Talk in practice

Analysing student teachers' and mentors' discourse in internship

Thesis submitted for Dr. Polit

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Acknowledgements

This thesis is about student teachers' being and becoming teachers during internship. But its subtext is a personal story about being and becoming a researcher within the academy. Much like the student teachers in my research, I have striven to create a voice that allows me to be recognised as a "proper" researcher, but which is also a personal voice, a voice of my own orchestration. This has been a long process. As an apprentice in the Academy I have been granted access to a number of practices that have allowed me to learn and develop. It is through such participation and the relationships that have emerged within and across those practices, that may my own work has been sustained and developed.

Becoming and being recognised as somebody is also a process of pain and frustration, because it inevitably also means that much of that which is safe and familiar needs to be revised or abandoned. Through this work, I have been introduced to new cultural resources and new horizons for meaning-making. What I knew to be "true" has become contested, a number of solid pillars of preconceptions have crumbled, been reconstructed or left in ruins. In writing up my new horizons for meaning making, there have been a number of detours and dead ends, but also paths leading towards insight and new understanding. And these paths are what have kept me going, along with the support of a number of people that have cheered me on when I needed it, and never wavered in their beliefs that I could succeed.

In some sense, my prior "lives" as pupil, student, teacher, head teacher, municipal advisor, and university lecturer are present in the texts, as are the voices of former colleagues I have come to know and cherish. I am deeply grateful to all of you who have afforded contexts and relationships for personal growth and professional development throughout my career.

I want to thank those who have made this project possible. First of all, the Department of Teacher Education and School Development at the University of Oslo for taking an interest in my project, granting me the opportunity to take on this work, and “handing” me the PLUTO-project as a site of inquiry. Professor Trond Eiliv Hauge, as the project leader of PLUTO, convinced me that teacher education would be an interesting site for research, and along with colleagues in the department he has been an inspiration and showed great interest in my work. Being connected to the group working with educational leadership has been an inspiration all along, and I am grateful that you have afforded time and energy to discuss my papers although they were on the fringe of your scope of interest. Especially I am grateful to Professor Jorunn Møller for taking interest in and supporting my work.

The meetings of the “Monday Club” at InterMedia, the University of Oslo in the initial phase of the project gave direction to my work and depth in my understanding of sociocultural theory. Thank you, fellow Ph.D. - students Ingvild, Ingeborg, Cecilie and Palmyre. Also, I have genuinely enjoyed the challenging discussions I have had with Britt Oda, Tone and Line – also Ph.D.- students. Being differently positioned theoretically and substantially in our work, our discussions have been extremely fruitful, and I have learned a lot from and with you.

A special thank goes to Professor Roger Säljö at the University of Gothenburg. The Ph.D. - courses he chaired in Oslo and Gothenburg, as well as his writings and comments on my work, has been a great inspiration.

Most of all, Professor Sten Ludvigsen at InterMedia has been my invaluable supervisor throughout the project. Through him, I have been introduced to scholars

and theories that have been important to my work. He has provided challenges as an ardent and critical reader, confrontations with an esteemed scholar, and everlasting support and belief.

Finally, my family has been an important support to my endeavour, and most of all, my husband Hans Petter. Although privately we joke that your main contribution has been "non-interference", I could not have kept going without your belief in my project and your abiding patience.

Blindern, 13 February 2006

Eli Ottesen

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Introduction

> "There is no single factor more decisive for the quality of schooling than the teachers. Skilful teachers achieve good results, even when pupils' capabilities and conditions vary, through the use of different didactic approaches and methods. Because the quality of education is decisive for our future, teaching is the most important of vocations." (UFD, 2002, p. 1, my translation).

This quote is from the introduction to the Norwegian Government's White Paper "*The Quality Reform. About the New Teacher Education. Diverse – Demanding – Relevant*" from 2002. In a striking manner it sums up central educational policy issues that have been advanced beginning in the mid-1990s in the western part of the world (cf. Cochran-Smith & Zeichner, 2005, Coolahan, 2002, Edwards et al., 2002). In the current rhetoric, schools as deliverers of high-quality knowledge are both celebrated and challenged; skilled teachers are praised, while at the same time the general quality of teachers and teaching is questioned.

In the Norwegian context, the education of teachers is recurrently challenged in the public debate, such as for paying too little attention to subject knowledge, didactic knowledge, or the founding disciplines of pedagogy. Also, teacher education has been criticised for not paying sufficient attention to new content areas, such as inclusive education, life-long learning, multicultural education or teaching with ICT. These are all issues that deal with the "what" of teacher education: what to include in courses from various content areas, and how to effectively transmit the content through carefully constructed learning processes and programmes. Implicit in such questions is the assumption that there is (or at least may be) a "right way" of teaching. However, the search for this right way may prove to be a futile quest; teacher education is complex and contested, and it is noticeably contingent on other key groups, such as scientific communities as producers of knowledge to be taught, the general public (including pupils) as consumers of its products, and perhaps most important of all, the professional communities of teachers in schools. Obviously,

there is a need for continued and increased engagement in research on the outcomes of teacher education programmes in all their diversity because this constitutes our cultural knowledge about how teacher education is or may be organised. However, I agree with Cochran-Smith and Zeichner (2005, p. 4) that it is not “research that tries to demonstrate ‘who wins’ that is most important”. In my view, which has guided the design and development of this research project, there is also (perhaps foremost) a need for research that focuses on the *becoming of* teachers; that is, how the practice of teacher education enables student teachers to act and interact in ways that allows them to generate a sense of being teachers.

Designing the research project: Motivation and purpose

A most important instrument in research is the researcher. Important decisions need to be made among cultural tools, such as theoretical and methodological approaches, for the production of knowledge within a field of research. However, it is the formation of purposeful actions directed at objects of research that is most important to the subsequent research process. And it is this sense of intention or goal-direction that is manifested in the choice of research questions. Such questions of course build on and connect to prior research and research practice within the field. But they are also socially mediated, in the past and present relations between researcher and his or her social others. Moreover, the choice of research questions is future oriented, embodying the potential contributions to the field, and on the personal level, an imagined future position for the researcher. The construction of research questions is “engendered by motivation, i.e. by our desires and needs, our interests and emotions” (Vygotsky, 1986, p. 252)[1]. For the researcher, research is also a process of becoming and being recognised.

[1] In this quote, Vygotsky is referring to the “affective-volitional basis” of thought.

The construction and re-construction of my research questions emerge at the intersection between activities of the past and the present. For several decades, I was teacher, head teacher, and adviser for schools, all of which include learning as core objectives. Looking back on my practice as facilitator for learning in schools, I am fascinated by how straightforward our conceptions of learning were. Learning was seen as resulting from teaching. When successful, learners learned what was intended, if not, we might refine our methods, or discipline the learners. This served as a viable and resistant script[2] for participation in the practices of schools, even when faced with counter-evidence. It seemed to be through adherence to this script that we became and were recognised as teachers.

Teacher education aims to support the students' development of knowledge, skills and attitudes, enabling them to act as legitimate practitioners when teaching in schools. Thus, it is a site where development could be studied as "a process undergoing changes right before one's eyes" (Vygotsky, 1978, p. 61). In internship, the student teachers are "in transition", sometimes acting (and being seen to act) as students, at other times as assistants or as teachers. Through participation in the activity of schooling, the aim is that the student teachers increasingly come to see themselves, and be recognised by others, as teachers. To understand such "becoming" of teachers is the aim of the thesis. Teaching comprises outwards acts, calling for the application of the conventional skills, knowledge and conducts of the profession. It is through such acts that the student teachers may gain a sense of themselves as teachers; they develop *practiced identities* (Holland et al., 1998). Such identities are not detached and individual constructions conjured up by individuals; rather, they must be understood as socially negotiated and continuously developing constructs

[2] Here "script" is used in its common sense meaning, denoting accountable ways of acting in cultural practices

that emerge in practice. Student teachers' and mentors' discourse in internship is one site where the being and becoming of teachers is negotiated, and in this thesis such discourses are analysed to address the following issues:

- How can we understand the mechanisms through which student teachers render themselves accountable as teachers?

  Being a teacher is both unique to the person (as being *one kind* of teacher) and a socially recognisable category. Becoming a teacher is a process of being acknowledged by others, but also about the development of a sense of self as a teacher.
- What are the resources in use by student teachers and mentors as they represent their thinking and actions in mentoring discourses?

  In teacher education a range of cultural resources are made available to the students in their university courses, their teaching practices, and in formal and informal discussions and activities in and outside teacher education. This question relates to how such resources are put in play in the teacher students' and mentors' discourses.
- In what ways can mentoring discourses work to sustain or transform teachers' practiced identities?

  The framing of this question suggests that in talk student teachers and mentors are *produced* as teachers.

Constructing a foundation: the theoretical approach

Research in teacher education is many-faceted in its approaches and in its objects of inquiry, reflecting variables such as the complexity of teaching, fluctuating educational policies, and changing times and contexts. A central aim may be to enhance our understanding of the complexities of learning to teach; however, what

counts as evidence both inside the communities of researchers and for the practices concerned (teacher education, schools, and policy makers) fluctuates (Florio-Ruane, 2002). Our chosen approaches ultimately depend on ontological and epistemological issues: what we understand to be teaching and learning, and how we can know anything about it. This will guide the questions we ask, as well as our interpretations of empirical evidence.

Lave (1996, p. 157) makes an important point when she writes: “The way we conceptualize teaching must be rethought within the perspective that takes learners, learning, as the fundamental phenomenon of which teaching may (or may not) be a part.” I find this to be an important reminder. Much of the research in teacher education during the past 50 years or so tends to focus on *teaching* rather than *learning*, separating what teacher educators or student teachers know about, or know how to do, as outcomes of teacher education, rather than what they become as teachers or teacher educators in and through the practices they take part in (cf. Cochran-Smith & Zeichner, 2005). Such input-output oriented studies can, of course, afford valuable information for teacher educators and policy makers. However, there is the danger that we will equate content taught with competence developed, so that the failure or success of a teacher education programme can be justified in terms of the methods used or the content provided, or student teachers’ commitment or adeptness. Highly complex issues may be reduced to simplistic explanations of cause and effect.

When learning as *development in practice* is focussed in the research questions, this implies a theoretical position. It entails that learning is seen as transformations of modes of participation occurring in activity, through the mutual interactions of persons and their social and cultural circumstances. In contrast, the cognitive perspective places the individual on centre stage, addressing issues such as

perception, memory and knowledge as processes and structures within the person (Anderson et al., 1997, Bråten, 2002, Greeno, 1997).[3] From researchers within the cognitive tradition, sociocultural theory has been critiqued for not paying sufficient attention to the processes that might take place inside the learning individual (Anderson et al., 1997). This is a central concern to the research undertaken in this project, the core issue being the becoming of individuals as they develop practiced identities as teachers. However, it is only through their activities in the world that student teachers can develop into teachers; by taking part in the practices of teacher education in the university and in schools, knowing and skills are shared between the novices and the old-timers (Säljö, 2002). Thus, the focus of the research is on "the relationship between mind and world, and how knowledge is used, transformed and produced" (Edwards, 2001, p. 170). Learning is conceptualised in terms of acting minds (and bodies) in worlds of different kinds, and learning to teach is to appropriate increasingly variegated ways of participating in the situated practices (the plural form is important here) of teacher education; becoming teachers are the social processes of crafting identities in practice (Lave, 1996, Holland et al., 1998).

The theoretical grounding of this thesis builds on Packer & Goicoechea's themes of a nondualist ontology (2000, pp. 231-134), viewing the "becoming" of teachers as ongoing processes of participation in social activities. Through such processes, teachers are *constructed*, because it is through their participation in specific historical, cultural and social practices that student teachers may develop into individuals whom we recognise as teachers. This development is *social*, indicating that the possibility of being a teacher is afforded (and constrained) by the social context that allows or needs teaching. Also, this social context is constituted by teachers' teaching; "the being of an entity – colloquially speaking, what it *is* – is not a timeless, essential

[3] Sfard (1998) contends that the sociocultural and cognitive perspectives are incommensurable as they build on complementary assumptions. Others (i.e. Billett, 1996, Greeno et al. 1996, Greeno 1997) suggest the possibility of developing a synthesis, while Edwards (2001, p. 169) proclaims a truce in "the battle of the metaphors".

property but is determined by the human practices in which it is encountered, grasped, and comprehended" (ibid, p. 232). Through their *practical activities* student teachers, teacher educators, pupils and teachers in schools produce and make sense of teachers, just as the cultural artefacts used in teaching are produced and made sense of. Through practical activities, *relationships* between people are also produced and sustained, within which the student teacher may express his desire to be, and is, recognised as teacher. A process of becoming is also a process of alienation. To be recognised as teacher may entail abandoning preferred or alternative modes of participation; the person may be *split*: "Our activity produces a social context that defines who we are. But that context also confronts us as something alien, so we are divided from ourselves and need to discover ourselves" (ibid, p. 234). According to Packer and Goicoechea, it is this *search for identity* that motivates development as people strive to "come to terms with the practices of their communities" (ibid). In my view, their argument could just as well be reversed: It is student teachers' object-oriented activities that motivate a search for identity (cf. Leont'ev, 1978); it is through participation in the social practice of teaching that student teachers develop identities as teachers.

Based on this framework, the theory-practice distinction in teacher education (Smagorinsky et al., 2003, Jahreie & Ludvigsen, submitted) needs to be re-conceptualised. What student teachers are becoming (as teachers and students) emerges in participation in teacher education on campus and in schools. Thus, it is through their object-oriented activities, in historically developed institutional practices, and making use of the tools of those practices (Jahreie & Ottesen, under preparation, Leont'ev, 1978), that identities are negotiated, so that they eventually can be recognised by others and by themselves as teachers. Several studies pursue the theory-practice dichotomy as a problem of transfer (or the lack of it) between knowledge domains, forms of knowledge or practices. For instance, based on an extensive review of research on method courses and field experiences in teacher

education, Clift and Brady (2005, p. 331) sum up: "Both prospective teachers and experienced teacher educators often have difficulty translating the concepts learned in methods courses into their classrooms," and they go on to indicate that the discrepancy between theory-as-taught and the situated practices of teaching over time may be developed in strengthened university-school partnerships. However, in my view, partnership models need to take into consideration the distinction between the objects of the two activities, legitimising the use of different physical and intellectual tools of production. One important line of research pertains to the study of field experiences in teacher education – not primarily to understand how the students employ knowledge taught in courses, but rather how they make use of and transform available resources of different kinds as they participate in school practices.

The empirical grounding of the study: Field of practice

As part of a national initiative within teacher education, the PLUTO-programme 2000-2004[4] (ITU, 2005) at the Department of Teacher Education and School Development at the University of Oslo in 2000 started a process through which the programme for teacher education was substantially transformed. The overall aim of the project was to use ICT as a tool for teachers and student teachers in the university and for the partners in practice schools in the development of a problem and practice-oriented teacher education (Hauge, 2004a).Within the project, four target areas were formulated:

- "ICT-oriented methods for studying and collaboration
- Case-based and problem-oriented methods
- Evaluation based on portfolios

[4] Programme for Teacher Education, Technology, and Change

- Development of internship practice through collaboration with practice schools" (Hauge, 2004a, p. 4, my translation)

Although the four targets constitute an integrated effort to develop the programme, the collaborative efforts directed at the development of internship practice are foregrounded in this thesis. The innovation consisted in a gradual escalation of collaboration on two developmental tracks. The first was to establish a new model for internship based on institutional agreements for periods of three years. Within this agreement, groups of students are assigned to schools, and the institutions (rather than individual mentors) are responsible for the organisation of the internship periods based on a set of guidelines developed by the university. In addition, the student teachers are responsible for working on case assignments while teaching in schools, and these are further developed in coursework on campus. The second track intended to establish support structures to assist the schools in their development. Such efforts included courses in ICT, counselling, and subject didactics. A yearly conference has been established for partner schools and university staff to share their experiences on teacher education and school development.

In the final report from the project (Hauge, 2004a), the partnership model developed for the project is described on a programmatic level, and as one of the conclusions to the report Hauge (ibid, p. 24, my translation) writes: "The efforts to develop the collaboration with partner schools should continue. This calls for a long-term strategy based on competence for school development, networking, professional counselling, and the employment of new technologies for learning and teaching." The success of such strategies depends upon our understanding of the processes through which partner schools and the university negotiate their roles as teacher educators, and how they conjointly contribute to the student teachers' learning. Thus, there is a need for in-depth studies of the practices that emerge within the programme. Such research calls for micro-level descriptions and analyses of the interactions that constitute the practice. In this thesis, the discourses of student teachers and mentors are analysed to

contribute to our understanding of the students' learning in internship (see also e.g. Edwards & D'Arcy, 2004, Edwards & Protheroe, 2003, Jahreie, 2004, Jahreie & Ludvigsen, submitted, Roth & Tobin, 2001, 2004)

The research reported on in Part II of the thesis was conducted at one of the partner schools in the PLUTO-programme at the University of Oslo, a medium-sized upper secondary school in a suburban area. Four student teachers, two male and two female, were observed during their two internship periods, the first four weeks in the autumn of 2002 and the final eight weeks in the spring of 2003. My interest was primarily directed at processes of "becoming", how through their practices student teachers proceeded to reconcile what they were (as students) with what they were becoming (as teachers) (cf. Packer & Goicoechea, 2000). I decided to use the recorded conversations of the counselling sessions of student teachers and their mentors as primary data. A primary function of such discourse (as any discourse) is to shape and coordinate action, striving to "create, maintain, reproduce and transform certain modes of social and societal relationships" (Shotter, 1990, p. 121). Such accounting practices constitute moments of becoming *inside* activity itself, as student teachers are called upon to represent their experiences "from within a form of social life *already constituted*" (ibid); in a Vygotskian sense their discourse can be seen as micro-cosmoses reflecting the whole (Vygotsky, 1986).

Outline of the thesis

The overall aim of the work presented is to contribute to our understanding of how student teachers become teachers. The thesis offers an account and an analysis of students' and mentors' discourses, seeking to elucidate the nature of such discourses, the cultural and social resources that are at play, and how discourses may work in practice to sustain or transform identities.

This thesis is in the genre of a collection consisting of three separate articles and a section that incorporates and discusses the arguments, problems and conclusions presented in the articles.

In Part I of the thesis, the rationale of the research is developed. Following this introduction, *the contributions of previous research* in teacher education are discussed, and the present research is positioned within the field. The next section deals with *questions of sociogenesis.* Claiming that persons are socially produced does not in itself explain the process of becoming teachers; how we understand such processes of development needs to be made explicit (Valsiner, 1994). Discourse is seen as moments of interaction between cultural and historical institutional practices and the situated agency of individuals, and the fourth section deals with *the workings of discourse* as student teachers develop as teachers. *Methodological issues* are discussed in the fifth section, before ending Part I with a *review of the three articles* and a *discussion* aiming to integrate the findings.

