's notion of languaging is in line with ecological perspectives on language and learning. From an ecological perspective, van Lier (2000: 246) argues that "the learner is immersed in an environment full of potential meanings [... that] become available gradually as the learner acts and interacts within and with this environment". He further argues that, in terms of language learning, "language emerges out of semiotic activity" (van Lier 2000: 252). The environment

"provides a 'semiotic budget' (analogous to the energy budget of an ecosystem) within which the active learner engages in meaning-making activities together with others, who may be more, equally, or less competent in linguistic terms" (*ibid*).

The notion of *emergence* is also discussed by Pennycook (2010):

> [G]rammars and structures of language [...] are always emergent rather than predefined. Once we accept that language is a social practice, it becomes clear that it is not language form that governs the speakers of the language but rather the speakers that negotiate what possible language forms they want to use for what purpose.' (Pennycook 2010: 129).

Pennycook (2010) further argues that the concept of *competence* needs to be revisited in light of the above. Drawing on Canagarajah (2008), he suggests that 'if we want to retain a notion such as competence, it refers not so much to the mastery of a grammar or sociolinguistic system, as to the strategic capacity to use diverse semiotic items across integrated media and modalities' (Pennycook 2010: 129). Indeed, the ubiquity of technology in everyday life as well as the many digital environments that we inhabit for work, play or socialisation, provides us with an ever expanding 'semiotic budget'. They thus provide us with increased opportunities for languaging about the world and about language as we engage in diverse activities (as in the case of online games requiring the use of a specific lexicon, register or genre in order to complete a mission or quest), and consequently for developing a capacity to use various semiotic items when the situation we find ourselves requires it (as in the case of having to use a car voice-activated command in a foreign language when abroad).

According to Holland and Lachicotte (2007), "semiotic mediation provides the means for humans to control, organize, and resignify their own behavior" (Holland & Lachicotte 2007: 115). The development of a capacity to use various semiotic resources as required in a given context or local situation can thus be seen as intrinsic to what has been traditionally referred to as the development of learner autonomy and more particularly of autonomous language use (see for example Blin 2004, 2005; Benson 2007).

However, "without ownership, agency and self-determination, autonomy cannot develop" (van Lier 2007: 48). The notion of *agency* is also particularly relevant to approaches to language teaching and learning that see languaging and emergence as constituents of the language learning process. According to Ahearn (2001: 112), agency is the "socioculturally mediated capacity to act". More specifically, it is the "capability to transcend a present situated activity context and create a new one" (Holland and Lachicotte 2007: 116), thus, as proposed by Engeström (2007: 363), enabling teachers and students to become "masters of their own lives". Such capability is in turn "made possible by the human capacity for semiotic regulation of one another and of oneself" (Valsiner 1998: 388; cited in Holland & Lachicotte ibid.), in particular with the help of tools made by oneself (Engeström 2007: 363).

Constructing and developing language pedagogies based on the above principles remain a challenge. In any given institutional context, a number of factors are likely to both afford and constrain the design activity. In the next section, we will review prevalent design models and argue for the instantiation

of models that seek to bring together the concepts of languaging and agency within a systemic and ecological approach to second language development.

3 Educational design models

Lund and Hauge (2011) remark that "[w]hen the complexity of learning environments and, thus, learning trajectories increases it becomes difficult for teachers to plan or predict how learning activities will be enacted in class" (p. 259). They use design "as a term that affords the unexpected but is enacted without resorting to mere improvisation or rigid planning" (*ibid*). In recent times, many researchers have pointed to the need for conceptual models that would structure the educational design process and support the analysis of the resulting learning activity for further enhancements (see for example Barab 2006; Laurillard 2012; Conole 2012). This interest in educational designs has led to the development of new design methodologies as well as frameworks to evaluate designs with a view to enhance them. We briefly review two of these conceptual models below, *learning design (LD)* and *design-based research (DBR)*.

3.1 Learning design

Conole (2012) describes learning design (LD) as

> [a] methodology for enabling teachers/designers to make more informed decisions in how they go about designing learning activities and interventions, which is pedagogically informed and makes effective use of appropriate resources and technologies. This includes the design of resources and individual learning activities right up to curriculum-level design. A key principle is to help make the design process more explicit and shareable. (Conole 2012: 7-8)

According to Conole (2010), "[t]he learning design research work has developed in response to a perceived gap between the potential of technologies in terms of their use to support learning and their actual use in practice" (p. 10). The primary motive behind the approach is thus to promote the use of technologies in teaching and learning in ways that are innovative and 'pedagogically sound'. The main focus of the learning design methodology is to produce representations of teachers' designs with a view to make them explicit and shareable (Conole 2010: 10).

Different representations of learning designs have been advocated by proponents of this approach. Koper and Oliver (2004) focus on the technical description of a learning design, which they define as "an application of a pedagogical model for a specific learning objective, target group and a specific context or knowledge domain" (p. 98). Together with their colleagues at the Open University of the Netherlands (OUNL), they developed what is commonly known as the IMS LD specification, which is a metalanguage represented in XML that describes teaching strategies and educational objectives. According to Sitthisak and Gilbert (2009), "[t]he IMS LD specification was developed to support pedagogical diversity and innovation, as well as to promote the

exchange and interoperability of E-learning materials" (p. 3). However, its high level of abstraction and generality makes it difficult for teachers and designers to apply it in their everyday practice (Sitthisak and Gilbert 2009). Although the IMS LD specification continues to be refined and expanded, in particular through the development of tools that can run IMS LD specifications, Conole (2010) argues that "the work has not had a fundamental impact on changing teacher practice, focusing more on the technical description and running of the designs" (p. 11). Other learning design approaches are more practice-oriented and aim to capture actual practice while providing teachers and designers with guidelines and tools to help them implement a wide range of pedagogical models in their own context. One such approach has been developed by the Open University in the UK.