Part II consists of three articles:

- Teachers 'in the making': Building accounts of teaching
  This article has been accepted by the journal *Teaching and Teacher Education* to be published in 2007
- Learning to teach with technology: Authoring practiced identities
  This article has been accepted by the journal *Technology, Pedagogy and Education* to be published in vol. 15, 2006
- Reflection in teacher education
  This article has been submitted to the journal *Reflective Practice*

Researching teacher education - what we know and how we know it

Introduction

Teacher education is currently under pressure. Wide-ranging and accelerated societal changes incite reforms in educational systems, including teacher education (Cochran-Smith & Zeichner, 2005, Edwards et al., 2002, Garm, 2003, Hargreaves, 2000, Nilsen 1997). Reform efforts may have been more policy-driven than research based; in fact, evidence on what works is hard to come by. The recent review "*Studying teacher education: The report of the AERA panel on teacher education*" (Cochran-Smith & Zeichner, 2005) presents research efforts and results as highly diversified. Based on this review, Cochran-Smith (2005) argues that research on teacher education is marginalised and under-funded. Also, she finds that the contemporary focus in much of the research reviewed on teachers' knowledge and beliefs, thinking, and learning in communities may impede the development of a robust research base from which causal recommendations may be drawn. Moreover, the complexity of the field makes evidence hard to come by; the road from teacher education to pupils' learning requires "a chain of evidence with several critical links" and is far from straightforward (ibid, p. 303). Similarly, the handbooks on research in teacher education from the 1990s (Houston, 1990, Sikula, 1996) presented research as diversified and incohesive, providing neither direction for policy makers nor a consistent base for our understanding of the field.

In the Nordic context, Bergem et al. (1997) reviewed the research on teaching and teacher education. Consistent with Cochran-Smith and Zeichner, they found that although the number of studies had increased during the past few decades, there was a vast variety of approaches, a great number of studies were exploratory, and intensive and theoretically grounded research was wanting. Based on the 15 Norwegian studies

reviewed, the authors argue that research efforts in the 1960s focused on the history of teacher education and questions of prediction and effectiveness, the 1970s brought studies of working conditions and job satisfaction, in the 1980s researchers examined teachers' thinking and beliefs, and professionalism and reflection were core interests during the 1990s (Bergem et al., 1997, cf. Sundli, 2001). A recent report instigated by the Research Council of Norway (2004) reviews research on professional education, and the author of the chapter on teacher education (Eritsland, 2004) points to the need for new research to address a number of urgent issues. One concern is to study the results of recent reforms within the sector to find evidence of how policies are reflected in the programmes of teacher education, and what the consequences are for the practice of teaching and learning and for the qualification of teachers. Another pressing problem is the transition from teacher education to novice teacher, where Jordell's (1982, 1989) extensive research in the 1980s needs to be followed up in light of recent reforms in teacher education and in schools. Also, the relationship between the content and teaching in teacher education and recent policy developments in schools, such as new methods in teaching, learning strategies, and inclusion, is strongly in need of robust research efforts. Finally, Eritsland (2004) argues that research needs to address the knowledge base in teacher education: the relationship between theoretical knowledge and practical application, as well as the relationship between content knowledge in subjects, subject didactics and pedagogy[5]. The argument pursued in this thesis is that such relationships need to be studied from *within* the practice in order to understand how such resources are used and given meaning in teacher education in the university and in schools.

As a field of research, teacher education seems to be far from robust and coherent, and greatly in need of substantial initiatives. Cochran-Smith and Zeichner (2005, p. 4) suggest that this situation may be "reflections of the field's relative youth and of its

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[5] Wilson et al. (2001) reached similar conclusions in a review prepared for the Department of Education in the USA.

history in terms of research priorities and resource allocation". The obvious disadvantage is the scarcity of large-scale studies, randomised field trials or longitudinal studies. On the other hand, one advantage may be the abundance of small-scale studies, often carried out by teacher educators to improve practice. When synthesised, as the report by Cochran-Smith and Zeichner (2005) is a valuable example of, such studies provide significant contributions to the constitution of a knowledge base in teacher education. Building on recent synthesising reviews (e.g. Bergem et al., 1997, Cochran-Smith & Zeichner, 2005, Eritsland, 2004, Wideen et.al, 1998, Wilson et al., 2001), the following sections intend to provide an overview of research in teacher education.

Research in teacher education: The problems addressed

As a point of departure in their historical review, Cochran-Smith and Fries (2005) argue that research in teacher education is dependent on the historical and political contexts of the research, how objects of inquiry are defined, and methodological issues pertaining to the research. Based on these factors, the authors delineate three broad epochs in the history of research in teacher education: the era of constructing teacher education as a *training problem* (late 1950s to early 1980s), the period of addressing teacher education as a *learning problem* (early 1980s to early 2000s), and research on teacher education as a *policy problem* (mid 1990s to 2000s).

When seen as a training problem, the object of research is to identify training procedures that may have an impact on the behaviour of prospective teachers, and teaching and learning are considered in a linear way. The early studies often attempted to built on teacher studies of effective teaching and sought to find procedures to establish such behaviour in prospective teachers (Gage, 1963). One problem pertaining to the study of teacher education as a training problem is that the

approach presupposes that what constitutes effective teaching has been identified and is agreed upon. Another controversy is related to the predominance of studies that see teaching and teacher education as questions of techniques. In its more contemporary versions, such research focuses on how teacher education succeeds in training students as for example reflective practitioners (Korthagen, 2001), in the use of specific methods in teaching (Grossmann et al., 2000, Steele & Widman, 1997), and in the use of tools for teaching, such as ICT (Margerum-Leys & Marx, 2002), or specific didactic models (Hiim & Hippe, 2001).

The benefit of the early versions of research on the training of teachers is that it generated a body of rigorous empirical research, and it justified teacher education by evidencing that training can make a difference (Cochran-Smith & Fries, 2005). In contemporary times, the notion of training has been re-conceptualised to include cognitive training, aimed at studying how the training offered might advance student teachers' thinking and beliefs. In my view, the problem with these approaches is that they are prescriptive, often building on two core assumptions: that there is consensus on the kinds of behaviour that prospective teachers should be trained in and that once they begin teaching in schools, these behaviours will be activated at the right moments. While research has been successful in establishing teaching (at least partly) as involving technical and routine tasks that may be taught in teacher education, its learning model is one of transmission (Reddy, 1993), and does not consider the inevitable changes in behaviour and thinking that emerge in practice. In contrast, in the study presented in this thesis, teaching as actions designed to promote learning are considered to be mediated by cultural tools (which teacher students may learn to handle through training in teacher education), however, the relationship between the student teacher and such tools is not direct, but mediated by the community, institutional rules and positions.

The research on teaching as a learning problem emerged during the 1980s as a result of the cognitive turn in psychology, the influence of anthropology and other interpretive traditions, and a growing interest in the relationship between research and practice (Cochran-Smith & Fries, 2005). The fact that the problem of teacher education was reformulated is evidenced in the language used; "teacher training" was gradually replaced with the notion of "learning to teach". Rather than focussing on programmes and their efficient delivery of methods for teaching, attention was placed on student teachers' beliefs and knowledge, the relevance of their experiences prior to participating in teacher education, and their development as professionals in interaction with each other, with teachers, and with pupils. Wideen et al. (1998) argue in their review of the research that the crucial point is to study the beliefs of student teachers and new teachers, and how these may change over time and under various circumstances. The theoretical orientation of research within the "learning problem" approach varies. Most often studies are positioned within a cognitive tradition, focussing on how "knowledge is developed, used and organised by individuals" (Cochran-Smith & Fries, 2005, p. 89). Frequently, such studies have a developmental design, following the progression of student teachers through courses or internship (i.e. Bricsoe & Stout, 1996, Kinach, 2002, Sundli, 2001). Researching teacher education as a learning problem has promoted our understanding of learning to teach as a complex processes, involving a number of knowledge bodies and skills, and extending in time beyond the limited period of teacher education (Borko & Putman, 1996). The review by Wideen et al. (1998) indicates that student teachers' beliefs are resistant to change, and that there may be tensions in teacher education between the teacher educators' pursuit of *understanding* and student teachers' desire to *do* teaching.

The assumptions guiding the study of teacher education as a learning problem are consistent with cognitive science, in that attention is directed to the investigation of the individual's learning and cognition. This line of research have been criticised for

focussing too much on the student teachers' learning, and not paying sufficiently attention to the connection between teachers' knowledge and beliefs and pupils' learning (Wilson et al., 2001). Also, research on teacher education as a learning problem is almost exclusively addressed in terms of student teachers' conceptions and beliefs, and their ability to translate those concepts into warranted actions (Clift & Brady, 2005). By placing action centre stage, the research conducted for this thesis is concerned with how student teachers make use of a variety of resources, including knowledge and beliefs, in situated activities that are characterised by unique social and institutional concerns, and how individual and contextual resources are negotiated in discursive practices as they learn to be, and to be recognised as teachers.

A third line of research poses policy as its object of inquiry (Cochran-Smith & Fries, 2005). The quest for knowledge that would be able to inform the reform efforts of the 1990s and 2000s may explain the increase in the amount of research conducted. A central concern of this research is to provide evidence of "what works" in teacher education (Kennedy, 1999), making possible the construction of successful and cost-effective programs.[6] Obviously, there are well-grounded reasons for making policy the problem to be addressed in research in teacher education. According to Wilson et al. (2001, p. iv), such research "could help us see how policies that are designed to influence teacher education actually affect program components and what prospective teachers learn." Moreover, the authors argue that strategic investment in research on policy may help us to quickly identify and answer key problems. However, these studies often build on an input-output model, aiming to establish correlations between teacher education programmes and indicators of effectiveness such as pupils' test scores or professional evaluations of teaching. Policy is seen as *working on* practice rather than as a context affording and constraining certain practices, and the important

[6] This is also a major research effort in education, i.e. the "effective schools" and "school improvement" research traditions; see Reynolds and Teddlie (2000).

issue of how teacher education deals with policies is eluded. In the approach guiding the research reported in this thesis, the student teachers are seen to enact policies in dynamic processes of negotiation and interpretation (cf. Ludvigsen & Rasmussen 2005). To understand innovations in schools (for example the use of ICTs, see article II below), it is imperative to study how participants collaboratively construct new practices, and how they make use of a great variety of resources in the process. What becomes of innovations is contingent on how tensions and contradictions are resolved locally.

Internationally, teacher education has been extensively researched from a variety of perspectives and covering a number of issues (Cochran-Smith & Zeichner, 2005, Coolahan, 2002, Darling-Hammond & Sykes, 1999, Houston 1990, Sikula 1996). In the Norwegian context, however, research efforts have been meager (cf. Bergem et al., 1997, Ertisland, 2004); in a recent volume on teacher education in Norway, Karlsen (2003, p. 21) argues that the book fills a void in educational research because "despite the long traditions of teacher education, it has rarely been researched". However, in the last decade several PhD projects have focused on teacher education, such as Kvalbein's (1999) study of culture and knowledge in teacher education, Brekke's (2000) research on teacher education in the northern area, Sundli's (2001) study of counselling practices in internship, Søndenå's (2002) study of reflection, Allern's (2005) work on portfolios and Mathiesens' (2000) ongoing work on supervision.

The recent reform effort PLUTO has generated research along several lines as evidenced by a number of reports published[7]. A key publication from the project is the book *An educational system under transformation – ICT and learning (Et*

[7] For an overview, see http://www.itu.no/ituenglish/1093339960.52/1093340419.28

utdanningsssytem i endring-IKT og læring), edited by Ludvigsen and Hoel (2002). According to the editors, this volume takes reform as its point of departure, choosing sociocultural theory as its research base, and the aim is to develop an understanding of the way in which these two strands interact in the design and development of particular learning environments. The advantage of this approach is that research on innovation in a number of teacher education programmes is consolidated in a common framework for description and explanation. In a final report from the PLUTO-project (Ludvigsen & Rasmussen, 2005), the authors argue that within the reform effort four objects became central as drivers for change: portfolios, student centred work methods (e.g. project work), enhanced relationship between schools and teacher education institution, and ICT. A central finding is that as impetus for change, objects work differently in different contexts. To have a potential for bringing about systemic change, objects need to work across institutional borders and on a collective level, as portfolio evaluation did. The other three objects identified also spurred change; however, this was more locally enacted in what is described as trajectory innovations.

Another recently completed research effort is the Swedish project *Recruitment and identity under reconstruction (Rekrytering och yrkesidentitet under omstrukturering),* directed by Sverker Lindblad[8]. This initiative offers an extensive and theoretically comprehensive body of research in teacher education. Building on Bourdieu's social theory, they describe and analyse teacher education, teaching and recruitment as socially and historically constituted phenomena (Lindblad et al., 2005). An important finding is that teacher identities seem to move from what they characterise as *project identities* grounded in the professional community of teachers towards *performance identities,* formulated in terms of effectiveness related to the managerialism of restructured schools. The majority of teacher students in their study adhered to project

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[8] See http://www.ped.uu.se/larom/texter/texter.asp

identities, and the researchers suggest that this may pose a problem for both recruiting and retaining teachers. Another finding of the project is that teacher education in its restructured form in Sweden is becoming fragmentised (numerous courses and group constellations), intellectualised (cognitive foci, rather than practical), and textualised (written and individualised forms of communication, rather than dialogic).

My review of research on teacher education substantiates the view of Florio-Ruane (2002, p. 210), who describes teaching as "a complicated craft to teach and learn". Also, it is evident that the questions addressed and the approaches chosen in research on teacher education emerge in social and cultural contexts, and that the accounts produced need to be interpreted accordingly. Referring to Cole's (1996) metaphor[9], Florio-Ruane (ibid) argues that the field needs *additional light* from robust research efforts that retain the complexity of the field. An urgent issue in the field is to conduct research that "include[s] explication of local knowledge(s) in contact, conflict and transformation" (ibid, p. 211), In choosing a sociocultural framework, this thesis seeks to explain student teachers' learning as situated negotiations of personal, institutional and cultural knowledge. In the following section, I will review research on teacher education that explicitly seeks to study teacher education as historical, social and cultural processes of learning and development.

Sociocultural perspectives on teacher education

Whether approached as a *training problem*, a *learning problem*, or a *policy problem* (cf. above), teacher education is most often seen as a question of how to transform individuals' skills and conceptions. Thus, skills may be trained, later to be practiced;

[9] Cole (1996, p. 68) was commenting on mainstream research in psychology, and wrote," Such a position is uncomfortably reminiscent of the man who searches for his lost car keys only within the arch of light provided by the street lamp (…)." Cole's point was that those researchers, in failing to encounter culture in their poor light, clamed that it did not exist.

knowledge may be internalised to guide subsequent actions; and individual actions and institutional activities may be constrained by educational policies. Thus, knowledge and skills are understood as in some way behind or underneath the student teachers' modes of participation in social practices. In contrast, sociocultural research aims to dialectically link the individual and the social and cultural (cf. Engeström, 1999), building on the assumption that agency and knowledge must be understood as situated in activity contexts. Accordingly, skills and knowledge, as cultural tools, acquire different meaning to actors in particular contexts. Rather than studying how training, learning, and policies affect student teachers, the focus in sociocultural research is on how such cultural resources may be negotiated, used and transformed in historically and culturally situated interactions.

The activity of organised schooling (and hence, teaching) is a result of the emergence of societies that are increasingly complex, both in terms of technologies in use and in its social forms (Säljö, 2002). Schools are institutions designed to satisfy society's need for production and reproduction of knowledge and skills. Teachers are professionals who on the micro-level perform the specialised task of organising settings aimed at facilitating pupils' learning. This task has undergone profound changes across the centuries. Its intellectual foundations have changed in accordance with changes in curricula and pedagogical theory, and its structural aspects have changed in areas such as the disposition of authority, the status of teachers, the organisation and nature of core tasks, and technological development (Hargraves, 2000, Lortie, 1975). Teacher education is motivated by society's need for competent practitioners to undertake the enterprise of insuring that important knowledge and skills are transferred across generations. Through processes of learning student teachers become authorised to practice; however, those processes are indistinct and vary across time and across institutions. Learning to teach is the situated configuration of a number of resources; in activity, directed at actual objects, such resources merge into "teacher knowledge" (cf. Schulman, 1986). Sociocultural theory

offers a theoretical framework well suited to studying such practices as processes of appropriation and agency.

Situated approaches are based on the seminal work of Lave and Wenger (1991) and Wenger (1998). The notion "communities of practice" has inspired research focused on the development of student teachers movement from peripheral to more full-fledged participators in teaching activities. Such studies generally have the school community as their focus, and seek to understand and explain student teachers' participation in the community of the school (Maynard, 2000, 2001, Rueda & Monzo, 2002, Sutherland et al., 2005). These studies are consistent in their findings that the workplaces' configurations of what it means to be a teacher greatly influence what the new teachers become. For instance, Maynard (2001) found that the student teachers strove to "fit in" by adopting the class teacher's behaviour. Also, she found that the students in their discourse tended to appropriate "teacher talk". In line with other studies within a situated approach (see for instance Mosenthal, 1996), Maynard detected tensions between what the student teachers felt was expected of them in the practice and their aspirations, supporting her conclusion that the situated approach does not "adequately represent the complex relationships between the newcomer and the school community of practice" (Maynard, 2001, p. 39). Sutherland et al. (2005) argue that there are limitations to the situated approach as a model for teacher education. The internship experience must allow *legitimate* participation in authentic experiences. This presupposes partner schools that are involved in *the education* of student teachers, not merely allowing them access to the practice. Generally, studies within the situated approach are perceptive in indicating the *interactive* processes of participation and reification through the student teachers' gradual involvement in the practice as teachers.

The hybrid character of teacher education – taking place at multiple sites and comprising several distinct practices - is not well explained by the situated perspective, which usually focuses on just one practice. *Activity theory* (Engeström, 2001) allows for the study of change processes on the level of the individual, the institution and society. To date there is not much research available on teacher education within this perspective. However, Lambert (2003) has studied the development of knowing within and between activity systems in vocational teacher education, and Roth and Tobin (2001, 2004) use activity theory as a framework in designing, describing and explaining developmental work focusing on university-school collaboration in teacher education. Edwards et al. (2002) use activity theory to re-interpret findings from an earlier work on mentoring in teacher education (Edwards & Ogden, 1998). Research connected to the Norwegian reform effort PLUTO use activity theory as the theoretical approach in researching the use of case-based work, portfolio assessment and integration of ICTs in teacher education (Hauge & Wittek 2004, Hauge 2004b, Jahreie & Ludvigsen, submitted). An important issue is to study development at points of interaction between activity systems.[10] For instance, Lambert (2003) argues that teacher education needs to be designed to facilitate the development of boundary crossing places, where student teachers are given opportunities to mediate between learning sites. Such boundary crossing places must provide learning opportunities for students *and* teachers, allowing supervised collaborative learning processes.