The Open University Learning Design Initiative (OULDI) centres around three areas:

1. Conceptualisation – the development of a range of conceptual tools to help guide the design decision-making process and to provide a shared language to enable comparisons to be made between different designs.
2. Visualisation – use of a range of tools to help visualise and represent designs.
3. Collaboration – mechanisms to encourage the sharing and discussing of learning and teaching ideas. (Conole 2010: 15)

The visualisation aspect is particularly interesting to us. It makes use of diagrams and icons to represent the key features of a learning activity. The connections between these key features thus give "an indication of structure and a sense of flow or movement" (Conole 2008: 192), which allow teachers and designers to focus on possible sequences of mediated actions. As an example, we adapted Conole's (2010) "task swimlane", and created a visual representation (Figure 1) outlining the intended trajectory that we imagined as we were designing an online language learning task according to the following scenario[1]:

> A charity dealing with homelessness has approached your group to help raise money for them. Your group is tasked with coming up with a completely new event that would raise awareness on the issue, raise funds for the organisation and also would be fun and enjoyable for participants. It must be a completely new concept, traditional events such as auctions or race-nights are not acceptable!
>
> **Intended learning outcomes:**
>
> After completion of the task, and using the target language to communicate and to produce semiotic artefacts, learners will be able to:
> - Plan for a small project work
> - Negotiate a joint outcome for a project work
> - Create a project proposal and introduce it orally

Starting from the left, the first column (orange dots) outlines the pedagogical reasoning (or goals) for the task and each of the sub-tasks. The second column (blue dots) defines the activities that learners are expected to carry out using the

tools and resources specified in the third column (green dots). Finally, the last column (red dots) represents anticipated teaching interventions.

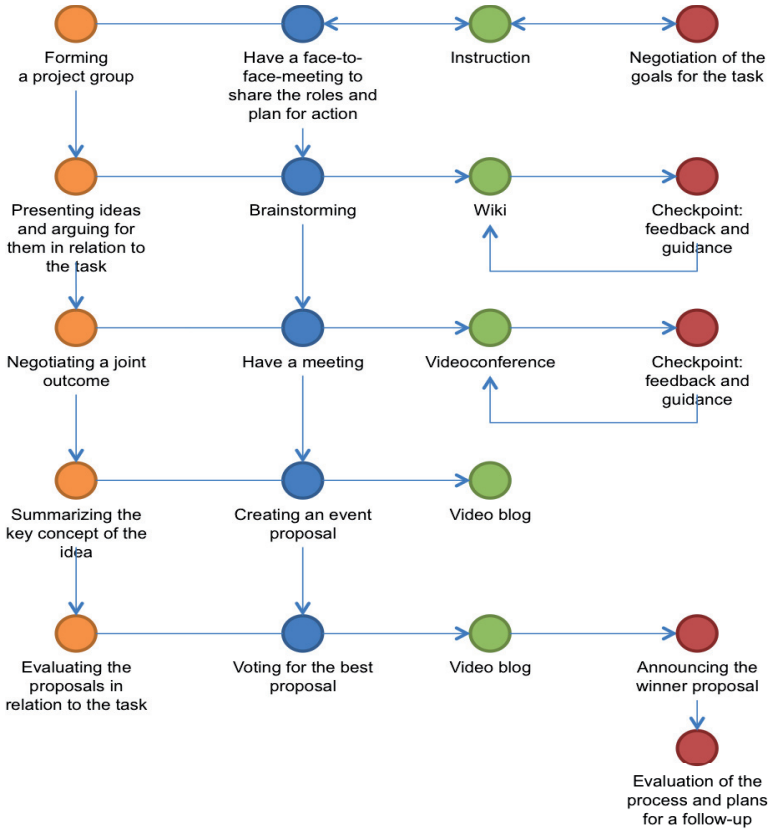

Figure 1. Visualisation of a learning design (Scenario 1)

As an alternative to textually constructed lesson plans, visual representations such as Figure 1 above enable teachers to represent, share and discuss their design ideas, among each other or with their students (Conole 2012). They function as a pedagogical blueprint, which can then be used to track the actual trajectory produced by students and teachers when the design is enacted. However, the learning design methodology as it has been described thus far does not offer conceptual tools nor does it suggest methods to critically assess the designs produced by teachers as they are enacted in real settings. Nor does it provide means to understand deviations from the intended trajectory or to deal with the unexpected. For this, the learning design methodology needs to be complemented with other approaches that strive to address theoretical as well as practice-oriented questions that are likely to emerge in complex learning environments.