Student teachers' and mentors' discourses in internship constitute potential boundary crossing places where boundary objects may emerge and be expanded in their interaction. Student teachers learn to teach in several activity systems (such as universities, schools, and peer groups), and the objects of their actions and

[10] Tuomi-Gröhn and Engeström (2003) have edited a volume that deals with issues of transfer and boundary crossing between the activity systems of school and work.

interactions need to be negotiated and re-negotiated. The analyses of discursive interactions may enhance our understanding of how and why objects of activity are constructed, which cultural resources are used in the construction, and what the consequences are for the student teachers' development. As argued in the articles in Part II, the analysis discloses how communication works to construct objects of activities, to organise and execute actions, and to collectively and individually constitute meaning. In education these are central issues; institutionalised education build on the idea that collective cultural content can be shared between individuals in discursive as well as practical enterprises. I have found few studies within a sociocultural or activity theoretical perspective that explicitly focus on individual and collective meaning making in teacher education.[11] To move the field beyond descriptions, a fruitful approach in sociocultural research on teacher education could be to pay attention to the objects of activity. This could imply investigating the zone of proximal development and the tools that are used to expand those objects (Edwards, 2002). Moreover, the field might benefit from studies that focus on the interactional formation of objects, and how these may serve the purpose of transforming teaching activities and the students' sense of being teachers (cf. Tobin & Roth, 2001, 2004).

While the studies reviewed for this chapter indicate that there is evidence that teacher education has an impact on student teachers, it has proven difficult to predict what impact a specific course or experience might have (Clift & Brady, 2005). The concern in this thesis is to contribute to our understanding of how the situated experiences of student teachers in object-oriented activities during internship work to build and rebuild their sense of *being* teachers.

[11] However, see Edwards & Protheroe (2003, 2004), Van Huizen (2000) and Allern (2005).

Approaching problems of sociogenesis: Individuals in society and society in individuals

Introduction

Teaching is perhaps the most genuinely human practice; in some sense, we all are teachers, and humanity builds on our capacity for transmission of social and cultural life forms across and within generations. For some, those of us who aim to become *teachers* - that is, to take part in the activity of schools in the very special role of an institutional teacher - society has identified a need for learning that transcends the generic truism “we all are teachers”. Learning to teach in schools means learning something specific: learning how to be a teacher in educational institutions, at a specific time in history and within a specific culture. As detailed above, the content (what needs to be learned) as well as the methods (how this is to be learned) vary, both within and across institutional practices. Who a student becomes as teacher, what kind of professional identity he develops, and how he understands and performs his tasks vary; however, at the same time, there seems to be some characteristic of his actions that allows us to know that this is a teacher. This would suggest that through his participation in the social and cultural practices of teacher education, the student develops an understanding of what it means to be a teacher and develops some skills for participation in the practice of teaching in schools. Moreover, the individual teacher or student teacher also develops a personal sense of the work as teacher; what teaching comes to be for him or her. The notion of “the social mind” reflects how the interplay between the world and the individual comes to determine the being of persons. However, as Valsiner and van der Veer (2000) contend, rhetorically the notion works as a tool for positioning research; substantially it is flexible and open to social, cultural and historical instantiations. In the following sections I will discuss what it might imply to apply a sociogenetic perspective to the relationship between individuals and the world, and I argue for the approach chosen for this research.

Sociogenetic perspectives

Sociocultural approaches build on the assumptions that interactions between aspects of the environment (i.e. history, social relations, cultural artefacts) and the individual play an important part in learning and development and that micro-processes of human action are affected by larger contexts. However, there is less agreement about what constitutes the *relationship* between the individual and the environment and how the mechanisms of sociogenesis may be understood. According to Valsiner and van der Veer (2000), there are two directions of interpretation of sociogenesis. The first stipulates the social nature of the mind as an ontological fact, while the other focuses on social genesis, the *development* of individuals in society. It is this latter approach that has guided this research; however, this poses a number of conceptual and methodological challenges.

For instance, Valsiner (1994, p. 48) sees one dilemma in the problem of conceptualising structure (as a static phenomenon) and processes (as dynamic phenomena) as concurrent aspects of development. The problematic is further complicated by the fact that structures may not be so stable, nor processes dynamic, when viewed in another timescale (cf. Lemke, 2003). Also, when studied in the form of empirical evidence, at a specific moment in time or moments in time on a developmental trajectory, development becomes fixed as ontological facts in our descriptions of what "is". In tracing the sociogenesis of social science, Valsiner and van der Veer (2000, p. 419) advance the notion of "socially guided intellectual interdependency". This notion could be a useful heuristic in the study of student teachers' discourses while learning to teach in internship.

Interdependency refers to the way in which our individual ideas, or frameworks for understanding, must be understood as embedded in social and cultural practices. Any utterance made by a student teacher or a mentor in their discourse is locally

constructed, but it also draws on the resources of the wider context. This does not imply that utterances are governed by forces external to the person; rather, individual agency is applied inside the students' relationship with the environment. Within such relationships, certain questions may be asked and issues focussed upon, certain frameworks for understanding are privileged, and the students are oriented to legitimate ways of teaching. The idea of socially-guided interdependency works well to explain the social situatedness of thought, speech and activity. In this thesis, speech is seen as the central tool connecting the student teachers and the activities they take part in. Moreover, events are bestowed with meaning as they are talked about in the conventional language of the practice. In the next section, I will turn to Vygotsky in a discussion focusing on the pivotal function of speech in sociogenesis.

A Vygotskian perspective

For Vygotsky (1978), mediation is the mechanism connecting the individual and the social. The principle of reversed action implies that humans' use of tools and signs do not merely affect the individuals' outward actions; in acting with mediational means, the action "folds back" and "transfers the psychological operations to higher and qualitatively new forms (…)" (Vygotsky, 1978, p. 40). In a very concrete way, Vygotsky repudiates the notion that human development and action can be seen as the result of maturation:

> "Just as the first use of tools refutes the notion that development represents the mere unfolding of the child's organically predetermined system of activity, so the first use of signs demonstrates that there cannot be a single organically predetermined internal systems of activity that exists for each psychological function. The use of artificial means, the transition to mediated activity, fundamentally changes all psychological operations, just as the use of tools limitlessly broadens the range of activities within which the new psychological functions may operate" (Vygotsky, 1978, p. 55).

What the person becomes is a result of psychological transformation occurring through his mediated actions in the world. Signs and tools carry social meaning, making possible the outward participation in societal activities and the inward construction of the social mind. Thus, Vygotsky claimed to be able to study structure and process, individual and society, as emerging moments of interaction constituting agentive persons in the world.

For the study of teachers in the making, Vygotsky's sociogenetic approach affords a useful framework. In teacher education, student teachers encounter tools and signs for teaching and understanding teaching through participation in the practices of schools and universities. Such tools and signs mediate their outward activities, and at the same time they mediate the students' understandings of those activities. However, Vygotsky's concerns were directed toward the development of speech; hence, his focus was on the sign as a means of mediation. His co-worker, A.N. Leont'ev, was intent on developing a Marxist psychology, and he further elaborated how the person develops in activity (Leont'ev, 1978, 1981). His work sheds further light on the processes of sociogenesis, and I turn to his work in the next section.

Leont'ev's contribution: unpacking the notion of activity

In his work *Activity, consciousness, and personality*, Leont'ev writes in the introduction:

> "I think that *the most important thing in this book is the attempt to comprehend psychologically the categories that are most important for constructing an indisputable psychological system as a concrete science of the origin, function and structure of the psychological reflection of reality that the life of the individual mediates.* These are the category of subjective activity, the category of consciousness of man, and the category of personality." (1978, p. 6, emphasis in the original)

In the following section, I will briefly explain Leont'ev's concept of activity before discussing the relationship between activity and the development of mind.

An important point of departure for Leont'ev in his efforts to develop a Marxist psychology is based on Marx' theses on Feuerbach: that human activity is generic to humanity (what makes us human) and that it is object-oriented. Activity is not a reaction *caused* by external forces or internal needs (though, of course, these are both important in activity); activity is a system "that has a structure, its own internal transitions and transformations, its own development" (Leont'ev, 1978, p. 50). Unveiling the processes of transformations and transitions between society and human minds necessitates investigations not of minds or culture, but of the structure and development of human activity.

The object-orientedness of activity is crucial to understanding Leont'ev's conceptual framework; at the same time, it is difficult to grasp the meaning of this term. Kaptleinin (2005) argues that the problem may be related to what he points to as a "linguistic gap" connected to the two Russian words *object* and *predmet,* both of which are translated into English as "object", while in Russian the former expresses "the objective, material reality in general" (ibid, p. 7), that is, that which is transformed in the activity. The latter is used to "denote the orientation of the activity" (ibid). Thus, the object of activity could be both the object that is transformed through the activity *and,* in the sense of *predmet*, the object that is defined socially and historically through its incorporation in human activity (Leont'ev, 1978). As *predmet,* the object is also the motive of the activity. The fact that activity is object-oriented points to activity as the transformation of objects in the world, which in this project are the student teacher's teaching skills. In addition, it divulges the motivation for the activity, the development of excellent teachers for Norwegian schools. The activity is realised through actions, oriented by particular

purposes or goals as presented by the circumstances and fulfilled through the actions. For example, a number of goal-directed actions serve the purpose of developing excellent teachers: reading books to understand educational theory, practicing teaching skills in classrooms, discussing teaching or experiences with supervisors, mentors or fellow students, etc. An important insight in Leont'ev's theory is that such actions may also be motivated by needs arising from, and thus part of, several activities (Kaptelinin, 2005, Leont'ev, 1978, Mietteinen, 2005). In internship, the actions of student teachers simultaneously realise the activities of teaching in schools and of learning to teach. The way in which any action is carried out is contingent on the operations afforded by the conditions of the activity. For instance, the activity of teacher education is circumscribed by historically developed and culturally and socially enacted rules and divisions of labour and by the cultural artefacts through which the actions are carried out.

The structure of activity, as theorised by Leont'ev (1978), can be conceptualised as a three-level hierarchy. *Operations* are the primarily non-reflected acts of individuals, prompted by conditions of the environment. *Actions* are goal-directed acts, implying conscious deliberation on the part of the individual. Actions may later become operations; however, on encountering contradictions or obstacles, they will return to the level of action. *Activity* is seen as a collective endeavour oriented towards the transformation of objects to produce a desired outcome. The individual becomes a person through his participation in societal activities.

Leont'ev (1978) rejects the dualist notions of personality as the result (somehow) of a certain "mix" of heredity and environment. Based on his dialectic approach, he argues that questions of the development of personality need to be investigated as "a process of "self-movement", that is, to investigate its internal moving relations, contradictions, and mutual transitions, so that its prerequisites appear in it as its own

changing moments" (Leont'ev, ibid, p.105). This would imply that personality is understood as a social-historical phenomenon: personality "is" in society; the individual enters history with a set of natural capacities and becomes a *person* through his activities in societal relations. Personality is not prior to activity, and consciousness (and personality) emerges in activity. What is of interest, then, in studying teachers "becoming", is to direct attention towards the transformation of the person in human activity.

Since the development of personality is activity based, the personality is produced within societal relations, distinct from genotypic features which are innate, but mature in the ontogenesis of the individual. Genotypic features of course play a role in the production of personality; however, they do not accommodate a prediction of how the personality will develop. Leont'ev (1978) gives the example of a person with a physical deviation that makes him limp; undoubtedly, this trait in his bodily make-up will *affect* the production of personality, but it does not predict it. Only by way of delimiting participation in societal activities or the range of options in how to participate does this play a role in the development of personality. It is not the limp that creates personality, but the participation of the individual with a limp in production. A key supposition in this version of the relationship between individuals and society is the double constitution of personality: "(…)psychological when the subject is considered within the systems of activities realising his life in society, social when we consider him in the system of objective relationships in society as their 'personification'" (Leont'ev 1978, p. 110). Through his outward actions, the person transforms his environment, and at the same time, transforms himself.

Learning to teach – being and becoming

Building on Leont'ev, it was argued above that the person develops through participation in a range of societal activities, and that through his actions and operations he transforms not only the objective environment, but also his subjective sense of being in the world. Consequently, the "becoming" of teachers is not restricted to a confined period of teacher education. Rather, it must be seen as a long-term construction and re-construction through a range of experiences of participation in activities that make up the lives of individuals. Thus, what a teacher "is" must be understood as flexible, evolving and social in its nature. In teacher education, what the students see themselves as, and what they are seen as by others, are resources in the transformation of new objects, whereby the actors themselves are also changed.

In line with Leont'ev's (1978) theorising of psychological phenomena as originating in object-oriented activity, professional identities are understood in terms of their mediated actions and the meanings assigned to those actions; identities are seen as practiced (Holland et al., 1998). The issue at stake is how such meanings develop, and how they are changed or reproduced in activity. The student teachers' discursive activities during internship constitute empirical expositions of identities under construction. Such identities [12](or selves) emerge through encounters with the world; people are understood to always be in the process of *doing*, taking part in historically and collectively defined socially produced activities, and it is *within* these activities that individuals "become". In each act, the individual progresses from the personal sensation of the phenomena to its objectification, drawing on culture and history as well as the particulars of the situation at hand.

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[12] The term *consciousness* is used by Leont'ev (1978) for this sense of being that *identity* connotes.

Student teachers in internship already have identities, provisional understandings of themselves as teachers, based on previous activities as pupils, in courses at the university, or in taking part in societal discourses about teachers and teaching. During internship they engage in activities in which their understandings are challenged and transformed. Similarly, the mentors' identities develop in the activity, producing objectifications of selves that may guide subsequent behaviour. Linking the concept of identity to activity, to participation in the world, the self is seen as a social and historical product that cannot be conceived of separately from the activities through which it is constituted. The persons' conceptions of *being* teachers are not distinguishable from the activities of teachers; accordingly, identity cannot be studied as such, but only as identity-in-action.

It follows that identities are social and historical products, shaped through the activities of individuals in the world, mediated through the dual constitution of the object of activity and social relations (Leont'ev, 1978).

Producing and reproducing knowledge: Talk in practice

Introduction

Working within a sociocultural framework, Edwards & Prothroe (2003, p. 230) view learning to teach to be "a process of learning to be, see and respond in increasingly informed ways while working in classrooms". They argue that a prerequisite for such learning is that the student teachers become able to make informed interpretations of educational situations, enabling a variety of responses. However, s*eeing* is a tricky category, in the sense that it is commonly linked to perception, as an individual mental copy of what is already there. An alternative view could be that what we see (both in the sense of perception and understanding) is what we have learned to see. It by using collectively and historically developed linguistic and conceptual tools that the students are enabled to be, see and respond in increasingly informed ways. In teacher education, a variety of tools may be offered the students through discursive practices in university courses and in school. Through talk, resources are shared between people, allowing the appropriation of warranted ways of speaking and thinking within specific social contexts and institutions. Learning in complex and diversified societies is a question of being inducted into the ways of such communities, whether this be the scientific world of university courses or the practical world of teaching in schools (Säljö, 1996), and it is through talk that such communities are constituted (Shotter, 1993).

In education it is not easy to escape the view of cognition as being a product of individual minds. In fact, the whole purpose of education in modern societies rests on the conception of transmission of cultural content to the minds of young people, later to be used in their lives in the world. The sustainability of this idea is remarkable and is reflected in our ways of talking and thinking to the extent that it is practically

impossible to surmount (Reddy, 1993). This has serious implications for our everyday speaking and thinking about speaking and thinking, and how we understand processes of learning. In this section I will discuss the relationship between thinking and speaking. Above I have argued that what student teachers become as teachers needs to be understood as products of their participation in object-oriented social activities. This personal sense of being is dually constituted in an individual's consciousness, as "sensory impressions of external reality in which the individuals activity takes place and forms of sensory experiencing of the motives of the activity, (…)" (Leont'ev, 1978, p. 92). However, externalised in speech, personal sense is embodied in meanings. Meanings are socially produced linguistic resources that enable communication; it is the *form* personal sense takes in its outward expression. Moreover, Leont'ev (ibid, p. 89) argues that "meanings lead a double life" as they are also means and mechanisms of perception. Thus, it can be argued that in their externalisation of sensory impressions in mentoring discourses during internship, the student teachers produce and share knowing and understanding, while at the same time they produce themselves as teachers of a certain kind. In the following sections I will discuss language as a central mediating tool in the development of practiced identities as teachers.

Language as tool for production and reproduction

To build my argument I will turn once again to Vygotsky. His volume *Thought and Language* (1986) is "a study of one of the most complex problems in psychology, the interrelation of thought and speech" (p. lix). In chapter 10, which is believed to be the last piece of work he ever wrote (van der Veer & Valsiner, 1991), Vygotsky discusses how thought is externalised into words. The problem is that thought cannot be investigated; what is observable is speech, and Vygotsky builds his argument on his studies of the development of inner speech, which he sees as "an autonomous speech function" which "[w]e can confidently regard as a *distinct plane of verbal thought*"

(Vygotsky, 1986, p. 248)[13]. Yet, pure thought is another thing, and Vygotsky firmly argues that thought and speech cannot be conflated. Each has its own generic roots and development, and the relationship between them is dialectic: The “thought is not expressed in the word, but is completed in the word. One might therefore speak of the becoming (the unity of being and non-being) of the thought in the word” (Vygotsky, 1934, quoted from van der Veer & Valsiner, 1991, p. 370).

When thought and speech are seen as separate processes, though somehow united in a back-and-forth movement, a key question is how their relationship is constituted. By designating word meaning as his unit of analysis, Vygotsky claimed to have settled upon the elementary cell that represents “the unity between thought and word” (Vygotsky, 1986, p. 212). Word *meaning* is doubly constituted: the word is the verbal embodiment of thinking, while the word simultaneously works back to kindle thinking. This only makes sense if we add another insight from Vygotsky, namely that word meanings develop (ibid). The word may have a number of potential meanings, described by Rommetveit (1992, p. 25) as “the embeddedness of meaning and mind in a polyphonic cultural collectivity”. It is through social activity that word meanings can develop, generated by what motivates the activity.

Returning to the problems of this study, in teacher education as a discursive practice word meanings are developed within the potentials offered in this activity as it emerges at a certain moment in history. The direction of development is contingent on the object of activity, and the goals to which individual actions are directed (Leont’ev, 1981, Vygotsky, 1986) and reflected as sense in individuals. Leont’ev (1981, p. 229) gives the example of a student studying recommended literature. His

[13] Van der Veer & Valsiner (1991:363-364) contend that Vygotsky’s conceptual distinctions between speech, inner speech, and thought are ambiguous. In their interpretation, they choose to see inner speech “as part of the semantic plane of speech, and not necessarily as a phenomenon that is ‘deeper’ in the sense of being closer to thought”.

conscious aim may be to understand what he is reading. The underlying motive for this activity might be to prepare himself for his future profession, which gives him a certain sense of what he is doing. On the other hand, he might be reading to pass his exams, which would produce another sense. Although the actions of the student in each case might look the same, the actual production might be very different. Similarly, in the internship part of teacher education, there is a tension between motives directing the actions of student teachers and mentors: to teach in schools, and to learn to teach in schools. Although an observer may be unable to distinguish between the two, in each case the personal sense of how and what the student teachers learn may be very different. Thus, to understand the becoming of teachers, investigating their discourse while learning might be a viable approach. However, I agree with Vygotsky's claim that "[T]o understand another's speech, it is not sufficient to understand his words – we must understand his thought. But even that is not enough – we must also know its motivation" (Vygotsky, 1986, p. 253).