3.2 Design-based research

Methods originating in the design-based research (DBR) tradition may complement the above learning design methodology by enabling researchers, designers, and teachers to "bridge the gap between educational research and practical educational innovation" (Engeström 2007: 368). According to the Design-Based Research Collective (2003), "design-based research [...] is an emerging paradigm for the study of learning in context through the systematic design and study of instructional strategies and tools" (p. 5). In practical terms, design-based research involves the setting up of design experiments. The latter are iterative and involve "putting a first version of a design into the world to see how it works" (Collins *et al.* 2004: 18) and refining it constantly "until all the bugs are worked out" (*ibid*).

Design experiments are both pragmatic and theoretical in orientation: they "are conducted to develop theories, not merely to empirically tune what works" (Cobb *et al.* 2003: 9). Bergroth-Koskinen and Seppälä (2012) provide a detailed example of the instantiation of DBR in the context of language teaching and learning in higher education. Drawing on Conole (2012) as well as Lund and Hauge (2011), they adopt a design-based research approach to investigate learning designs that are enacted in real settings and seek to promote the development of learner's agency and communication expertise in the context of higher education language teaching. Taking on the role of teacher-researchers, they examine the development of learner agency as it emerged as the result of the enactment of their initial designs. Their analysis enables them to refine the latter while providing them with new insights into the affordances that potentially enable learners to shape their own learning paths, thus contributing to theory development.

Cobb *et al.* (2003) also emphasise the complexity of educational settings, which consists of interacting complex systems "rather than [...] a collection of activities or a list of separate factors that influence learning" (p. 9). According to them, a key aim of design experiments is to provide a better understanding of a learning ecology "by designing its elements and by anticipating how these elements function together to support learning" (Cobb *et al.* 2003: 9). Typical elements of a learning ecology include "the tasks or problems that students are asked to solve, the kinds of discourse that are encouraged, the norms of participation that are established, the tools and related material means provided, and the practical means by which classroom teachers can orchestrate relations among these elements " (*ibid*).

3.3 Activity theoretical perspectives on design

Despite its focus on learning ecologies and its methodology consisting of iterative cycles of enactment, reflexion, and refinement of the design, DBR remains nevertheless a linear process, with a beginning (the initial design) and an end (a 'refined' design), suggesting an "emphasis on completeness, finality, and closure" (Engeström 2007: 369). Engeström further argues that the notion of refinement implies that "researchers have somehow come up with a pretty good model which needs to be perfected in the field" (*ibid*) and summarises his main criticism of DBR as follows:

> To sum up, in discourse on "design experiments", scholars do not usually ask: Who does the design and why? It is tacitly assumed that researchers make the grand design, teachers implement it (and contribute to its modification), and students learn better as a result. This linear view ignores what sociologists teach us about interventions as contested terrains that are full of resistance, reinterpretation, and surprise from the actors in the design experiment.(Engeström 2007 : 369)

Even when they are combined together, the learning design methodology and DBR fall short of enabling, among all stakeholders, the formation of *critical design agency*, which includes "the will and courage to say "no" –– to challenge the designs offered previously" (Engeström 2007: 370):

> Students form specific cognitive "endpoints" in complex learning ecologies and actively make sense of and reconfigure tasks and the contexts of the tasks among the participants. In other words, what is initially presented as the problem or the task is interpreted and turned into a meaningful challenge several times over in the process of the intervention. (Engeström 2007: 370).

Bergroth-Koskinen's and Seppälä' (2012) aforementioned study is indeed a rare example of a DBR project where the initial design is produced and implemented by teachers, and where learner agency is a central feature of the design aims and process. The formation of critical design agency in formal education requires a new approach to design for complex and technology-rich learning environments. Lund and Hauge (2011) argue for a reconceptualisation of 'didactics', which they define as "the design of social practices in which learners, teachers and (social and material) resources are configured and re-configured in activities that make knowledge domains and knowledge advancement visible, and that continuously create opportunities for reflective participation in such activities" (Lund and Hauge 2011: 263). Linking design to didactics, their approach "gives priority to agency, dynamics, and object over content (what) and method (how)" and acknowledges the "vital role of artifacts in 21st century education" (Lund and Hauge 2011: 264). It seeks to reconcile the tension between teaching and learning, which they see as "as a unified and dialectic entity" (Lund and Hauge 2011: 262). According to them, *design for teaching* and *design for learning* are two distinct, yet mutually constitutive aspects of design:

> *Design for teaching* is basically the teacher's responsibility and emerges through interpreting curricula and competence aims, but may well involve learners in the process. However, the intentionality behind this aspect of the design is primarily that of the teacher and the larger educational policies. Thus, there is an institutional dimension to designs for teaching. *Design for learning* refers to the enacted design; what actually happens when teachers and learners engage in joint construction of the (learning) object. While designs for teaching delimit the activities, designs for learning are context sensitive and respond to, for example, immediate opportunities, learner initiatives and serendipity. Also, designs for learning open up for using

> learners' out-of-school social and cultural experiences, their life worlds (Cope & Kalantzis, 2000). (Lund and Hauge 2011: 262)

The key design challenge for researchers, designers, and teachers is thus to achieve the delicate balance between design for teaching and design for learning. Lund and Hauge (2011) argues that cultural historical activity theory (CHAT) provides conceptual tools to guide educational designs that will address this challenge.