Vygotsky's project was to analyse the processes through which individual mental functioning develops in social interaction; only late in his life did he turn to the relationship between mental functioning and historical, cultural and institutional processes, as evidenced in the differences between Chapters 5 and 6 in *Thought and Language* (Wertsch 1991). The difference between the two is that in Chapter 5 Vygotsky deals with the development in ontogenesis of concepts on a *general* basis, based on individual psychology, while in Chapter 6 he is concerned with the development of scientific concepts. This means that his focus is on the development of a *specific* conceptual content, suggesting that the analysis of intramental functioning needs to include the social, cultural and historical means of mediation. In his efforts to develop a Marxist psychology, it was this line of reasoning that Leont'ev pursued (Glassmann, 1996). However, central to both approaches, and to the becoming of teachers, is the use of verbal interaction in the development of categories that mediate the relationship between the individual and the world:

> "But to transmit a means or a method of carrying out one process or another is impossible except in an external form – in a form of action or in the form of external speech. In other words the higher, specifically human, psychological processes may originate only in the interaction of man with man (…)" (Leont'ev, 1978, p. 59).

The question is how we can understand the discursive practices through which the transfer of cultural content takes place. One answer may be found in Vygotsky's (1978) distinction between the functions of sign and tool in mediated activity. Although Vygotsky seems to refer to physical tools (indicated by the quoted passage from Marx[14]), my argument is that human discourse serves a double function in social activities: It functions as a tool *and* a sign. As a tool, talk is externally oriented; that is, through discourse actors may influence and change their objects of activity. As a sign, talk turns inward; it is "a means of internal activity aimed at mastering oneself" (ibid, p. 55).

However, the two are mutually linked. Vygotsky (1978) uses the notion of *internalisation* to explain the processes through which social operations are psychologically reconstructed. The prefix "re-" is important; it indicates that culture is not transmitted into minds. Rather, in the developing person, a qualitative transformation takes place; in internalisation processes the sense and meanings of contextual information are transformed into concepts that have the function of mediating activity. Shotter (1993, p. 43) argues that "what it is to have formed a concept, is to have formed for ourselves, from the words of others, a 'psychological instrument' *through* which we can both perceive and act". Learning to teach is a process of forming and re-forming the psychological instruments regulating the relationships between individuals and the world. Such mediating devises (Holland & Valsiner, 1988) allow not only for actions in the world, but also for conceptual thinking as a special form of social practice through which we, as it were, act on

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[14] Vygotsky's refers to how Marx extends Hegel's argument about human reasoning "to show that man 'uses the mechanical, physical, and chemical properties of objects so as to make them act as forces that affect other objects in order to fulfill his personal goals'" (Vygotsky 1978, p. 54).

ourselves. In learning to teach, through multifaceted actions, the student teachers gradually appropriate the discourses of the profession, enabling inward control of their thinking and outward control of their actions. And it is in their controlled outward actions, through deeds or speech, that they develop understandings of themselves as teachers in ways that are considered legitimate to themselves and to others (Shotter, 1993).

Artefacts in social discourse

When talking and thinking about objects in the world, the meaning of our words are not only (or, Shotter (1993) argues, not even primarily) referential; they embody the practices of their use. My object of study in this thesis is how student teachers learn to participate in the historically developed practice of teaching in schools. What needs explaining is the relationship between the inward function of signs and the outward function of tools. Above I have argued that in discourse, language serves the dual purpose of both these functions. To extend my argument, I will turn to Wartofsky's historical epistemology, in which he advances a three-level taxonomy of artefacts (Ivarsson, 2004, Sutter 2002, Wartofsky, 1979). His point of departure in developing his theory is human praxis, the making of life conditions through the use and production of artefacts. An artefact can be anything that is created for production and reproduction, including language, social organisation or skills (Wartofsky, 1979). Referring to their direct use in production, Wartofsky uses the notion of *primary artefact.* His own examples are "axes, clubs, needles, bowls" (Wartofsky, 1979, p. 201), but tools for communication can also be seen as primary when used in production. They are the reifications of human activity. *Secondary artefacts* are representations used in the preservation and transmission of modes of production, the "reflective embodiments of forms of action or praxis" (ibid). They are images, models or prototypes that instruct us of their warranted enactment. Finally, *tertiary artefacts* are representations that derive from praxis, but in "off-line", imaginative activity they are no longer bound to their historically developed canons and conventions. An important issue here is feedback: The alternative canons of

representation developed in the off-line mode of tertiary artefacts can change our perception of the actual world, endorsing the development of forms of praxis.

The advantage of Wartofsky's framework is that artefacts are understood in their complexity as being (at least possibly) represented on all three levels, and that those representations are derived from human praxis. This means that the notion of artefact cuts across Vygotsky's distinctions of inner and external, sense and meaning. Representations are models of the world, "the means by which human consciousness presents itself with its objects, i.e., in which it becomes self-consciousness" (Wartofsky, 1979, p. xviii). This is not just a question of coming to know one's self. It is the means through which individuals are connected to the activities of the world, and through which understanding of the world and the practices they take part in are developed. It is the human way of learning. For student teachers models of teaching emerge through participation in teacher education (and elsewhere), enabling them to think and talk about the practice in distinct ways. Such thinking and talking creates horizons of possible actions – which in turn may modify or re-create the students' sense of the practice.

The notions of tool, sign, representation, and model as used by Vygotsky, Leont'ev and Wartofsky, all connote a sense of stability, even finality. It is as if they were "things" that persons may reach out and use in their premeditated actions in the world, and which the researcher may observe and interpret as simply taking the tool and using it, extending the Cartesian division between the I and the world. Leont'ev (1978, p. 59), referring to the insight of Vygotsky, argues that there are two basic (and interrelated) features to psychological science: "These are the equipped ("instrumented") structure of human activity and its incorporation into the system of interrelationship with other people." It is through our relations with others in activities that consciousness is produced, not as an end-product but as an ongoing and

never-ending process throughout our lives: “Not meaning, not consciousness lies behind life, but life lies behind consciousness” (ibid, p. 60). When consciousness is understood as emerging “in life”, the essence is that participation is primary, and understanding and mental development is derivative.[15] Thus, what needs to be explained is how participation in social activities, such as teacher education, can come to change the student teachers’ possibilities of acting as teachers.

I will return now to the question of how student teachers learn “to be, see and respond in increasingly informed ways while working in classrooms” (Edwards & Protheroe, 2003, p. 230). My argument is that the way in which teaching practices are *talked about* holds the key to understanding this learning process because through talk (both between people and to ourselves) we are instructed about accountable ways of being, seeing and responding (Shotter 1993, 2003, Vygotsky, 1986). Participation is a core notion because by responding to others in activities in the world, human beings “become”: “The very being of man, (both internal and external) is a profound communication. To be means to communicate” (Bakhtin, 1984, p. 12). But when communication is understood as *responses* (to people’s actions in situations), its forms and functions vary across activities. There is always a “third agency” (Shotter, 2003, p. 443) present, setting the scene as it were, for the utterances that can legitimately be made. Student teachers, being novices to the practice of teaching, must learn both “that” (the theories and principles that can explain their actions) and “how” (the practical skills, or craft involved). However, talking about experiences requires knowing of the third kind (Shotter, 1993), involving “the articulation of an ‘insider’s’ understanding of what is involved in carrying out an action in a social situation” (Shotter, n.d., p. 8). Such knowing resists theorising; it emerges in every moment of their dialogue as expressions that organise experience (Volosinov, 1986).

[15] Vygotsky (1986, p. 167-168) contends that consciousness must be seen as holistic, the interfunctional relations are what is important. And these functions and their relationships develop as we take part in social activities.

In dialogues, events are constituted as “something”, to be talked about in this way and not that, opening up horizons for next moves; it is a “dialogically structured real presence” (Shotter, 2003, p. 456, cf. also Linell, 1998, Rommetveit, 1985) from within which dialogue can proceed. An event, such as a student teacher’s teaching experience, becomes a social reality when it is talked about (Rommetveit, 1985), accounted for in relation to the particular social and physical circumstances of the situation and the cultural tradition of the activity of which it is part. This is what constitutes the “double dialogicity of discourse” (Linell, 1998, p. 132). To be able to communicate at all, in speaking, the participants must jointly constitute the “real presence” (Shotter, 2003) of their talk; the unstable, dynamic and ever-changing common place from which the dialogue proceeds.

This special working of discourse as constitutive of a “real presence” is vital to understand learning as becoming, because it elucidates how learning connects to the activity. Learning *about* teaching, for example in university courses, is different from (though not less authentic, cf. Säljö, 1996) learning to teach in schools, because the jointly constructed real presences differ. In the framework adopted for this study, human activity is seen as open-ended and indeterminate *and* socially, culturally and historically situated. Its focus is on the becoming of teachers, through learning process that unfold in “real presence”-actions at multiple moments in time. It is through discourse, the “drama in which three characters participate” (Bakhtin, 1986, p. 122) that activities gain their object-orientedness (Leont’ev, 1978); in discourse the participants create a common place from which communication can proceed. An important function of words in interaction is that they are used as a *means* of influencing those to whom they are addressed (Vygotsky, 1978, 1987). In their discourse, the student teachers and mentors will use words in this way to focus and direct attention, both towards those aspects of the reported events that need to be talked about and the way in which they should be talked about. By focusing on some issues (and not on others), those issues are indicated as worthy of discussion, as

something that calls for an account. And through their accounting practices (how they talk about those issues), student teachers and mentors "*make* themselves accountable to each other" (Shotter, 1984, p. 182), and at the same time learn how to be accountable in this and similar situations.

Moulding identities in social interaction

As argued above, ways of knowing and talking constitute the basics of practice, regulating how people's utterances and actions are made sense of or responded to. Through such actions, the common places of the practice are made and re-made, and it is from within these places that participants make and remake themselves (Shotter, 1993).[16] It is from this place within their actions in social practices that the student teachers may gain a sense of agency and identity as teachers. However, they are concomitantly participators in many practices: They are students, sons and daughters, football players, etc. These other practiced identities (Holland et al., 1998) are not left at home or on the football field when the student teacher is a teacher during internship; on the contrary, they constitute important resources as *figured worlds* that can (but need not be) made part of the common places they create in their accounts of teaching. While common places are responses built on particular situations, in the next moments of activity they may become heuristics for further action, and in this sense constitute a figured world, a horizon for interpretation and meaning making (ibid, p. 52). To understand what kinds of teachers the students become and how they become such teachers, this thesis seeks to throw light on the ways in which the student teachers incorporate various figured worlds in the constitution of common places, and the relationships between the students' accounts and the objects of the activities.

[16] "Place" is not to be taken in its literal sense – it is neither physical nor necessarily stable over time. The term "real presences" used by Shotter (2003) might be a better formulation.

Also, the students' *positions* in the discourse are of importance (cf. Holland et al., 1998). Although communication is always collectively accomplished, there is usually an asymmetry of participation (Linell, 1998). Positioning may reflect the cultural and historical distribution of power, or legitimacy and authority based on for instance expertise. In institutional discourse such patterns of responsibility and opportunity for agency may be very strong, delimiting the opportunity to act for some of the participants. However, as Linell details, such asymmetrical communicative projects are nevertheless jointly managed. The mentor can act as an expert only because the students act as novices. In other moments, the student teachers can position themselves as experts and take on epistemic responsibility within the common place established in the situation (see Article II).

A third aspect of the common places of importance to the development of teacher identities is the *authoring of selves* (Holland et al., 1998). This notion refers to the way in which individuals are allowed to make choices, instigate events or initiate actions, as well as their "ability to assign meaning to situations, events, behaviours and actions" (Linell, 1998, p. 271). Discourse itself affords such agency, in that in the flow of speech there are moments that call for a response (Shotter, 2003). At such moments, participants in the discourse orchestrate their unique responses, and by doing so, they author themselves as they are "made knowable, in the words of others" (Holland et al., 1998, p. 173). Through their responses, common places may be contested, maintained or developed; however, accounts are made within the constraints and possibility of their real presence.

Summing up

In this section I have argued that if we are to understand the processes through which student teachers learn to be, see and respond in increasingly informed ways, the

conversational realities (Shotter, 1993) of student teachers are units that "possess all the basic characteristics of the whole[17]" (Vygotsky, 1978, p. 46). It is necessary to study the elements, such as words and concepts (Vygotsky, 1986), artefacts, models and representations (Wartofsky, 1979), in their embeddedness in social activity. It is activity that is primary: "The word was not the beginning – action was there first; it is the end of development, crowning the deed" (Vygotsky, 1986, p. 255, cf. also Leont'ev, 1978).

Leont'ev (1978) argues that a person's sense of being arises in his construction of sensory experiences, and that this construction is embedded in object-oriented activity. Thus, what the person can be, and be seen as, is dependent on the social practice he takes part in. For student teachers learning to be teachers, this means that their sense of being teachers emerge through their awareness of themselves as actors in schools. In mentoring discourses, such budding awareness is externalised in the interaction, and through the student teachers' and mentors' the joint construction of legitimate accounts of teaching the students' sensory experiences are represented in the conventions of the practice. In this thesis, Holland et al.'s notions of *cultural worlds, positioning, and space of authoring* are used as theoretical tools in the investigation of the processes through which student teachers *become* teachers. Through the employment of this framework, the processes of becoming are made transparent to the analysis.

[17] Vygotsky's comment refers to taking the *word* as unit of analysis. However, his argument is against forms of analysis that decompose complexity into elements and thus lose the dynamics of the whole. His main point is, as I see it, that our units need to encompass the complexity of internal relations that constitute the whole.

Methodological issues: Connections and interdependencies in talk as action

Introduction

In my research I have wanted to study moments of interaction between student teachers and mentors during internship, and the students' development of a sense of being teachers within such moments. Every exchange is seen as proceeding from within socially constructed real places; as conversational realities that are constituent parts of living activities (Shotter, 2003, 1993). This simultaneously constitutes the product and process (Wells 1999) of the making of teachers; it is through their outwards responses to the situation at hand that they express themselves as (future) teachers of a certain kind, and those expressions, as objects to be talked about, responded to, justified etc. in turn work back to change what they might understand themselves to be. It is the student teachers' being and becoming, as an indeterminate, but directed, growing *into* teachers I want to explore in my analyses of student teachers' and mentors' discourses. I will begin this section by returning to Vygotsky, who addressed the problem of method at several points in his writing (Vygotsky, 1986, 1978). I what follows, I will discuss the methodological approach adopted for this project in light of the issues advanced by Vygotsky, anchoring this research project within the sociocultural tradition. Following that, I will provide a description of the research process, in order to make it more transparent to the reader than the publishing format of articles allows.

Researching living processes of development

In the Chapter "Problems of Method" (Vygotsky, 1978), Vygotsky discusses the need for the development of new methodologies based on his general theoretical approach.

In particular, his dialectical approach to psychological research fundamentally transformed the view of child development of his time:

> "Our concept of development implies a rejection of the frequently held view that cognitive development results from the gradual accumulation of separate changes. We believe that child development is a complex dialectical process characterized by periodicity, unevenness in development of different functions, metamorphosis or qualitative transformations of one form into another, intertwining of external and internal factors, and adaptive processes which overcome impediments that the child encounters." (Vygotsky, 1978, p.73)

Although he writes about child development, I find it equally relevant for development in general, including for the development of student teachers. In a sociocultural approach development must be studied as dialectical processes, affording qualitative changes that allow for new ways of participation. This means, as Vygotsky repeats at several point in his chapter, that development "must be studied as a living process, not as an object" (Vygotsky, 1978, p.69).

A second important consequence of the dialectical approach concerns the unit of analysis. Units of analysis are not a "natural" phenomenon, presenting themselves to the researcher. Rather, they are the analyst's constructions based on a deliberation of what is relevant in order to understand the phenomenon under investigation. Vygotsky's (1986, p. 211) important reminder was that the units chosen must be "capable of retaining and expressing the essence of that whole being analyzed."

Finally, Vygotsky (1978, 1986) calls attention to the need for developmental research to be able to disclose the genesis of the phenomenon under study. This means that research must be historically based, which for Vygoysky (1978, p.65) meant "to study it in the processes of change".

A central concern of Vygotsky's was the need to adopt a genetic approach to the study of human behaviour (cf. Wells 1999). Any instance of human interaction is conditioned through its specific relation to phylogenesis, denoting the current stage in the development of mankind, to sociogenesis through the social and cultural situatedness of the interaction, and through ontogenesis as represented by the interactants' life trajectories as members of a culture. Micro-processes, such as the discourses between student teachers and mentors, unfold as the concurrent instantiations of those genetic processes within cultural activities at specific moments in time. In this perspective, development cannot be understood as "add-ons" to individuals' make-up as they progress towards a pre-defined goal; rather, for people in their worlds it is "the living whole within which they have their being" (Shotter, n.d., p. 10) that in every moment of interaction constitute a potential for development. To become teachers, during internship the students are challenged to change their ways of relating to their environments, to develop appropriate ways of addressing and responding to the demands of the practice (cf. Shotter, 1984).

Delimited in this way, development retains its connection to the social activities in which individuals participate and their personal life trajectories as members of historically developed communities, insuring a "developmental continuity" (Shotter, n.d., p. 10), in the sense that earlier phases of the activity give rise to its present form, and also point ahead to potential future forms.

Units of analysis

According to Vygotsky, units of analysis need to encompass the basic developmental process of the phenomenon that is under investigation. This has been variously interpreted within sociocultural research. Activity theory sees an activity system as the minimum unit, preferably, several interacting systems need to be included (Engeström, 2001). Wertsch (1991) sees individuals acting with mediational means as the appropriate unit. In his discussion of units of analysis, Linell (1998, p. 204) warns

against the construction of a hierarchy of units, such as i.e. elementary contributions (turns and moves), and full interactions (sequences, episodes, encounters). One reason for this caution is that he understands dialogue to be the complex interaction between the producer of utterances, other virtual or present actors, and the context of the interaction: “Discourses and contexts mutually constitute and select each other, and hence they form a basic, indivisible whole” (ibid). Since all units thus are reflexively related to their contexts, and by definition have an emergent, dialogical character, units of analysis need to be empirically determined. Discussing IRF-sequences in classroom research, Wells (1999) argues that although sequences and turns may have similar structures and trajectories, they may constitute different actions. Discourse originates in activity, and its form is materialised as object-oriented actions. In analysing the verbal interactions of student teachers and mentors as moments of becoming, I see discourse as serving a double function. Through their interaction they collectively produce the world (as their sense of what “is”), and at the same time they change this world and themselves through collaborative meaning making (cf. Mäkitalo, 2002). Units of analysis need to include both these aspects of action.

Linell’s (1998) notion of *communicative project* points to the action orientation and emergent properties of discursive practices, and is promising as a unit of analysis in institutionalised discourse that is object-oriented and situated. According to Linell (ibid p. 218), communicative projects aim to solve problems such as “establishing an interpretation or a shared understanding of something, of having something ‘done through language’ (…), of creating a communicative fact.” At the same time, a communicative project is contrived and indeterminate: As intentional it is object-oriented, as a process it is emerging, and as an outcome it is open to justifications in new communicative projects. The discourses between student teachers and mentors are analysed as a series of unfolding, partly overlapping communicative projects, living processes “right before our eyes” (Vygotsky, 1978, p. 61), encompassing both

the local production of sense and selves, and the global meanings emerging in the practice (Linell, 1998).