In line with Lund and Hauge (2011), we believe that "for educators CHAT is not only an analytical lens for examining (and explaining) phenomena, but can also be used as a framework for interventions that can effect change in learning and teaching" (Lund and Hauge 2011: 259). Following an overview of the main tenets of CHAT, we outline a CHAT inspired design model (Blin 2010), which was initially developed to facilitate the development and exercise of learner autonomy.

3.3.1 Cultural historical activity theory: an overview

CHAT has its origins in Marxist philosophy and in Vygotsky's cultural historical psychology (Chaiklin *et al.* 1999). It draws upon two related but distinct traditions: Vygotsky's (1978) concept of mediated action and A.N. Leontiev's (1978) *first generation* activity theory (Engeström 2001). Leontiev proposed a hierarchical structure of human activity, defined in terms of three constituents (*subject, object*, and mediating *tools and artefacts*) operating on three different interacting levels (collective *activity*, individual or group *actions*, and routinised *operations*). Activities are collective, oriented toward one or more objects, which can be both ideal and material, and motivated by the need to transform these objects into desired outcomes. This motive gives sense and direction to the goal-oriented actions that are carried out by the subjects (individuals or teams) of the activity. These actions are intentional, mediated by tools or artefacts, and carried out through a series of automated operations that are contingent on material conditions.

First generation activity theory mainly focused on the activity, actions and operations of an individual. Engeström's (1987, 2001) *second generation activity theory* takes a whole activity system as the unit of analysis. Engeström (2008) defines activities as object-oriented collective systems that have a complex mediational structure (Engeström 2008: 26), which includes not only Leontiev's tool-mediated relationship between subject and object but also 'social mediators' (Engeström 2008: 27). *Third generation activity theory* seeks 'to understand dialogue, multiple perspectives, and networks of interacting activity systems (Engeström 2001: 135). For example, individual learners involved in the co-production of a digital artefact are likely to bring to the activity different ideas or representations of what this artefact may be or look like (Roth 2004). They are also likely to participate in other related activities, within or outside formal education.

The mediational structure of an activity system is normally represented by a triangle (Engeström 1987) highlighting the relationships between its constitutive elements. In order to clarify the above concepts, we use our previous example and translate the earlier learning design visualisation (Figure 1) into activity theoretical terms (see Figure 2 below).

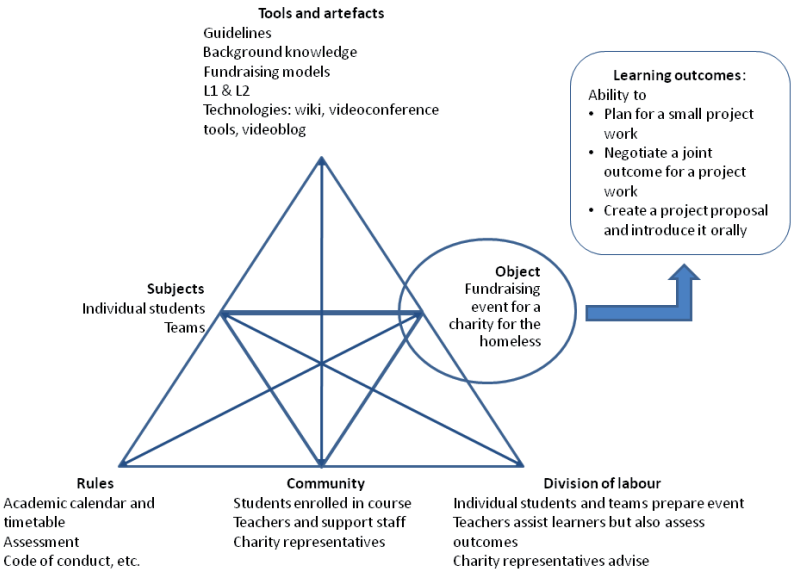

Figure 2. Representation of the mediational structure of the 'fundraising event' activity system (based on Engeström 1987)

The language learning activity relating to our example is shaped by its object, in this case the collective creation of a fundraising event. The top of the triangle diagram above (Subjects – Tools & Artifacts – Object) depicts the "visible curriculum" or "tip of the iceberg" (Engeström 2008: 90), as embedded in the tools and resources (e.g. CMC technologies, language, fundraising and project management methods, authentic materials and guidelines) used by students carrying out actions or chains of actions, including languaging about the object of their activity, in response to the given task. The bottom part of the figure represents what Engeström calls the "hidden curriculum" (2008, p. 86), mediated by the "deep social structure of the activity" (p. 90). In our example, social mediators include the implicit or explicit rules governing the actions carried out by the subjects of the activity (schedule of events, required assignments, expected mode of interaction, expected online behaviour, etc.), the community to which they belong and with whom they share the object of the activity (members of the class or group, teachers and support staff, charity representatives, etc.), and finally, the division of labour (students organise the fundraising event, teachers guide students, charity representatives advise students and teachers, etc.) and the associated distribution of power between the different actors (teachers not only carry out pedagogical interventions but they also assess students' learning, students take on different roles within their team, etc.).

Contrary to frequent misconceptions (Roth 2004), activity systems are inherently dynamic and constitute unstable and multivoiced entities (Engeström 2001). They interact with other activity systems and evolve over time in response to internal and external contradictions (Engeström 2001), which

emerge within and between interacting activity systems. Contradictions 'manifest themselves as problems, ruptures, breakdowns, clashes' (Kuutti 1996: 34), or as disturbances, which Engeström (2008) defines as 'actions that deviate from the expected course of normal procedure' (2008: 27).

Contradictions are source of change and development. As they respond to emerging contradictions, activity systems move through cycles of transformations, which can be *expansive*, leading to new forms of activity that are shaped by expanded objects and characterised by a new mediational structure (Engeström 2001). Expansive learning is normally triggered when 'individuals begin to question the existing order and logic of their activity' (Engeström & Sannino 2010: 5).

3.3.2 A CHAT inspired design model

Building on the concepts briefly introduced above, Blin's (2010) design model was initially developed to promote the development of learner autonomy, which is defined as the individual and collective capacity to resolve contradictions (Blin 2005). The model sought to provide teachers with practical means to both address the institutional and societal demands regarding education for the 21st Century while enabling the co-configuration and re-configuration of the learning context, together with learners. Consequently, the model is underpinned by the four principles below (Blin 2010: 186-187), which were derived from an earlier study (Blin 2005):

Principle 1: Language learning activities should be object-centred. Objects that are particularly suitable for the development of learner autonomy include the creation of multimodal artefacts whose purpose and life-cycle will go beyond those of the language course and that can be re-used or re-mixed by self or others (e.g., wikis, blogs, podcasts and video clips, electronic glossaries, interactive web-based exercises, etc.). The mediating components of the language learning activity should provide students with opportunities to construct and expand the given objects in different, yet converging, ways (i.e., to be agents of their own learning).

Principle 2: The language learning activity should be mediated by a rich horizontal division of labour. In other words, the construction of the object should require students to collaborate, and it should not be possible for the object to be constructed by students working independently of each other.

Principle 3: Carefully thought-out focus shifts should be built into the syllabus to avoid prolonged and unwelcome disruptions by providing students with basic digital literacies. Unforeseen focus shifts can then provide opportunities for further learning.

Principle 4: Internal and external contradictions are fundamental to the development and exercise of learner autonomy. Rather than being systematically eliminated, they should be identified and built upon through, for example, careful pedagogical scaffolding taking place at the macro, meso and micro levels (van Lier, 2007: 60) and helping students to question the established practice and to create new forms of activity. Contradictions that cannot be resolved by the

participants during the period allocated to the course, module or task should constitute the basis for future design initiatives.

The model can be used at the level of a whole programme of studies, a full course or a lesson, a project, or a discrete task. In line with Coughlan and Duff (1994) and Roebuck (2000), we propose that a language learning task is what designers and teachers *want* learners to do. Tasks thus act as a stimulus and provide students with an initial structure as well as boundaries and constraints for their actions. By contrast, a language learning activity is the "behavior that is actually produced when an individual (or group) performs a task. It is the process, as well as the outcome of the task, examined in its sociocultural context" (Coughlan & Duff 1994: 175).

The model comprises five distinct, yet interconnected steps (Blin 2010, 2012), and prompts teachers to reflect on different aspects of the learning activity they are about to design. In other words, the model helps teachers make *design for teaching* decisions that are cognizant of the broader educational context in which they operate and relevant to their target audience. The guiding questions in Table 1 below also serve as a guide to monitor and analyse the enacted design. The model thus also serves as a benchmark enabling teachers to assess to what extent "the enacted design for learning deviates from the intentions embedded in the design for teaching" (Lund & Hauge 2001: 269) and whether "the delicate teaching|learning balance is disrupted" (*ibid*).

Table 1. A five-step activity theoretical design model (Blin 2010: 190)

Step 1	**Identify expected and desired *learning outcomes*** • What knowledge, skills and competencies will learners exhibit upon completion of the task? How can these be assessed?
Step 2	**Define the *object* of the activity** • What kind of *object* can be transformed into the *desired outcomes*? What will learners attend to or construct during the realization of the task? • What *goal-oriented actions* or *chains of actions* are likely to facilitate the transformation of the *object* into the *desired learning outcomes*?
Step 3	**Identify and describe the *actors* of the activity** • Who will be the *subjects* of the activity? What histories are they bringing to the language learning activity? What cultural tools do they bring to the activity, including their native language, communicative and literacy practices? Which other communities (networked or otherwise) do they belong to? • What motivates their participation in the language learning activity? • What are the characteristics of the *community* being shaped by the object of the activity (i.e., real vs. imaginary, local vs. geographically dispersed, networked, etc.)?

Step 4	**Specify the *mediators* of the activity** • What *tools and artefacts* will be available to learners (e.g., technologies, concepts and methods, texts, etc.)? How will communication and interaction be mediated (e.g., face-to-face, Web 2.0 technologies, synchronous or asynchronous CMC technologies, social networks, Virtual Worlds, etc.)? Which language will be the main mediator of the activity? • Are there *explicit and implicit rules and conventions* imposed from the outside (e.g., academic calendar and timetables, assessment schedules and methods, typical student workload, etc.)? What other rules and conventions will govern the realization of the task (e.g., directives, instructions, guidelines, etc.)? What implicit rules are embedded in the technologies deployed by the institution? • How will the *division of labour* be organized? Will learners work independently or in teams? What level of agency, power and control will be allocated to learners? To teachers?
Step 5	**Outline potential *internal and external contradictions*** • What are the potential sources of conflict, breakdowns or disruptions? Are they likely to be resolved by the community? • What focus shifts are likely to occur? What level of teacher intervention may be required? At the design stage? During the activity? What are the competencies required from learners?