Conducting research

In this research project, I have chosen Interaction Analysis (IA) as my analytical approach, augmenting it with elements from Barab et al.'s (2001) methodology "The Constructing Networks of Action-Relevant Episodes" (CN-ARE). One asset of the IA approach as discussed by Jordan and Henderson (1995) is that it provides very practical guidelines for the production and analysis of empirical evidence. Also, the authors clarify the framing assumptions (ibid, pp. 40-41) of their approach. They see knowledge and action as socially and ecologically distributed, thus the empirical grounding of research must be "naturally occurring, everyday interactions" as people make use of resources in their environment in activities. One aim of analysis is to identify how participants make use of such resources. For this project, this means that the analysis must focus on the way in which student teachers and mentors make use of mental and physical artefacts in their discourse as they produce meanings about teaching and about themselves.

A second assumption of IA is that "verifiable observation provides the best foundation for analytic knowledge of the world" (ibid). This implies that empirical evidence is the primary means through which theories must be held accountable. However, IA does not propose the abandonment of initial theoretical assumptions (indeed, the approach itself is positioned theoretically through the framing assumptions). Rather, the argument is that the soundness of theory must be demonstrated based on empirical evidence.

Central to the IA approach is the notion of *analytic foci*, which differentiates it from other analytical approaches (Jordan & Henderson, 1995, pp. 56-57). This, they insist, is not a theoretical construct, but "simply ways of looking that are quite consistently

employed in Interaction Analysis because they have turned out to be relevant again and again in our practice" (ibid, p. 57). Such analytic foci include the structure of events, the temporal organisation of activity, turn-taking, participation structures, trouble and repair, the spatial organisation of activity, and artefacts and documents. As ways of looking at data, I initially found these foci very useful. However, in trying to understand trajectories, I needed a tool that would allow me to trace the student teachers' learning and development across instances, and Barab et al.'s (2001) CN-ARE-approach seemed promising. Their idea is to afford a methodology that "allows researchers to identify relevant data from a complex, evolving environment, and then to organize it into a web of action that can illuminate the historical development (evolving trajectory) of the phenomenon of interest" (ibid, p. 63). This approach was then adapted to the scientific software Atlas.ti. Below I will briefly describe the method of analysis, using as an example student teachers making plans for upcoming lessons.

Barab et al. (2001) use the term node to designate units of action-relevant episodes. Such nodes are comparable to communicative projects (see above), in that they include persons acting with tools in object-oriented activities. The planning of teaching is ubiquitous in the data, both in the peer discussions and in mentoring discussions, and in the first round of coding this was done according to topic, or issue at hand. The software allowed me to compile instances of planning in order to scrutinise the units and differentiate according to the objects of activity. In this second layer, it became evident that the object of planning activities might be e.g. to decide what to do or how to do it (prospective classroom performance as the object), to understand why one course of action might be preferable (cognitive development as object), or to fill in the planning document (student accountability as the object).

Thus, within the issue at hand, several object-oriented activities[18] were pursued, often interlaced within one sequence of discourse.

In another layer of the coding scheme attention is directed at participation: who initiates discourse, who follows up, and in what way. This proved productive to the analysis, because it unveiled the ways in which initiative and authority was negotiated and distributed among the student teachers and mentors. Although most often the mentors were initiators, participation structures emerged as diverse, contingent on the object of the activity and the orchestration of individual voices and available resources.

The final layer of categories is the resources in use. This includes all artefacts that the student teachers and mentors make use of in their discourse, such as concepts for explanation, documents and models. When planning teaching, such resources might be for example teaching methods (group work, sequencing, etc.), the planning document provided by the university, timetables for the class to be taught, theoretical models for understanding, such as didactic models, or the participants' prior experiences.

According to Barab et al. (2001) the CN-ARE-methodology is useful for carrying out interpretations because it allows category counts and searches across the corpus of data. For my purposes, this made it possible to create interpretative units[19] across the material based on for example topics or activities, etc., so that I could study and

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[18] Barab et al. (2001, p.75) calls this category a *practice*, "An activity that is carried out by an initiator who is using a resource."

[19] In Atlas.ti a collections of data is labelled "hermeneutic unit".

compare for instance talk about planning, about ICT, or talk for learning and talk for doing. Thus, it was possible to identify patterns across and within instances, and to study turns, responses and resources in use in micro-processes while still retaining a sense of the more global activity. A second asset of the CN-ARE-methodology developed by Barab et al. (2001, p. 93) is the construction of networks and nodes to "trace the emergence, evolution, and diffusion of concepts or practices over time through the entire network of the activity". The software I used did not accommodate such analysis, nor was it necessarily relevant to the research conducted as I was interested in understanding moments of becoming, rather than end-results. For future research, an important research agenda might be to trace teachers' becoming as trajectories within teacher education programmes, and between teacher education and their first years of teaching.

In pulling together these analytic efforts, it became evident that I needed to make a distinction between knowing "that" and knowing "how", and what Shotter (1993) calls knowing of the third kind, or knowing-from-within. This distinction reflects the tension in Vygotsky's writings between the aims of abstract rationality and of harmony of the imagination, between meaning and sense, word and thought (cf. Wertsch, 1996). While forms of knowing (in Vygotsky and elsewhere) are often seen as the gradual and continuous development towards abstract rationality, as a new concept form to accommodate new and more "enlightened" understandings, this was not a characteristic feature in the talk of student teachers and mentors in the empirical data in this project. Rather, in their discourse the participants were immersed *in* the situation, struggling to make sense of experiences that, even in talking, were filled with emotions, the drama of experienced or intended performances, and imagination. The living speech of those meetings can be seen as the interplay between forms of knowing and representation.

Thus, rather than looking for trajectories of intellectual or practical development, I focused on each communicative project as meetings at particular moments in time. I wanted to understand how such encounters enabled the participants to move each other, and thereby themselves, "constituting the beginnings of a new form of life" (ibid, p. 2). Holland et al.'s (1998) notions of *figured worlds, positioning,* and *authoring* were important sensitising concepts to the analysis of how, through their utterances, and by using the resources (conceptual and otherwise) at their disposal in particular ways, the student teachers were in the process of becoming somebody, as teachers.

The value of the research

The reporting of results, such as in scientific journals, is a significant part of the research process. Often the text is conceived of (and judged as) an approximation of "the truth" about the phenomenon under scrutiny, based on criteria for quality that are developed within the paradigm in question. Within the nomological paradigm the results of research are judged through criteria such as validity, reliability and objectivity, while the interpretive paradigm (or paradigms) relies on widely differing and often indistinct criteria (Wardekker, 2000)[20]. Efforts have been made to develop alternative criteria, more suitable for interpretive research (Guba & Lincoln, 1989, Lincoln & Guba, 1985), or to reframe the meaning of the terms (Kvale, 1996). A common characteristic of such criteria, is that they, like the paradigm itself, to a large extent are interpretive; they are "communicative and pragmatic forms of validation" (ibid, p. 229). Wardekker (2000) argues that the aim of sociocultural research is not to disclose "objective" knowledge about the phenomenon under study, knowledge that can later be transferred to new practices. Rather, "the development of the practice by

[20] In line with Wardekker (2000), the notions of "nomological" and "interpretive" are chosen instead of the more commonly used "quantitative" and "qualitative" because they communicate a sense of the grounds on which claims are made, rather than the methods used.

way of establishing a ‘discursive reality’ is the aim of the research project itself (…)” (ibid, p. 270). The aim, then, must be to report research in ways that are *internally persuasive*. Such texts are “half-ours and half someone else’s” (Bakhtin, 1981, quoted from Wertsch, 1991, p. 79), and in their openness they afford interanimation (cf. also Vestøl, 2004). The quality of research in this perspective can only be appreciated in time, by how it is appreciated as a response to prior texts and how it elicits or opens up the possibility for new texts to be produced.

But what makes texts internally persuasive? Clearly, this is not a question of establishing some objective criteria. Wardekker (2000, p.271) offers four suggestions for research results to “have some impact outside the specific research setting.” The first two are most relevant for transformative collaborative research: to accommodate a dialogue between the practice and the researchers, while maintaining a balance between participation and distance, and to develop sustainable practices. Wardekker’s third and fourth suggestions are more relevant to my project: that the research should have “generative power”, and that it “should offer enough ideas and heuristics so that others may be inspired to try something along the same lines” (Wardekker, 2000, p.271). In my view, it is in the synthesis of the methods used, empirical descriptions, such as the ones provided in this thesis, and theory that the theoretical validity of research may be determined.

To me, undertaking an extensive research project would be meaningless if I did not assume it would produce results that constitute a meaningful contribution to people’s practices, in schools and the academy. My aim for this thesis has been to render my work accountable in its production and reporting, while retaining the openness that allows it to be expanded and discussed in people’s discursive practices.

Summary of the articles

Introduction

Teacher education is oriented at the transformation multiple objects, such as the student teachers' skills in teaching their subjects or managing classrooms, and their discursive and reflective competence within and on the practice. Also, there is no common understanding among policy makers, practitioners in schools and teacher education, or researchers about what counts as a worthy outcome (Grossman, 2005). Internship is assumed to have an impact on student teachers' learning, and the students tend to praise these experiences as crucial in learning to teach. However, the questions of what, why, and how internship may affect learning are precarious (Clift & Brady, 2005). In the sociocultural approach adopted for this research, learning is understood as situated, dependent on the social and cultural practice in which it takes place (see also Moje & Wade, 1997). This means that, by and large, learning in internship is serendipitous, relying on the particular conditions of practice in which the student teachers are allowed to participate and on the mentors and the pupils with whom they are engaged. The results presented in the articles show how teacher students through their discursive activities in internship may come to share and expand the conventions of the practice, allowing them to be, and be seen as certain kinds of teachers. These are important insights for all parts of teacher education.

In the following section I will summarise each of the articles, before discussing the combined impact of the findings and their value for teacher education as practice and research. The discourses between student teachers and mentors are seen as sites for the collaborative construction of meaning and identity. In their efforts to represent their experiences as teachers, the student teachers model their talk on the conventional talk of the practice in a continuous negotiation between what they see themselves as, as students, and who they are becoming, as teachers. The first article

describes the resources in use in such negotiations and seeks to explain the workings of discourse in the student teachers' production of themselves as accountable in the activity setting of schools. The second article shows how the "uptake" of ICT as a tool for teaching and learning in schools cannot be seen as a problem of implementing new practices. Rather, that the use of new tools is adapted to existing practices, and it is suggested that in the daily activities in schools there may be little room for the expansive learning allowing ICT to become a catalyst for change. In the third article, the conception of reflection in teacher education is the theme. The central finding is that different modes of reflection may be discerned, that the student teachers make use of a variety of cultural resources in the different modes, and that modes vary according to what the objects of the activity are.

Article 1: Teachers 'in the making': Building accounts of teaching

The issue of transfer is a key problematic in the debate on learning (Greeno, 1997, Säljö, 2003). For education, this is a pressing problem; the legitimacy of education depends on the notion that what is learned in schools and universities somehow can be transferred and put to use in other practices. Moreover, there seems to be indications that transfer is not something to be assumed. Notably, in teacher education there seems to be a discrepancy between theory and methods for teaching learned in courses and the situated practices of schools (Clift & Brady, 2005, Smagorinsky et al., 2003). For instance, Tabnachnick and Zeichner (1999) found that the student teachers in their study did not easily translate what they learned through coursework into tools for planning teaching. Such findings are often interpreted as deficiencies in the coursework (the methods used, or the contents taught), or in aspects of the practice (such as class size, student diversity, societal expectations and demands for accountability) that constrain the teachers' opportunities for experimenting, reflecting, and learning (Clift & Brady, 2005, Grossman, 2005, Moje & Wade, 1997). In this article, transfer is studied as the processes through which

different forms of knowing interact. Furthermore, this interplay is situated, constituted in the activity of which it is a part. An important work of discourse is to establish a common place (Middelton, 1998, Shotter, 1984) within which the talk may proceed.

In the study, the discussions between student teachers and mentors are analysed to probe how such common places are collaboratively constituted, how they emerge as sites for re-contextualisation (van Oers, 1998) of forms of knowing, and what kinds of conceptual and practical resources are invoked in the discourse. Consistent with other studies (Edwards & Protheroe, 2003, 2004, see also Kagan, 1992), the content of the talk in the mentoring sessions that I have analysed centres on student teachers' performance as deliverers of the curriculum. What is placed in the foreground is what the student teachers plan to *do,* or have *done,* when teaching; the talk is strikingly context bound. Problems arising in planning or teaching are discussed as particulars in the situation rather than general problems in education, and their solutions are sought in the conditions and conventions of the practice. This is an important finding; it suggests that the focus in the internship discussions is on teaching, not on learning. And this is hardly surprising, after all, since the mentors are nominated for their jobs mainly because they excel at teaching.

However, as an educational endeavour, the intention behind the internship is also to support the student teachers' conceptual development. This is reflected in the counselling documents provided and in the almost unanimous call for better integration between theory and practice in teacher education (Cochran-Smith & Zeichner 2005). Based on this study, it would seem that a problem lies in the constitution of the student teachers as teachers, rather than as learners. As *teachers*, they talk about their experiences from the common place of their teaching activities, struggling to render themselves accountable practitioners within the school's practice.

They are learning to act in a conventional manner. For the student teachers to emerge as *learners*, however, this would require the construction of the internship as a site for developing meanings, a site for discussions about groundings and implications of teaching acts. Based on the findings of this study, I suggest that the mentors, being in a privileged position in the relationship, hold the key to the transformation that could make learning a common place (Shotter, 1984, Middleton, 1998) for discourse in internship. Such restructuring constitutes a serious challenge in the efforts to further develop partnership models between schools and universities.

Article 2: Learning to teach with technology: Authoring practiced identities

In a sociocultural perspective, learning is seen as the mediated interactions of persons in activities. Information and communication technology (ICT) has a double function in teacher education: They are used as tools to mediate student teachers' learning, and they are objects to which learning activities are directed when the students learn to teach with technology. The results of this study show that although the student teachers used ICT for learning, and had been taught methods for using ICT in teaching, their warranted ways of talking about teaching and learning did not change as a result. It is argued in the article that a crucial issue pertaining to ICT in education is how it comes to be used by practicing teachers. Based on the discourses analysed, ICT in itself does not act as a catalyst for transforming the ways in which student teachers and mentors talk about teaching and learning. Moreover, having learned methods of teaching with ICT and experienced learning with ICT does not spontaneously translate into new forms of practice. To understand the gap between intentions and ambitions connected with technology in education, and the realities of school practices (OECD, 2001, Pelgrum & Law, 2003), it is argued in the article that research needs to focus on the interactions between persons and tools in object-oriented activities. These are complex issues to explore. In the study the discourse between student teachers and mentors is analysed to enhance our understanding of the

intricate interplay between institutional demands, personal agency, and relational concerns as they construct identities and agency as teachers with ICT.

Wartofsky's (1979) three-level taxonomy of artefacts is used as a lens to analyse and discuss student teachers' and mentors' representations of ICTs as they talk about the tools and their educational applications. This framework allows the concomitant exploration of their contributions in talk as representations of *the tools as used* in teaching (primary artefact), the tools as talked about *within the conventions of the practice* (secondary artefact), and the tools as they *might* be used in teaching (tertiary artefact). In the article, I am interested in how manifest representations of ICTs in education emerge in the discourses of student teachers and mentors. Holland et al.'s (1998) theory of practiced identities provides concepts well-suited to studying and explaining processes of becoming, and the analysis conducted demonstrates how the student teachers' representations of ICTs (as seen across Wartofsky's three levels) were developed through processes of positioning, authoring and the making of worlds.

The results of the study indicate that what student teachers might become as teachers with ICT is incidental to their ongoing activities as teachers with ICT in situated practices. Through their participation in teaching activities, and in their talk about their actions, the students appropriate the conventions of the practice in their modes of representation. For instance, they talk about ICT as instrumental to their deliverance of the curriculum and as being an impediment to their control and authority. However, any discourse is unique in the sense that how it unfolds is contingent on the contributions of each of the participants, at specific moments in time. The space for the authoring of selves (Holland et al., 1998) in peer collaboration sessions allows for a greater diversity of responses than when mentors participate, suggesting that the asymmetrical relationship between mentors and students constrain

the internally persuasive discourse (Bakhtin, 1981/2002). However, this is not merely a question of institutional positions; when student teachers author themselves as competent users of ICTs, the relationship is more symmetrically constructed. It is indicated in the article that such moments are potential opportunities for change in the conventional practices, in that the ICTs are talked about as tertiary artefacts, representing an unrealised potential in teaching that *might* be enacted, rather than what it *is*.

The implications of this study are that the development of new institutional practices, such as teaching with ICT, requires sites and time for discursive practices that are beneficial to off-line activity (Wartofsky, 1979), in which divergent figured worlds are evoked in the imaginative improvisation of what *could* be (Holland et al., 1998). Future research based on similar theoretical frameworks may further expound the ways in which participants in institutional interactions develop agency for change.

Article 3: Reflection in teacher education

There is an abundance of research articles dealing with reflection in teacher education, often asserting the crucial need for reflective learning or practice, deprecating the lack of precise definitions, and prescribing or assessing a specific model for reflection. Common to such models are that reflection is seen as connected to experiences, as cyclical or hierarchical, and involving multiple perspectives. Moreover, in several studies reflection is seen as a methodical approach, resulting in better, deeper, more holistic, and theoretically informed learning or teaching (Lee, 2005, Wards & McCotten, 2004, Korthagen & Vasalos, 2005). Most importantly, the ”reflective turn” (Schön, 1991) has advanced our understanding of the forms of knowledge at work in educational endeavours of teaching and learning, and provided

methods and motivation for reflection as cultural tools to help individuals control their thinking (cf. Vygotsky, 1978).

From a sociocultural perspective, however, several problems are associated with the notion of reflection. Despite the experiential or situated character advanced by most authors, the relationship between action and reflection is often not made explicit. Models for reflection in teacher education obtain a normative quality, designating stages or cycles within which the students should advance to become better or more reflective practitioners. The argument in the article is that reflection serves various purposes in teacher education and that *modes* of reflection emerge as answers to the activities the students are engaged in. The motivation for reflective action must be sought in the object to be transformed; the constitution of reflection emerges as a result of object-oriented activity. This means that reflection is understood as an outward movement; the reflection of individuals and groups serve the purpose of facilitating their participation in social and cultural practices. In its reverse movement, reflection turns back to constitute the person (Leont'ev, 1978, Vygotsky, 1978).