In the next section, we use the above model to revisit the *design for teaching* of a Finnish literacy course offered to international students at the University of Jyväskylä. Drawing on data collected during two consecutive enactments of the design (Jalkanen & Vaarala 2012a, 2012b, 2013), we propose a preliminary analysis of the designs for learning that emerged, with a particular focus on agency and languaging.

4 Designs for teaching and learning: the case of *Tekstejä suomeksi 2*

Tekstejä suomeksi 2 (Texts in Finnish 2) is a literacy skills course offered as part of the Finnish as a Second Language (FSL) curriculum at the University of Jyväskylä Language Centre. Although the course was not designed according to the activity theoretical principles outlined in the previous section, we believe that these can nevertheless be used, firstly to model and represent the *design for teaching* produced by the teaching team, and secondly to guide our preliminary analysis of the enacted *design for learning* in two instantiations of the course.

4.1 Design for teaching

Upon completion of the course, students are expected to be able to engage and participate in diverse activities (e.g. read, produce, and discuss) around different types of texts and media, and to gradually construct their identity as a 'competent' user of the Finnish language, able to function successfully in a variety of Finnish discourse communities (e.g., academic, social, etc.). To attain the intended learning outcomes, students are expected to carry out various tasks, individually and collaboratively, in and out of class, requiring them to read, listen, write and speak in a variety of registers and genres.

Recognizing that technology enables social processes that can foster the emergence of meaningful communities (Wenger, White & Smith 2009: 191), the tasks proposed as part of the *Tekstejä suomeksi 2* course are to be carried out across multiple spaces. Face-to-face sessions are led by the teacher and function as an arena for collaborative work in diverse group combinations and on different types of texts. Between these sessions, students have access to the institutional virtual learning environment, *Moodi*, which provides them with a shared space for analysing prescribed texts on multiple levels and from multiple perspectives, both individually and collaboratively. Finally, students were encouraged to use Twitter for media sharing and for one-to-one or whole group communication, using the course specific hashtag.

Recalling Pennycook's (2010) definition of competence given earlier, the object of the overall language learning activity is thus primarily ideal and is motivated by the need to help foreign students develop their "strategic capacity to use diverse semiotic items across integrated media and modalities" in the Finnish language. The object is also material in so far that students will be producing language in the form of spoken and written texts. In particular, they are required to prepare a group presentation to be delivered to the whole class at the end of the course. Working in small groups, students are required to select one of the course themes, which mostly relate to an aspect of Finnish culture and social or professional practice. Eight themes are prescribed by the course curriculum: Finnish music, education in Finland, Finnish design, traveling in Finland, climate change, social media (with a particular focus on blogs), information literacy, and working life and recruiting in Finland. Students are encouraged to support their presentation with creative artefacts that are to be collaboratively produced. Examples of possible artefacts include PowerPoint shows, posters, music mashups, images, etc.

Students participating in the course are international university students, some of whom are following a Masters or doctoral programme. Others are exchange students, only spending a relatively short period of time in Finland. All students are advanced learners in their own specialism, with good Finnish language skills (B1-B2), and based on the same campus (the University of Jyväskylä).

A range of tools and artefacts is made available to students. In addition to the tools and technologies offered by the institutional VLE, students are provided with personal tablets for the duration of the course in order to support literacy practices in and beyond the language classroom. The teaching and learning resources available within *Moodi* are to be supplemented by artefacts selected by students (e.g. newspaper articles, radio programmes, websites and other

documents as relevant to a given task). In terms of rules and conventions, students are expected to attend and actively participate in scheduled face-to-face sessions, to complete at least 80% of the tasks associated to each theme, and to actively prepare and present the group project, which are all elements of the course continuous assessment. Finally, the division of labour is primarily horizontal: students work independently between classes (although they may be interacting with members of the wider community), and in small groups during the face-to-face sessions, which are facilitated and managed by the teacher. The latter also assesses student participation, task realisation, and the final group presentation.

The following is an example of a design for teaching, illustrated in Figure 3 below, produced by a teacher for one particular task to be carried over a full week. From a *design for teaching* perspective, the task was motivated by the need to help students identify different perspectives related to the topic of their group presentation and to incorporate these in their discussion and arguments. Task specific intended learning outcomes include the ability to understand different viewpoints, to relate and analyse facts and opinions, and to participate in a whole class discussion. The task required that students follow media coverage of news items (e.g. economy, sport, entertainment, etc.) during the week, prior to the face-to-face session. In class, students were to share and discuss their findings, first in small groups, then as a whole class.

Most of the planned mediators are shared with the parent activity (in italics in Figure 3 below). The whole class discussion was to be led by the teacher, and throughout the face-to-face small group and whole class discussions, students had their tablets at their disposal.

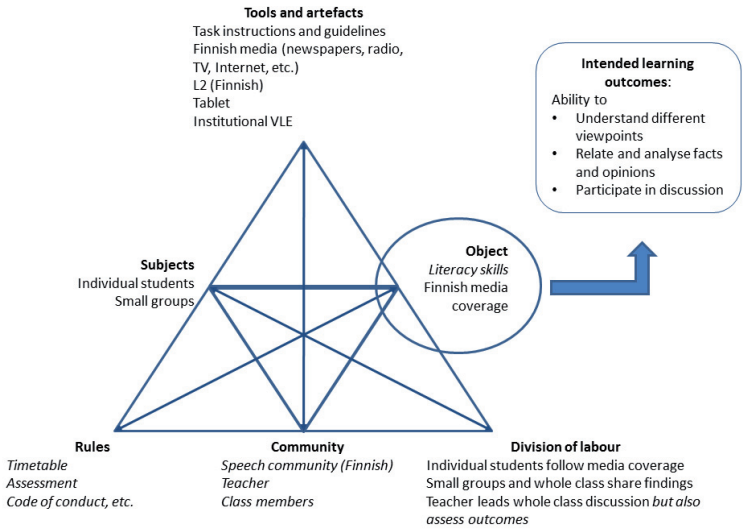

Figure 3. *Design for teaching* of the 'Finnish media coverage' activity system (based on Engeström 1987)

4.2 Enacted designs for learning

The enactment of any educational design is likely to be characterised by unpredictability and varying degrees of student agency and languaging, which will both arise from and give rise to the emergence of internal and external contradictions (Engeström 2001, Blin 2010, Blin & Appel 2011). The enactment of the *design for teaching* of *Tekstejä suomeksi 2* is no exception. Throughout the two instantiations of the course (in 2012 and 2013 respectively), different contradictions within the enacted design activity system emerged, which manifested themselves through focus shifts, misunderstandings or conflicts. For example, in the second instantiation of the course, it soon became apparent that students had very little experience, if any, of Twitter and tablets, especially in a learning context. Similarly, the tools available through Moodi were configured in such a way that students encountered difficulties in using them. Intensive technical assistance was thus required to help students exploit the opportunities for learning that the various tools potentially offered. Finally, rules that were imposed from the outside, such as assessment regulations and standards, were not completely aligned to the course object and intended learning outcomes.

Most of the above contradictions can be addressed in future designs for teaching. For example, additional technical support or learner training in the use of tools can be embedded in the design, assessment regulations and standards can be better aligned to the intended learning outcomes. Others may however be unpredictable, contingent on a particular context at a particular time. Similarly, unpredicted opportunities for learning are likely to emerge as the result of "learner initiatives and serendipity" (Lund and Hauge 2011: 62, *op. cit.*). As a result, different *designs for learning* are likely to emerge, arising from, as well as providing opportunities for the formation of critical design agency and languaging.

4.2.1 Design for learning and the formation of 'critical design agency'

In both instantiations, most students were new to the culture of sharing via digital means and using the work of others as a resource for learning. Some wholeheartedly embraced a new digital social practice for learning, others resisted and initially refused to question the social practice they were accustomed to.

In the first instantiation of the course (2012), most students appropriated the initial *design for teaching* and developed it further by contributing to the evolution of the learning community as well as repurposing tools and environments in line with their personal learning contexts and objectives (Jalkanen & Vaarala 2012a, 2012b). For instance, some students began to share life events in Twitter, thus creating a temporary space for the development of interpersonal relationships beyond the context of the course. Another student used her tablet to record a discussion at the doctor's to be able to listen to it again at home. These examples illustrate the blurring of boundaries between in and out-of-school "social and cultural experiences" that is often characteristic of *designs for learning* (see Lund's & Hauge's (2011) definition of design for learning discussed earlier).

By contrast, in the next instantiation of the course (2013), some students initially rejected the *design for teaching* by resisting the use of Twitter and tablets, as they did not perceive the connection between the object of the learning activity and the tools available to them. However, feedback discussions at the end of the course provided evidence of a transformation in the attitudes of those students who were most critical towards the use of Twitter and the tablets. Students indicated that their understanding of literacy practices had widened during the course and that they now perceived Twitter and the tablets as valuable tools for learning. This transformation of students' attitudes and practices can be attributed to the sustained negotiation, co-construction, and re-construction of the learning object by both teachers and students. Teachers had to redefine their design for teaching to make the pedagogical reasoning behind it more visible to and shared by students. Students progressively developed some critical design agency, eventually accepting to challenge their old designs for learning, thus embracing a "radically wider horizon of possibilities" (Engeström 2001: 137). This however required "teachers to participate with a persistent presence in learners' trajectories" (Lund & Hauge 2011: 269) so that the enacted *design for learning* could be brought in line with the "intentions embedded in the design for teaching" (*op. cit.*).

4.2.2 Designs for learning and languaging

Designs for learning can also be seen as sites for languaging. As students performed different tasks around texts, several instances of 'making meaning and shaping knowledge and experience through language' (Swain 2006: 98) emerged. By examining some of these instances, and recalling Lund's and Hauge's (2011) definition of *design for learning,* we can identify episodes where teachers and learners respond to immediate opportunities and serendipity, or where learners take initiatives. In such instances, languaging directly contribute the development of the design for learning.