Based on analyses of the discourses of student teachers and mentors during internship, three modes of reflection are discerned in the article. The first, reflection as induction, has teaching as its object, serving the purpose of making the student teachers perceptive of warranted ways of seeing, talking about and performing teaching. According to Korthagen & Vasalo (2005), this represents the way teachers usually reflect, aiming to solve practical problems through rapid solutions. While those authors see this as a problem in teaching and teacher education (for instance, it may lead to stagnation in professional development, resulting in "frozen strategies" (ibid, p. 48)), it is argued in the article that reflection as induction serves an important function for developing teachers by explicating the conventions of the practice. In its

second mode, reflection is aimed at conceptual development; the student teachers' understandings are the objects of the activity. This activity is one remote from the compulsion to act, and the discourse thus is differently situated. Reflection as concept development could for instance seek to present a diversity of perspectives on experiences by making use of theory, or moral or ethical resources, to bear on the issues discussed (cf. van Huizen, 2000). Finally, in its third mode, reflection on experiences could seek to combine different practiced worlds (Holland et al., 1998), talking and enacting teaching in the off-line function described by Wartofsky (1979).

It is argued in the paper that these three modes of reflection represent actions serving different, but equally valuable, purposes in teacher education. However, in internship, they are not evenly distributed, the induction-mode being by far the most common (see also Edwards, 1995, Søndenå & Sundli, 2004). This article suggests that there might be an unrealised potential for reflection in all three modes in internship and in the university based parts of teacher education. Further research may shed light on the workings of reflective discourse in and between the activity settings in teacher education.

Discussion

The core question addressed in this study is how student teachers develop into persons that are recognised by others and themselves as teachers. During teacher education the students participate in a range of activities aimed at facilitating such transformation. What exactly constitutes the end-product of the transformation is indeterminate, and numerous attempts have been made over the years to describe the qualities of "the good teacher" in terms of for instance pupils' results, lists of commendable competencies, personal characteristics, or levels of knowing and beliefs (cf. Korthagen, 2004). In contrast, the articles in Part II of this thesis are not

concerned with what is considered “good teaching” by researchers or policy makers, but rather how the student teachers *are constructed* as teachers when they talk about teaching during internship. The analyses show how meaning and sense of being teachers emerge in moments of interaction between actions as experienced and actions as talked about. In discourse certain aspects of their experiences are constructed and recognised as important, problematic, commendable, inadequate, etc. When talk *is* practice, such as in the discussions between mentors and student teachers, the traditions and practices of the institution are intrinsic “partners” in the discourse.

However, my analyses of discourse in internship show that the traditions of the institution cannot be regarded as reified and stable objectifications; rather, like the practice itself they are flexible and evolving. Thus there is room for the agency of individuals and groups to conform to, adapt, question or resist the propositions of tradition (cf. Mäkitalo, 2002). Student teachers and mentors are not compelled to accept the warranted ways of understanding and acting as teachers, but in discourse they must in some way respond. Talk is not the verbalised representations of what might be inside each participant; it is dynamic negations between the participants and institutional voices. Any utterance is a situated response to such voices (Bakhtin, 1981, Shotter, 2004, Wertsch, 1991), and it is at the same time the individuals’ orchestration of available resources in the creation of a personal voice, “(…) the author works within, or at least against, a set of constraints that are also a set of possibilities for utterance” (Holland et al., 1998, p. 171). A response is, on its utterance, contested and open to negotiation. In the discourses I have analysed, the common places (Middleton, 1998) from which negotiations are conducted are often grounded in the social order of the school as represented by the mentors. Hence, a significant question is *how* in the course of the discussion conflicting understandings or approaches are (or in some cases, are not) aligned with institutional demands.

Holland et al.'s (1998) notions *positioning* and the *authoring of selves* have been helpful in making the workings of discourse transparent to the analysis. Power, status and privilege are unevenly distributed among the participants, and the construction of positions is an important aspect of the discourse. But positions are not "given" for instance by the fact that some are mentors, while others are student teachers. Positions are constructed in the relationship between actors in real social practices. In the heteroglossia (Bakhtin, 1981) of voices from a variety of cultural worlds, the students must choose *their* voice: the voice of a teacher or a student; of the social scientist or the social science teacher, and the availability and currency cultural forms depend on the position from which the student engages in activities with others. In the context of internship, the language carries different amounts of authority, so that the students' options are somewhat delimited: not all accounts are legitimate in every situation.

If we understand discourse as action, rules and norms, concepts like power and authority are seen as resources rather than explanations (cf. Edwards, 1997). In discursive psychology, the task of the analyst is to examine discourse to understand how topics and issues are descriptively constructed in peoples' accounts. In the approach advocated by Edwards (1997), a discursive event is meaningful in its own right, that is, to the interlocutors the event *is* the constructed account. In this thesis, accounting practices are understood to be situated in social practices. This implies that talk is rendered meaningful in its manifestations as acts and operations within social activities.

The three articles point to intrinsic tensions regarding the construction of the object of the discursive activity, reflecting the hybrid constitution of internship: The student teachers *practice* teaching (their performance as teachers is the object), they *learn about* teaching (their understanding is the object), and they *teach* in the school (the

pupils' learning is the object). All three activities are pivotal to the student teachers' development as teachers. However, the analyses show how experiences are talked about *differently* across these activities, and that talk about performance predominates. When talking about teaching as performance, it is often the technical aspects of teaching that are brought into the foreground, and teaching is construed as a question of mastering methods and skills that allows for the efficient transmission of cultural content. While skills and methods are, of course, essential in teaching, it might constitute a problem that teaching is rendered as technique, possibly constraining other perspectives on teaching and learning (cf. Moje & Wade, 1997) that might lead to the expansion of current practices. When the question of how things *should* be done is paramount, ideas about how things *could* be done are silenced.

A central aspect in the becoming of teachers is the interaction of forms of knowing appropriated in different spheres of social practice, such as in the university and in schools. This study indicates that although a partnership model has been established to instigate such interaction, the two spheres by and large remain unconnected when studied from the perspective of internship. In discourse, the student teachers adapt to the institutionalised language of the school; in constructing identities as legitimate participants they speak from within the common places of the school (cf. Shotter, 1993). Student teachers develop practiced identities and individual agency "from within" the social and cultural practices in which they participate. This is what Valsiner and van der Veer (2000) call *socially guided interdependency*. This notion works well to explain stability and perseverance in cultural practices. However, in order to explain how cultural practices may develop and how sense of being and agency emerge in activities, it is necessary to study the *workings* of interdependency based on empirical evidence (cf. Lund, 2004; Rasmussen, 2005; Ludvigsen, in press).

While the focus of this study is on micro-processes during internship, such interactions are seen as locally situated actions that are embedded in wider social and cultural activities. The resources at play in the discourses are represented in the utterances of student teachers and mentors within the conventions of the activity (cf. Wartofsky, 1979). Further research may advance our understanding of how such conventional representations may be expanded in boundary activities in teacher education (Jahreie & Ottesen, under preparation).

The issue addressed in all three articles is the "becoming" of teachers. By using this term, I have wanted to emphasise the emergent character of what could be described as professional identity. Korthagen (2004) argues that the theme of professional identity is presently receiving renewed attention in research, focussing on how teachers think about themselves and the transformations they go through as they become teachers. The concept of teacher identity commonly refers to a sense of self in the role of teacher. In Korthagens' account, professional identity takes "the form of a Gestalt: an unconscious body of needs, images, feelings, values, role models, previous experiences and behavioral tendencies, which together create a sense of identity" (ibid, p. 85). As I understand Korthagens' text, the Gestalt constitutes an inner sense of being, which in turn affects outward behaviour, and it is relatively stable and resistant to change. In contrast, in the sociocultural approach adopted in my work, professional identity is by definition indecisive and fluid, perpetually in the process of being constructed and reconstructed in activities. This means that professional identity is not seen as an essence or a core within the person from which actions flow; on the contrary, it is through actions that a sense of identity emerges (Leont'ev, 1978). Professional identities are *practiced identities* (Holland et al., 1998).

Identities are not end products, allowing us to assess the quality of teaching to be expected from these students as future teachers or the effect of the teacher education programme in the production of professional teachers. *Becoming* is a prospective

concept, pointing not to what is, but to what might be. In Shotter's (2005, p. 10) words, in "the interplay of living movements intertwining with each other, new possibilities of relation are engendered, new interconnections are made, new 'shapes' of experience emerge." It is in the meetings with others, in their practical encounters with pupils while teaching in schools and the discursive interrelations as experiences are talked about, that student teachers can learn to see with another's eyes, and think with another's words in mind (ibid). Thus, the student is not becoming "the other"; he or she becomes a teacher who can further develop through collaborative activity using the eyes and words of the other.

In conclusion, I want to sum up the contributions of this thesis. Firstly, my analyses indicate that for these students, internship was first and foremost a site for learning techniques for efficient teaching (cf. also Edwards & Prothroe, 2003, Moje & Wade, 1997, Sundli, 2001). Learning the "hows" of teaching is of course crucial for beginning teachers (Kagan, 1992). However, by placing methods (that work, according to experienced mentors) on centre stage, alternatives are curtailed; the playful "what ifs" are not exploited and the innovative ideas of student teachers and mentors are not put on trial. Also, the focus on performance may inhibit the student teachers' conceptual development.

Secondly, a common theme in research on teacher education is the theory/practice gap. There are very few instances of explicit use of theoretical resources in the discourse I have analysed. Since the student teachers are concurrent participators in several cultural and social practices, the internship experiences could afford a great potential for change and development by making use of resources from several cultural worlds (cf. Holland et al., 1998). However, as argued in several studies (Edwards & Protheroe, 2003, Sundli, 2001) and as evidenced in this thesis, the potential for change seems to be poorly exploited. This deficiency is sometimes

explained as a lack of theoretical orientation among the professionals in schools, or as a lack of practical knowledge among the teachers in university courses (cf. Smagorinsky et al., 2003). In contrast, by making socially guided interdependence an object of inquiry, in this thesis I have studied the mechanisms and resources *at work* as student teachers produce accounts of their practice in schools, and at the same time produce themselves as certain kinds of teachers. It is argued that it is the collectively achieved instantiation of *the object of activity* that determines what tools to use. Thus, when the object is performance, the experience is talked about and understood in terms of methods for teaching.

Theoretically, the main contribution of this work is to create a space for theorising institutional talk between situated and activity theoretical approaches. The third generation of activity theory (cf. Engeström, 2001) has been successful in studying innovation and change on an *institutional* level. This thesis illuminates change and development of *individual* student teachers as they are engaged in social and cultural activities. The main concern in Leont'ev's version of activity theory was to develop a theory about personality as a socio-historical phenomenon (Leont'ev 1978, 1987). His argument was that the individual becomes a person through his participation in object-oriented activities. As argued above, and in the articles in Part II, it is through their relationships to the objects that the discourses are rendered meaningful to the student teachers.

When identities are understood as *practiced* (Holland et al., 1998) their flexibility and embeddedness in social and cultural practice are underscored. For the student teachers in this study, I have shown how they develop identities as teachers by making use of cultural resources in processes of positioning and authoring in social interaction. It is from within object-oriented activities that these processes unfold in their interaction. In interaction, the participants make use of the multitude of social

and cultural resources that constitute their experiences, such as rules and norms, practical skills, folk-theories and scientific theories. Whether the resources in use are deemed legitimate or not depends on the relationships between the participants in the discourse, for instance how they are positioned. But the constitution of relationships is rooted in the objects of the activity; it is *within* the activity system that the student may envision himself as a teacher.

What I have wanted to contribute through this work is to better understand how internship works to support teacher students' development of selves as teachers. The empirical evidence has given insight into processes of becoming for these four student teachers and their mentors. This insight may encourage future research on the becoming of teachers in all stages of their careers. Moreover, it is to be hoped that this work will motivate providers of teacher education in universities and schools in their persistent efforts to improve teacher education. I believe that the results of this study can inform the development of university-school partnerships to make teacher education a truly collaborative effort. Finally, by combining Leont'ev's version of activity theory, Vygotsky's insights, and Holland et al.'s conceptual framework to understand the "work" of discourse in internship I have wanted to make a contribution to the discourse within the community of sociocultural and activity theory that explicitly recognises *individual agency* within cultural worlds.

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PART II

Article I

Teachers “in the making”: Building accounts of teaching

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Submitted in December 2004, Revised in June 2005, accepted in June 2005 to appear in *Teaching and teacher Education* in 2007.

Teachers “in the making”: Building accounts of teaching

Abstract

In this paper, mentoring practices during internship in teacher education are identified as boundary activities between schools and universities. By using the notions of common places and accounting practices, the emerging discourses of student teachers and mentors in a Norwegian school are explored to expand our understanding of how conceptual, practical and contextual resources are used to construct justified accounts of experiences. The results of this study indicate that during internship the student teachers learn ways of seeing, representing and talking about their experiences that are deemed relevant within the school’s practice, using and transforming resources accordingly.

Introduction

It is argued that the knowledge base for teaching and teacher education is dubious and contested (Calderhead & Shorrock, 1997, Edwards, Gilroy & Hartley, 2002, Hargreaves, 1993, Mathisen, 2000, McNamara, 1993, Sundli, 2001). Research on teaching and teacher education has produced substantial bodies of knowledge, based on inquiry into a multiplicity of issues, and employing a wide range of research approaches. The content and approaches to learning and teaching show considerable variation across teacher education programmes, both within and between nations. However, there is a noticeable similarity in structure. Though the emphasis and placement of the various elements differ (Furlong, Barton, Miles, Whiting & Whitty, 2000, Sundli, 2003), teacher education is usually made up of three parts: academic coursework providing subject-matter knowledge, professional coursework focusing on pedagogical issues, and field experience during internship periods (Wang & Odell, 2002). The various learning processes may be examined separately, but to understand their complexity, confluence, and meaning for student teachers’ development, it seems vital to explore how different types of knowing interact when students engage in activities in teacher education.

Calderhead & Sharrock (1997:195) identify “a tension between the need for teachers to <u>understand</u> teaching and the need to be able to <u>perform</u> teaching”, and argue that the

theory/practice dichotomy may be oversimplified in the educational debate. By constructing a “gap” between the two, theory and practice are positioned as separate domains, and though the relation between them remains unclear, an aim in teacher education seems to be to close the gap by bridging, linking or integrating theory and practice through designs for applying theory in practice, or by using theory to guide practice (Smagorinsky, Cook & Johnson, 2003). Teaching is a practical activity, but to learn the professional practice of teaching, it may be necessary to “move learning to teach from the level of ritual to that of principled knowledge” (Russell, 1993, p. 213), both in university courses and during internship.

In order to advance research in teacher education, it seems vital to open the “black boxes” of its constituent practices to explore the learning processes within and between them. Student teachers are concurrent participants in several practices: They are students in university courses, student teachers in the practice school, and often teachers in classrooms. Each practice can be seen as a separate activity system (Edwards et al., 2002, Ludvigsen & Flo, 2002) regulated by specific purposes, routines, conventions, rules, divisions of labour, and material and conceptual tools, constituting the social and cultural foundation for individual and collective understanding and action. In travelling across multiple practices, one might expect tensions between them to emerge (cf. Edwards et al., 2002). This paper builds on an in-depth study of the discourses between four student teachers and their two mentors during internship. The purpose is to explore the dynamics of the interaction between the student teachers and mentors, avoiding the theory/practice divide by focusing on how potential tensions are discursively managed. The main research questions are:

1) How is intersubjectivity negotiated between student teachers and mentors during internship?
2) What resources are at play in students’ and mentors’ accounting practices?
3) How are inherent tensions discursively managed in interaction?

Adopting a socio-cultural approach

In the socio-cultural approach adopted for this paper, practices are conceived as recurring cultural activities in which knowledge is continuously being negotiated, developed and transformed as an integral aspect of those activities. In their talk, student teachers and mentors make use of historically developed cultural resources to describe, explain and categorise their practical experiences (cf. Mäkitalo & Säljö, 2002), resources that include

common sense understanding, practical wisdom, and scientific explanations. In using such resources, they constitute events in particular ways. While an activity is assumed to impelled or directed by a motive (Leont'ev, 1978) in the boundary activity constituted by student teachers' and mentors' discussions during internship, several motives are at work: i.e. student teachers' learning and student teachers' teaching (cf. Kaptelinin, 2005). The tension between the two is discursively balanced or resolved in the participants' accounting practices; how it is resolved is open to empirical investigation.

Mentoring in teacher education has learning as its intended outcome. Student teachers' and mentors' discourses constitute and are products of the activity. In this sense, knowledge production can be seen as the discursive achievements of justified accounts within the institution (cf. Mäkitalo & Säljö, 2002). The principal issues in this paper concern how such accounts are interactively developed and warranted in discursive activity, and how forms of knowing constitute resources in the interaction. Examples of such resources could be the skills and understanding appropriated through learning activities at the university, the practical theories of practicing teachers, experiential knowing from being a student in school, etc. As resources in discursive activity, different forms of knowing are not in themselves inherently more or less advanced, accurate or truthful; rather, the issue is if and how they are used and accepted in the production of legitimate accounts during internship (Van Oers, 1998). As an integrated endeavour consisting of a range of campus based courses and periods of internship, teacher education requires re-contextualising across activities. Concepts and theories that are meaningful for students' understanding of teaching in coursework at the university are transformed, modified or reinforced during internship and vice versa. Vygotsky's (1986, 1987) theory of the development of concepts supports this argument; he claims that meaning is developed through the interplay between spontaneous concepts developed in "face-to- face meeting with a concrete situation" (Vygotsky, 1986, pp. 194-195) and scientific concepts developed through "acts of thought which are associated with free movement in the concept system, with the generalisation of previously developed generalisations, and with a more conscious and voluntary mode of operating on these existing concepts" (Vygotsky, 1987, p.181). Thus, in their trajectories across different activities, students' understanding of teaching develops "simultaneously from two directions: from the direction of the general and the particular" (ibid, p. 163). Teacher education, on campus as well as during internships, could be expected to provide learning opportunities that pay special attention to the relationship between abstract knowledge and experience in the world. This is by no means a

simple enterprise, as the various activity systems student teachers participate in enable and constrain diverse modes of re-contextualising. The internship constitutes a site in which “the twisting paths” (ibid, p. 156) of spontaneous and scientific concepts might intersect. Data from student teachers’ and mentors’ discourses during internship could yield salient insight into the knowledge building of student teachers.

The study

The data analysed in this paper were collected during the 12-week internship of four student teachers in a medium-sized upper secondary school. The mentors were regular teachers, selected by their principal to act as mentors for the students. The students, two women and two men, were enrolled in a reform project, the Programme for Teacher Education, Technology and Change at the University of Oslo[i], which, among other things, intended to strengthen the connection between the on-campus and the school based parts of the programme. The primary data were gathered from audiotapes of discussions between mentors and students and between students in peer collaboration, amounting to nearly 50 hours of talk. Field notes from the lessons conducted by the students and the students’ participation in various activities in the school were used as background information to situate the discussions.

A central methodological challenge has been to study learning “in the making” (Barab, Hay & Ymagata-Lynch, 2001, Vygotsky, 1986). The discussion sessions between students and between students and mentors are chosen as primary data because they are assumed to constitute an important arena in which interacting individuals make use of a variety of resources to make sense of their experiences. The methodological approach chosen in the study is interaction analysis (Jordan & Henderson, 1995), which builds on ethnomethodology in the sense that it focuses on the methods that people use to develop a reasonable account of what is happening in social interaction and to provide a structure for the interaction itself (cf. Mäkitalo & Säljö, 2002). Thus, learning is conceived of as a dynamic process in which people make use of each other and contextual resources. In researching this process, it is necessary to describe the mechanisms used by participants to select among available resources to accomplish their work. In the analysis, the scientific software Atlas.ti has been used as a workbench to transcribe the audiotapes and code the raw data according to topics, initiation and participation, resources employed, and activities (cf. Barab et al., 2001). When categories are tracked across instances in the data, interactions involving the joint construction of

common places and acceptable accounts of experiences emerge as potent mechanisms in the collaborative learning processes.

This paper addresses the micro-processes of institutional talk. In socio-cultural studies, such processes are seen as situated; that is, the unit of analysis consists of individuals engaged in social activity mediated by social and cultural resources connecting the particular and the conventional (Mäkitalo & Säljö, 2002). To study mechanisms for interactional management calls for in-depth investigations over time; thus, the richness of audio taped material was prioritised over the number of student teachers in the sample. The excerpts cited in this paper are exemplars, representing a substantial number of instances from the total body of data. The selected exemplars build on transcripts from the first four weeks of internship midway into the first semester, and the issue at hand is educational planning.

Tools for re-contextualising: Common places and accounting practices

In research on initial teacher training, discussion between student teachers and mentors have been reported to focus on the student teachers’ performance as deliverers of curriculum (Edwards & Protheroe, 2003), to encourage adaptations to the routines of traditional schools (Franke & Dahlgren, 1996, Søndenå & Sundli, 2004), or to provide emotional or technical support for survival (Wang & Odell, 2002). Whatever mentoring can be seen to accomplish, it is essentially a communicative project, situated in particular social practices. The interactions of student teachers and mentors constitute and are constituted within practices that are saturated with traditions of argumentation and acting (cf. Shotter, 1993, Mäkitalo & Säljö, 2002, Wertsch, 1991). In discourses, interacting individuals draw upon their knowledge of meanings that have already been formulated (i.e. the body of scientific or common-sense knowledge appropriate to the activity). What is important is not whether such knowledge may be labelled “scientific” or “spontaneous” (Vygotsky, 1986), but rather how their arguments contribute to the discursive formation of justified accounts. The meanings developed in any particular instance are worked out responsively between the discourse participants and the situation (Shotter 1993). In order to understand and develop internship in teacher education, research needs to address the doing of discourses (cf. Mäkitalo & Säljö, 2002), that is, investigate how the participants, through their talk, seek to establish a common ground for interpretation, understanding, or action (Linell 1998).

For this study, a substantial amount of interactional data were collected and analysed in order to shed light on how such communicative projects unfold during internship in teacher education (see above). A central issue is how knowing and being a student on campus is transformed to knowing and being a student teacher in schools. In what follows, I will focus on the interconnected processes through which “being” is re-contextualised: promoting intersubjectivity through development of common places and production of warranted accounts. Initially, I will briefly discuss these two notions. In the subsequent sections, I will turn to a few excerpts from my material to substantiate my argument through analysis and discussion.

Managing intersubjectivity is a constituent of all discursive action (Rommetveit, 1992). Duranti and Goodwin (1972) assert that common understanding of individual utterances presuppose understanding of cultural setting and speech situation. An objective context for an individual utterance is non-existent; part of the work of discourse is to collectively construct contexts, making the utterance intelligible and meaningful to interlocutors. Thus, contextual resources are evoked in the discourse itself, creating the double dialogicity of discourse (Linell, 1998) in which the local and global historicity of the discourse links the constructed situation and the culture. One aspect of “finding out what we are accomplishing together” concerns the construction of common knowledge, as a foundation for moving on in the discussion in a rational manner. Of course, the establishment of intersubjectivity can never be complete (Rommetveit, 1992), and within nearly every encounter the participants are also doing the work of developing common knowledge for the current practical case. While the concept of intersubjectivity is a generic term related to all human intercourse, I find that the notion common places (Middleton, 1998, Shotter, 1984, 1993) serves better to elucidate the persistent formation and reformation of common frames for discussing aspects of teaching experiences in this study. Shotter (1993, p. 54) sees common places as “shared moments in a flow of social activity which afford common reference (…)”. Middleton (1998) uses the term to refer to the linguistic activity of representing or re-representing past experiences, building a middle ground in which the object of the discourse can be talked about by all parties as more or less the same thing, a crucial task in almost every encounter. The fluctuating nature of common places calls for frequent repairs (Linell, 1998) in discourse, both regarding construction of the topic to be attended to, negotiation about how it should be talked about, and what specifically needs to be elaborated in the case. Embedded in joint construction of common places are the relative rights of the

participants to have their voices heard, reflecting the asymmetry between participants (Linell & Luckmann, 1991).

In researching student teachers’ and mentors’ discourses during internship, how common places are established, developed and attended to becomes an urgent issue. The greater part of the student teachers’ actions are implicitly acknowledged as understandable and justifiable within the practice, in the sense that they are not talked about in mentoring discourses. However, when actions or ideas for some reason are deemed troublesome, they need to be accounted for. Through such accounting practices, what is dubious may be justified (or acquitted), when interlocutors “methodically, by the use of established “but not as yet accounted for” accounting practices embedded in their everyday activities, actively make themselves accountable to one another” (Shotter, 1984, p.54).[ii] Experience is re-contextualised in our accounts of it, contingent upon the demand placed on us as members of a community. In discussions, descriptions, explanations and narratives, we orient ourselves to explicit or implicit rules and norms in order to be considered accountable (ibid). Thus, discussions about teaching activities can be seen as student teachers’ and mentors’ bids for accountability as they collectively construct accounts of compliance, resistance or negotiation, building on what they perceive to be norms for teaching or teacher education. Below I will analyse a few transcribed segments of discourse, using the key analytic terms common places and accounting practice to elucidate ways in which justifiable accounts are discursively produced in the situated interactions between student teachers and mentors.

Making sense of practice

During internship, the tasks of the student teachers in this study are to collectively plan, carry out and evaluate teaching. In the mentoring discourses, “teaching” is accounted for as experienced or future activities. The analysis reveals that the participants make use of a variety of cultural resources to build their accounts, as i.e. theoretical and practical knowledge, and conventions and rituals of the specific practice. Through their enactment of such resources, the student teachers are positioned as students, teachers, learners, etc. (cf. Holland, Lachicotte, Skinner & Cain, 1998) in disparate discourses. Their positions enable and constrain their accounts and collective construction of common places.

In their first four-week internship period, the student teachers work with a lesson plan[iii], which tends to structure their practical work as well as their discussions. In the following excerpt, two students are discussing the plan they are outlining for a lesson in foreign language education. They have decided that they would like the students to individually read a text in their textbooks, look up the words they do not understand in a dictionary, talk about the text in pairs, and finally, participate in a class discussion. They then start on the task of filling in the lesson plan. Stein (the one in charge of the actual teaching) attends to the writing.

Excerpt one[iv]

Stein (1): What is… I need to put down the goal[v]. What does it say, Siri?

Siri (2): Let's see mm This fits [reads from the national curriculum] Have knowledge about history, geography, society, literature, art, and other cultural traditions within the language area

Stein (3): Great, let me see …I'll write that down

Siri (4): Don't you think you should be more specific?

Stein (5): No, this is good. That's what I want them to learn

Siri (6): Yes, on a general level, but not all of them. The part in the book [the students' text book] is more about society

Stein (7): Oh. Yes, then I'll just put that

[The student teachers continue to successively fill in the categories in the lesson plan. A few minutes later the following exchange takes place as they reach the category "evaluation".]

Stein (8): How can you know what they learn…I guess listening? When they talk…

Siri (9): Yes, that would give a good impression. You could hear if they knew the facts from the book. But the students might talk…

Stein (10): I know, talk about different things. Have to keep them focussed somehow. A test would…but we can't make tests on every little lesson. So I guess just settle for listening.

In this dialogue, the student teachers are positioned as students, engaged in a task that is externally defined (that of completing the lesson plan). The lesson was in fact quickly planned before they turned to the lesson plan document; however, as students they must account for their plan in the terms and categories of the prescribed document. Their common sense construction of "what to do" needs to be credibly fitted into the empty slots of the form. A common place from which to proceed in their work is established: The categories of the planning document are constituted as givens which direct subsequent activity. Their work with the first category in the lesson plan, stating a goal for the lesson, demonstrates how

filling in the form “correctly” is the common place from which they proceed in their discussion. By turning to the national curriculum’s competency goals in search of a proper goal, their accounts are linked to their perceived mandate as teachers. Siri’s concern (4) is about how much of the curriculum’s text is appropriate to include. The learning material is not analysed to consider possible learning goals embedded in the text; only on a general level is it considered to be more about “society” than, for instance, history or art.

In (8) – (10) the student teachers are discussing how they might evaluate the lesson. They want to assess whether the students know “the facts from the book”, a much narrower goal than the one they have constructed previously; however, they do not seem to make a connection between the two elements of the plan. As far as evaluation goes, being accountable amounts to making sure they know what the students learn, and that the students learn what is in the textbook. While from an observer’s point of view this may appear as a break in the logic, from the common place of completing the task of filling out a form it is sensible. Despite the fact that the student teachers’ concerns do not seem to be theoretical in nature, they noticeably make use of educational theory as cultural resources to support their positions: using the didactical categories of the lesson plan, drawing on curriculum theory to define goals, and raising the possibility of relying on tests to confirm students’ learning.

The next excerpt is from a session with the mentor in the afternoon of the same day, but before the actual teaching takes place. The topic for this part of the discussion is the students’ suggestions for the lesson plan. They have been talking about the practical arrangements for the lesson in which Stein is responsible for teaching one part, and then they turn to the lesson plan which has been photocopied for everybody. Tom is the mentor; the other three participants are student teachers.

Excerpt two

Tom (11): You have stated as a goal …is it

Stein (12): It is from the National Curriculum

Tom (13): Yes, that’s fine. How would you say this helps you plan the lesson? I mean, does it give you any ideas about what to do, eh to know what the students learn?

Stein (14): Yes and no. You can’t know in advance, can you? I mean, they read the stuff and do the talking…so in the end, they must learn about the society, or some of it

Tom (15): What do you think Siri?

Siri (16): We discussed it this morning. And I think maybe… more specific as to what this text is about. The city life

Tom (17): Well, what is useful, for you as teachers, when you plan a lesson? Is it about the overall goal for the whole subject, or the target for this particular lesson?

Sindre (18): Well, I do not know about the language part [Sindre is a member of this group of students, but is a science student], but goals are of different kinds. We should…I think the general goals are sort of a background, when we set the target for one particular lesson

Siri (19): Or for part of the lesson

Sindre (20): Yes

Tom (21): Do you agree, Stein?

Stein (22): Yes, sort of. But it’s difficult to be more precise. I mean – have knowledge about city life – how helpful is that?

Tom (23): You need to make sure that there is a connection between all the parts of the plan. They are relational. To know what to evaluate, you need to know the purpose, the content and the methods. What exactly do you think the students should learn? And how can the methods you use help them? Let’s see. You want them to read the part in the book, look up words they don’t understand, and then talk about it in pairs. So you have structured the lesson in a certain way. So, what do you want to have them learn, or think they will learn, when this is what you make the students do?

Siri (24): There are lots of goals here

Stein (25): But the main thing in this lesson is the facts. What’s life like in this city. You can’t take in all the goals, some are for now or more important now. What I think – see, what I want to evaluate, is what they know as facts about… Do they know and understand what the text says?

Tom (26): Let’s look closer at the activities you have planned.

Although the mentor Tom does not state it explicitly, he does not seem to be satisfied with what the student teachers have suggested as a goal for the lesson (13, 17). He conveys his discontent by asking questions, as in the IRF-script as a classic teacher-student exchange (Mercer, 1995, Sinclair & Coulthard, 1975). However, as Wells (1999) has argued, the triadic dialogue genre must be analysed according to its functions in the activity of which it is a part. Through his questions, the mentor Tom implicitly argues for his account, seeking to establish a common place in which his terms may be accepted as the base from which to proceed (cf.

Shotter, 1984). At another level, however, the “work” of the dialogue above is one of positioning: Tom is positioning himself as teacher, adopting the right of teachers to ask questions (to which he may know the answers) and have them answered. The student teachers are positioned correspondingly. In their accounts, they establish responsible and reflective selves as students: They did look to the national curriculum (12); they have discussed this (16); they are concerned about students’ learning (25).

The triadic dialogue works on several planes. Questions, answers and following-ups can be inferred to promote reflection, in the sense of serving as tools for re-contextualising. By calling attention to discrete issues through his questions (11, 13, 17, 21), Tom allows for reshaping of the events so that they may be made sense of in novel ways, and he also builds his case concerning “what counts” in this context: what is helpful (13) or useful (17) for planning delivery, what is conducive to student learning and valuable for assessing students’ learning (23). Stein, who is going to conduct the lesson later, seems to be the one who has most at stake. He maintains accountability through ambiguity; rather than overtly changing his stance as the conversation unfolds, he answers “yes and no” (14) and “Yes, sort of” (22). He does not disagree with the objections from the rest of the group, but still holds on to his position until the end when he reformulates the proposed goal. There is a development in the way Stein reasons: In (12) he justifies his choice with reference to the national curriculum, in (14) he argues with reference to the students’ activities, and in (22) he argues that the proposed change from the wide category “have knowledge about society” to the narrower category “have knowledge about city life” is not helpful. Finally, in (25) he ends up with a much narrower target: What he wants the students to learn and understand are facts about city life as presented in the text. In several respects, the mentor, Tom, seems to control the movement in the discourse. He is in a position to ask questions and challenge the students’ understanding, to follow up (or not) on aspects of the students’ contributions, and to address students individually. However, the movement from turn to turn is interactionally managed; each turn offers opportunities for a variety of subsequent turns. Statements offered may or may not be attended to in the continuing dialogue, as when Sindre, supported by Siri (18-20), raises a principled question about goals as a concept. But rather than exploring the concept, his statement is construed as a proposal about the nature of goals, to which agreement is expected. Similarly, Tom’s turn in (23) is not taken as a prompt for theoretical reflection, but rather as a statement about the nature of things to which the student teachers should orient

themselves. This is illustrative of a general tendency in this study: concepts and theory are used as descriptive tools in accounting for practice, rather than tools for expanding the participants’ understanding.

At the end of this session, Stein agrees to reformulate the goal in line with his comment in (25). The next excerpt is from a session a few days later. Stein has carried out his plan in the classroom with Siri and Tom as observers.

Excerpt 3

Tom (27): What do you think, Stein? Did it turn out as you expected?

Stein (28): [Laughter] Well, it never seems to. Lots of surprises there!

Siri (29): You did get through everything. I think you were very efficient.

Stein (30): Yes, point by point as planned.

Tom (31): So what were the surprises?

Stein (32): Two things. That the students knew so much beforehand. No, that wasn’t really a surprise, I just didn’t think… And that they talked about life in general, and about where they had been and what they had done – and things they had seen on television and …– instead of the facts in the text. And several spoke in Norwegian.

Tom (33): Yes, I noticed you were trying to get them to

Stein (34): Mm I thought maybe help them a little. The point was to practice talking
Tom (35): Was it? What about your goal? About knowing the facts…

Stein (36): Oh! Yes, you have point there. If it’s to make them know about… Yes, I guess they did learn about facts…But not these facts, what’s in the text. And talking about movies in Norwegian was not a goal. They need to know the text. But of course, to practice talking is…I didn’t think of…

Siri (37): I think you’re being too negative, Stein. Most of the students did exactly what they were supposed to. And the class talk in the end was very good, you let them elaborate and talk of their own experiences, and you gave them some good stories too.

Tom (38): I agree. That was a good element in your lesson. The students were all very active and on task. Letting them share experiences, and sharing yours. And the textbook was there in the background, sort of structuring their stories. What students learn is not always exactly the facts they find in books. But why do you think this element functioned especially well?

This sequence shows that although the participants have shared the experience, they account for it in different ways, constituting the event collectively. While Stein is concerned that not everything proceeded according to the plan, he nevertheless seems confident and sure of himself (he laughs when he talks about the surprises). The exchange can be interpreted as serving a double purpose: constituting the mentoring session as a place for being supportive rather than critical, and promoting the observed and experienced event as “successful”. Siri generally applauds Stein’s activities in the classroom. She points to his efficiency, skills in classroom management (students did what they were told) and his good relations with the students (the sharing of experiences). These are potent descriptions of what counts as “good teaching”. The fact that the mentor agrees and extends the description by making the connection to the textbook material (another element of “good teaching”) further boosts the impression of Stein as pertinent and accountable.

In the turns starting at (34) the discourse revisits the issue of goals. From the common place of discussing an apparently successful experience, the production of justified accounts does not warrant explicit reference to didactic or curriculum theory, nor is success valued according to the teacher students’ intentions as stated in the planning document. Rather, it is their impression that this worked as a positive learning experience for the students in the class that allows them to construct a success story. As tools for assessing the experience, new goals emerge: that students practice talking (34, 36), that they are on task and active (37, 38) and that they share experiences (38). These are process goals, directed at how students might learn rather than prescribing an expected outcome.

Discussion

The three excerpts above have been selected to demonstrate how an element in the teaching process is accounted for differently in a peer discussion among student teachers, in a mentoring session, and as a joint experience. While it is a trivial observation that talk varies across time and context, the purpose of this paper is to broaden our understanding of how such variation is produced. As a discursive enterprise, the progression of discourse is contingent upon the participants’ development of common places from which they build their accounts. This is illustrated in the excerpts above, in which the concept “goal” as one part of the lesson plan is given discrete meanings across the instances. The everyday concept of a goal as a statement of purpose when activities are planned prevails in the discussions between

the students in excerpt one. The common place of filling in a form suffices to build a justified account. In the second excerpt, Tom opts in his second turn for an alternative common place from which to proceed in the discussion by calling attention to goals as assets for the teacher in planning and evaluation. In (18) Sindre makes a new proposal for a common place when he talks about goal setting in a principled manner. However, this is not accepted as a common place (although nobody disagrees). In (23) Tom introduces yet another common place, that of didactic elements as constituting a relation. However, the bid for establishing this as a new common place is not taken up by the students, nor is it followed up by Tom.

The results from this study indicate that the mentoring discourses work along two lines: to jointly construct common places, that is, to establish versions of what the participants are doing, and to respond to such versions by building justified accounts (cf. Middleton 1998). Negotiations of common places serve the purpose of establishing partial intersubjectivity, building on reciprocal adjustments of perspective in which “states of affairs are brought into joint focus of attention, made sense of, and talked about from a position temporarily adopted by both participants in the communication”(Rommetveit, 1992). Common places are justified, or argued for, drawing on the particular concerns related to the activity, privileging certain ways of talking and types of knowing (cf. Wertsch 1991). A common feature of the discourse of student teachers and mentors in this study, as illustrated in the selected excerpt, is that established common places are short lived; the work of opting for and negotiating new common places is a relentless activity, rendering the discourses discontinuous and fluctuating.