For example, in the context of the media coverage task performed in the first instantiation of the design (2012), some students had focused on sport news, and more specifically on rallying, a very popular motorsport in Finland. As three students discuss the media coverage of sporting events during the week, the name of a Finnish rally driver, Tommi Mäkinen, comes up in the discussion (Excerpt 1). S1 asks the other members of the group whether they know him. S2 confirms that he knows who the person is and provides additional information: "a motor sport man", which is further explicated by S1 ("rally driver"). However, S1 produces the wrong phoneme (S instead of R), and S3 and S2 do not understand the word. S3, using his tablet, types the driver's name in Google, finds the right form, and says it out loud. A shared understanding is then reached and the discussion can proceed.

Excerpt [2]

S1: Tiedätkö Tommi Mäkinen	(Do you know Tommi Mäkinen)
S2: Tiedän joo mutta - - autourheilija	(I know yeah but - - a motor sport man)
S1: Lalliajaja	(*Sally driver)
S3: Mitä se - -	(What it - -)
S2: Lalli aa	(Sally aa)
S1: Lalli	(Sally)
S3: Tommi Mäkinen (käyttää googlea iPadilla) odota - - aa ralli niin	(Tommi Mäkinen [using Google on iPad] wait - - aa rally yes.)

In the above example, S3 operates on linguistic data unknown to him, accesses the rich semiotic budget afforded by the technology (i.e., the Internet accessible through the tablet), and turns a communication breakdown into a learning opportunity for his peers. As a result, S1 is made aware of her pronunciation error and comes to "an understanding of previously less well understood material" (Swain 2000: 98). The misunderstanding was resolved without teacher intervention, which is an indication of S3's "strategic capacity to use diverse semiotic items across integrated media and modalities" (Pennycook 2010: 129) to overcome comprehension problems.

Later on in the same session, the teacher (T1) leads a whole class discussion. As the discussion moves to the topic of Tommi Mäkinen and his birthplace, Puuppola, the teacher asks where the latter is located (Excerpt 2). S6 replies that Puuppola is in Jyväskylä. T1 corrects the information provided by S6 and clarifies that the place is actually some kilometres up north from the town. However, she is not sure of the exact distance between Jyväskylä and Puuppola. Before she can provide an estimate, S6 comes up with the right answer, which he had looked up on the Internet. At first surprised, the teacher soon realizes that the student had access to Wikipedia.

Excerpt 2

T1: Vielä kysymys, missä on Puuppola?	(One more question, where is Puuppola?)
S6: Jyväskylässä	(In Jyväskylä)
T1: Puuppola on Jyväskylästä vähän matkaa pohjoiseen. Kuinkas monta kilometriä, oisko se tuota - -	Puuppola is some kilometres up north from Jyväskylä. How many kilometres, I wonder if it's er - -)
(S6 kirjoittaa Puuppolan hakusanaksi Googleen)	(S6 types Puuppola on Google on her iPad)
S6: Kaksitoista	(Twelve)
T1: Kaksitoista. Mistäs te sen tiedätte? Aa, Wikipediakin tietää Puuppolan.	(Twelve. How do you know that? Ah, Wikipedia knows Puuppola as well.)

The above example is an instance of learners taking the initiative, in this case, configuring and reconfiguring roles through languaging and technology-mediated actions. The fact that the teacher is no longer the primary information provider encourages learner active participation. In this example, S6 contributes to the collective re-configuration of social and material resources in the classroom while solving an unpredicted information gap through the use of language and technology (Lund & Hauge 2011).

5 Conclusion

Throughout this paper, we have looked at the notion of educational design in the context of language teaching and learning in increasingly technology-rich environments. We have claimed that a renewed focus on design, which needs to be cognizant of the rapid societal and technological changes that characterize 21st Century knowledge creation and social practices, was necessary to address the increased complexity and unpredictability of language teaching and learning. Following a brief overview of agency and languaging as emerging approaches to language use and learning, we have discussed some recent developments in the field of educational design, namely learning design and design-based research, that are particularly interesting to the educational technology and Computer Assisted Language Learning communities. While we believe that these approaches provide robust methods and tools to develop strong designs for teaching, they however fall short of providing conceptual tools to describe and analyse the corresponding enacted designs for learning. In particular, they do not easily enable course designers and teachers to understand deviations from the intentions embedded in the design for teaching. Nor do they leave much room for unpredictability.

Drawing on Lund's and Hauge's (2011) definition of didactics, and in line with their focus on the dialectical relationship between design for teaching and design for learning, we have argued that designs rooted in cultural historical activity theory address these challenges. They do so by giving priority to the construction and re-construction of the object of the learning activity, and to the configuration and co-configuration of the mediational structure of the learning activity over pre-defined content, skills and methods.

The examples discussed in this paper have illustrated how activity-theoretical designs can be used for better understanding the relationship between *design for teaching* and *design for learning* in complex language learning environments. They also provided examples of languaging and of the formation of critical design agency in context. In particular, it was shown that students negotiated and co-constructed new 'horizons of possibilities', even though they may have initially rejected a new form of activity.

Maintaining the balance between teaching and learning called for by Lund and Hauge (2011) remains however difficult. Knowing when and how to intervene in enacted designs for learning is a teaching skill that increasingly requires the ability to reconcile societal and institutional demands, the will to challenge existing designs and their associated social practice, and the ability to seize opportunities arising from unexpected events. Most of all, it requires

teachers to fully participate in the joint construction of the object of learning with their students and to facilitate the formation of their critical design agency.

Endnotes

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