The need to repeatedly re-establish common places reflects internship as a border activity, directed by multiple motives. From the perspective of teacher education, the student teachers are learners, but in the context of the school they are positioned as teachers, expected to perform the actions and operations necessary to enhance students’ learning (cf. Edwards et al., 2002, Edwards & Protheroe, 2004). As those authors show, mentors help the students to verbalise their experiences, give them feedback on their teaching activities, and help them understand what needs to be improved in their performance in the short and long run. In her study of Norwegian teacher education, Sundli (2001) likewise found that the discussions between mentors and student teachers predominantly were directed toward the doings of the student teachers, and that they were rarely explicitly theoretically informed. Results based on the analysis of mentors’ and teacher students’ talk in the study reported here show similar tendencies, such as in excerpt two above, in which principled issues are brought into the discussion by a student (18) and by the mentor (23). In the framework adopted in this study,

such propositions are seen as bids in the joint construction of common places from which to proceed in the discussion. The critical point is if and how such bids are incorporated into the subsequent production of justified accounts (cf. Middleton, 1998). For student teachers as <u>learners</u>, legitimate accounts might be theoretically informed and inquiry oriented, while for the student teachers as <u>teachers</u>, what counts may be efficiency and effectiveness in instruction.

In the discussions between mentors and student teachers, the mentors typically will ask questions and guide the students towards “valid” accounts. Empirical studies of internship in elementary schools (Sundli, 2001) and upper secondary schools (Mathiesen, 2000) in Norway have shown that the theories of Handal and Lauvås (1987) have made a profound impact on supervision and counselling (cf. Franke & Dahlgren, 1996). In adopting this manner of guidance, the mentors typically steer clear of giving answers, concrete advice or telling students what to do; rather they use questions as a way of scaffolding the students in their efforts to build warranted accounts. A central tenet in Handal and Lauvås’ theory is that supervision should help students become aware conduct or performance, but also the grounds for acting or thinking in certain ways, and implicit educational theories and values. In the present study the reflections prompted by mentors’ questions most often focus on performance. Thus, the resources brought into play in the interactions could be seen as mostly practical and pragmatic, serving the purpose of scaffolding the students’ accounts in ways that render them efficient practitioners. However, the student teachers’ and mentors’ accounts are not exclusively building on practical experiences and spontaneous concepts. Teachers’ knowing is the situated and negotiated constitution of diverse conceptual, practical, and contextual resources, the critical issue is not whether theoretical knowledge or practical experience is explicitly applied, but <u>how</u> forms of knowing interact in student teachers and mentors’ meaning making.

Forms of knowing constitute the resources in the discursive production of common places and accounts. This means that resources are not <u>applied to</u> practical situations, but re-contextualised and negotiated in the current practice. The analysis of micro-processes, in which student teachers and mentors collectively establish common places from which justified accounts are made, reveal the kinds of resources that are brought into play and the functions they might serve.

Conclusion

The discursive development of accounts in boundary activities is complex, calling for transformation, combination, and coordination of conceptual, experiential and contextual resources that are developed in other practices. Also, in teacher education, students engage in activities as <u>students</u> in the university, and as <u>teachers</u> (however peripheral) in schools. What drives each of these activities differs; students' activities are motivated by learning, whereas the classroom activities of teachers-to-be are motivated by the performance of teaching. Mentoring discourses constitute emergent practices in which the tensions between the two motives are discursively managed by the participants' use of conceptual and contextual resources. In this study, such tensions were managed by recurrent negotiations of common places, that is, creating foundations from which to proceed, a sense of "what we are doing". It was argued above that the constructed common places were vagarious, and that issues were often talked about from a practical perspective (cf. Edwards, 2003, Franke & Dahlgren, 1996), supporting the students' learning to perform.

An argument was also made for the importance of connecting spontaneous and scientific concepts in order to develop learners' understanding (Vygotsky, 1986). The collected data suggest that such connections are rarely made explicit. What seems to be at stake are the claims and obligations they place on themselves as students, learners or teachers on the one hand, and the rights and duties placed on them by the community on the other (Shotter 1984, p. 153). Over the span of the internship, students learn what counts, what to focus on, how to argue, and which resources to make use of to render themselves accountable in the current activity.

In line with the arguments presented in this paper, educational theory is pertinent to the practice of teaching and learning to teach only to the extent that it is justified by practitioners in their accounting practices. The supremacy of the Vygotskian notions of psychological tools and scientific concepts (Vygotsky 1986) lies in his argument that they are collectively developed tools for communication and thinking, tools that i.e. teachers may use individually and collaboratively to develop knowledge and expand understanding about their everyday activities (cf. Säljö 2002). The results of this study indicate that what student teachers learn in internship cannot be identified as being theoretical <u>or</u> practical; rather, particular combinations of knowing emerge in student teachers' and mentors' accounting practices.

Acknowledgements

I would like to thank the Department of Teacher Education and School Development at the University of Oslo for financial support of this project. This research is also supported by the strategic research effort "Competence and Media Convergence (CMC)" at the University of Oslo. For additional information about CMC, see http://cmc.uio.no/ .

In addition, I want to thank the reviewers for critical and constructive comments, and colleagues at the Department of Teacher Education and School Development and Sten Ludvigsen at InterMedia, the Unisversity of Oslo, for challenges, advice and support.

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[i] The PLUTO programme is innovative in several other aspects as well. See for instance http://www.ils.uio.no/studier/PPU/pluto/ , Hauge, 2004, Ludvigsen & Flo, 2002, Flo & Ludvigsen, 2002.
[ii] This use of the concept of accountability may differ from the discourse of the day in which accountability is frequently associated with external evaluation practices as systems for identification of deviance or excellence in relation to standards of quality, or to individuals’ sense of the moral or practical justification for their actions (Good, 1996, Møller, 2004, O’Day, 2002, Sinclair, 1995, Sockett, 1993). In this paper, it is argued that accountability is generated in discourse as a joint venture.
[iii] The outline of this plan is developed at the university. The student teachers are expected to state goals for student learning, account for the content of the lesson (themes, tasks, educational resources), the methods (what they as teachers intend to do, what the students are expected to do, and the amount of time allocated to each task), and the evaluation (what the student teachers would focus on in evaluating the students’ work, and how he or she would give feedback).
[iv] The excerpts are translated by the author from the Norwegian transcripts
[v] The word “mål” in Norwegian carries multiple connotations. The same term is used for long term goals, objectives, targets and purpose, making it a messy, but flexible term, strongly in need of semantic negotiation.

Article II

Learning to teach with technology: Authoring practiced identities

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Submitted in April 2005, revised in August 2005, accepted in November 2005 to appear in *Technology, Pedagogy and Education Vol. 15, 2006.*

Learning to teach with technology: Authoring practiced identities

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Abstract

Over the years there has been a strong urge to incorporate ICTs in teaching practices; however, the pace of integration has been characterised as disappointing. Teachers' lack of competence, teachers' resistance, and lack of availability and stability of computers and infrastructure have been launched as explanations. The paper advocates sociocultural theory as a fruitful approach in the research on developing teaching practices with ICT. Empirical evidence from the discourses of student teachers and mentors during internship is used to illustrate how practiced identities for teaching with ICTs emerge in action through processes of positioning and authoring. An enhanced understanding of the situated interplay of personal and institutional horizons for meaning making could be crucial for the development of programmes for learning to teach with ICT.

Introduction

ICT in its various uses is an emergent artefact in education. Computers *are* in schools, in classrooms, in teachers' workplaces, in principals' and janitors' offices. Expectations of the use of ICTs in education are high: On a *policy* level, economic and societal development is portrayed as contingent upon the ability to exploit the potential of new technologies to educate a highly competent and flexible workforce, and to provide solutions to educational challenges, such as equal opportunity, assessment and control, life-long learning, and inclusion (OECD, 2001). At an *institutional* level, ICT is often portrayed as a vehicle for change and innovation (Pelgrum & Law, 2003). However, this is a contested view;

educational practice appears reluctant to change. In an OECD report (2002, p. 16) Venezky and Davis argue that 'the very power of ICT is its flexibility, its adaptability to any set of sequential procedures, which means that it can be adapted as easily to support teacher centred instruction as it can for student centred'. On the level of *the individual learner*, ICT holds the promise of leveraging the learning processes of students by providing learning environments that enable students to learn better, more, or differently; by spurring increased engagement and motivation on the part of the students; and by enabling learners to work with complex concepts in concrete, tangible ways (Hannafin & Land, 1997, OECD, 2001). There seems to be a considerable gap between intentions expressed in educational policies and substantial changes on all three levels. Pelgrum & Law (2003) assert that although case studies from the IEA and OECD report that innovative educational practices have been developed using ICT, the effects on educational systems are not visible, and many obstacles remain.

In Norway, as elsewhere, teacher education has been a targeted area in policy documents over the years (KUF, 2000, UFD, 2003), and based on the Norwegian Government's 2000-2003 Action Plan, the Programme for Teacher Education, Technology and Innovation (PLUTO) was initiated to support development of student teachers' aptitude in using ICT in their teaching. In accordance with the programme, student teachers were expected to use ICTs in their learning activities on campus, to develop proficiency in the use of ICTs in teaching their subjects, and to practice teaching with ICTs during their internship. ICT as a catalyst for change could be seen a central metaphor in the PLUTO-project. The integration of new technologies was expected make an impact on content and methods in the students' work on campus; in addition the university was presumed to achieve a leading edge position with respect to teaching with ICT in schools and delivering teacher education with ICT. Thus, within a partnership model for internship, the faculty and the teacher students might facilitate the development of new practices in schools. As will be elaborated below, the catalyst metaphor is seriously in need of 'unpacking'; research efforts have to be directed at the processes through which student teachers adopt and adapt technology when teaching in schools.

Research in teacher education, as evidenced in handbooks of research (i.e. Darling-Hammond & Sykes, 1999, Houston et al., 1990, Sikula et al., 1996), follows multiple tracks regarding choice of domains, epistemological assumptions and research methodologies. Results emerge

as remarkably diversified, even contradictory, reflecting the fact that the content, organisation, and goals of teacher education are contested (Wilson et al., 2001). An important development within the field of educational research, as argued by Munby & Russell (1998), is the growth from the mid-1980s in studies that focus on interpretive and procedural accounts of practical knowledge, and on the role of reflection. Other lines of research are concerned with transitions in teacher education under the influence of global and local transformations of educational policies (Edwards et al., 2002, Furlong et al., 2000), or with effects and efficiency of teacher education (Wilson et al., 2001).

Similarly, research on ICT in teacher education demonstrates substantial diversity. Several studies advocate the development of a knowledge base for teaching with ICT, upon which competency goals for future teachers may be built (see i.e. special issue of Technology, Pedagogy and Education Vol. 12, no 1, 2003). What is often not explicated is the complex relationship between knowledge taught and learned in courses and through personal learning experiences, and the student teachers' re-contextualisation and use of such competencies in situated activities. It is argued in this paper that knowledge acquired by student teachers in university courses or elsewhere is not simply 'put into use' when teaching in schools, nor is learning to teach a matter of bending to the constraints of an institution. Rather, through their activities students develop identities as teachers, identities that may be experienced by individuals as continuous across situations and activities, but which are nevertheless constantly developing through engagement in diverse activities (Wells, 2004). Working with and on ICT in coursework, employing it for various purposes in their private lives, or teaching with ICT in schools, may nourish student teachers' identities as ICT users. However, and central to my argument, ICT is not the same 'thing' to people across activities; the meanings of technology emerges in the activities of its use. In internship student teachers participate in practices that are 'historically contingent, socially enacted, culturally constructed' (Holland et al., 1998, p. 7). Within this space the students, individually and collectively, can construct their sense of the world and of themselves as actors in that world. A crucial issue in research on technology and teacher education is how technology *comes to be used by the new teachers.* Methodologically, this entails inquiry into the very processes in which student teachers negotiate and make choices about potential uses of ICTs in their teaching, and their social construction of the tools in use. The backdrop to this paper is a study focusing on the

moment-to-moment interactions of student teachers and their mentors during internship. The analysis of such interactions raises questions about if and how such discourses engender the development of identity and agency in student teachers as teachers using ICT. In a sociocultural perspective, action is seen as situated in cultural and historical practices, instigated by the collective knowledge of the practice, as well as by the particularities of the specific practice in question (Ludvigsen, in press). Within the constraints of the tradition, and through their engagement with knowledge and material resources such as technology, student teachers generate teaching practices, while at the same time, 'in the process, produce and reproduce themselves and others' (Roth et al., 2004, p. 51). If conceptions of teaching and learning are shaped in the interactions between individuals, technologies, and local cultures (cf. Ruthven et al., 2004), how can we understand the mechanisms that bring this reshaping into being?

Developing agency in teaching with ICT

In the PLUTO-programme at the University of Oslo, a central tenet has been for student teachers to develop practices that integrate ICTs into learning and instruction. By *using* ICT in learning in their campus-based courses, *focusing* on ICT in subject didactics, *reflecting* on ICT and learning in pedagogy, and through *practicing* teaching with ICT in carefully selected partner schools, student teachers are presumed to become adept at incorporating the use of ICTs in their work as teachers. However, evaluation reports cast doubt on this presumption (Jensen, 2003, de Lange & Skedsmo, 2004); surveys indicate that although the student teachers do use ICTs in their coursework, the connection between their own use of ICTs for learning and their understanding of ICTs as tools for teaching seems to be weak.

A central assumption in sociocultural theory is that human action is mediated, and thus inseparable from the specifics of its cultural, historical and institutional context (Vygotsky, 1978, Wertsch, 1991). As researchers seeking to understand how student teachers make use of psychological and material resources in their environments to learn and to master the practice of teaching, it is important to include in our analysis the interaction between the students and the intellectual and physical tools that mediate activity (Säljö, 2000). Mediation is a key concept in sociocultural theory, and crucial for understanding action. Vygotsky's (1978)

introduction of signs and tools between a subject and its object of activity denoted a radical move in the theories of human thought and action of his time. The crucial idea is that not only are our actions shaped by the various tools we make use of to master our social worlds; also, and most importantly, mediated action changes how we think, how we control our actions, and who we are. In Vygotsky's words (1978, p. 40), 'Because this auxiliary stimulus possesses the specific function of reverse action, it transfers the psychological operation to higher and qualitatively new forms and permits humans, by the aid of extrinsic stimuli, *to control their behaviour from the outside.'* This implies that research on learning, i.e. student teachers learning to teach with ICTs, needs to focus on the complex dynamics of students acting with cultural tools in situated activities. As learners become attuned to environments in increasingly complex ways, they gradually acquire a capacity for diverse responses to the potentialities for action. But the fact that they 'can do' does not imply actual doing. In the flow of acts and operations that constitute activities, student teachers express and create themselves as agentive selves through the negotiations, judgments and choices that are made; identity and agency are integral to the activities. As sociocultural products of agentive collectives and individuals, and through their practical deployment, artefacts such as ICT emerge as heuristics for the next moment of the activity (cf. Holland et al., 1998).

The issue at stake is how ICTs are put to use by student teachers as tools in their practice, how the students 'become' teachers with ICT. As argued above, ICTs are entities in the world whose meanings emerge in the communities of their use, as 'a union of word and thought' (Vygotsky, 1986, p. 212). Although computers look the same and software may be similar or even identical in university courses and in schools, inevitably it is talked about and practiced differently when the purpose for student teachers is to learn teaching, and when the purpose is to teach. It is in and through their actions that student teachers' representations of ICT's develop as tools for thinking, thereby constituting the basis for individuality and agency (cf. Vygotsky & Luria, 1994), as well as for their participation in social practices.

Above I have argued that a core assumption in sociocultural theory is that human action (including thinking, representing and speaking) is mediated. I have identified means of mediation as signs, cultural, intellectual, and material tools, reflecting a disarray of terms within sociocultural research. The term artefact is a sapient term, in that it encompasses the

intellectual *and* material tools that people make use of in their activities, and also connects their actions to the social, cultural and historical development of the practice. Thus, learning to teach with ICTs entails mastering the artefacts in their physical sense, but most importantly, the student teachers learn how to think and talk about ICT in the practices of its use.

Wartofsky's (1979) historical epistemology suggests a three-level taxonomy of artefacts based on their use in production, thus repudiating the mental/physical dichotomy (Ivarsson 2004). According to Wartofsky, what is distinctive for humans is the creation of artefacts for production and reproduction of their conditions of life. *Primary* artefacts include the physical objects, such as 'clubs, needles, bowls' (Wartofsky, 1979, p.201), but also tools for communication and social organisation. In terms of student teachers learning to teach with ICTs, the primary artefacts are the computer with its software and hardware and implicit language, social organisation, division of labour, and skills in use for production and reproduction in education. Artefacts mediate activity in the sense of establishing a field of possible actions, but also, through the principle of reversed action (Vygotsky, 1978) mediate symbolic representation of the action. Such symbolic representations constitute *secondary* artefacts in Wartofsky's taxonomy, the communicable and mimetic representations of the objects of production 'as they are acted upon' (Wartofsky, 1979, p. 202). Through symbolic representation of activities, for instance in student teachers and mentors' discourses about the work with computers, the activities become activities *for them* by way of their specific canons of representation, allowing for 'its production, its use, and the attainment of skill in these, [to] be transmitted, and thus preserved within a social group' (Wartofsky, 1979, p. 201). *Tertiary* artefacts are the off-line, imaginary artefacts of non-practical spheres such as play or art, where 'the forms of representation themselves come to constitute a 'world' (or 'worlds') of imaginative praxis' (Wartofsky, 1979, p. 207). Although tertiary artefacts depend on and are derived from activities, in imaginary representations such as these, rules about and limitations in the actual practice may be suspended, thus opening up the possibility for alternative canons of representation: what *could be* done with the computers, and how activities *could be* represented. In turn, this will affect the way the actual world is perceived, potentially promoting change (Cole, 1996, p. 121). While primary and secondary artefacts are perceived as embodiments of existing and actual cultural practices, the 'off-line' modus of tertiary artefacts creates a space for transcendence.

The empirical grounding of this paper is student teachers' understandings of 'teaching with ICT' emanating from discourses during internship, that is, the secondary representations of the artefacts as talked about within the conventions of a specific social practice. However, these representations cannot be comprehended independently of the primary artefacts (the computers, the software, the social organisation and skills in use) and tertiary artefacts (ICT's potential as a tool for transforming practice). In accounting for student teachers' learning as they learn to teach with ICTs, it is necessary to cut across the 'levels' of artefacts as described by Wartofsky. In order to access the process through which representations of ICT in education are voiced, negotiated and developed, I find the concepts of *figured worlds, positioning, authoring*, and *making of worlds*, as developed by Holland et al. (1998), a useful augmentation of Wartofsky's framework.

Figured worlds are described by Holland et al. (ibid, p. 52) as 'socially and culturally constructed realm[s] of interpretation in which particular characters and actors are recognized, significance is assigned to certain acts, and particular outcomes are valued over others'. Individuals inhabit numerous figured worlds, and in discourse representations of activity are externalised using the conventions and languages of those worlds. For instance, in their talk, student teachers may invoke the figured worlds of computer games, computer technology, disciplinary subjects, pedagogy, etc. The students' contributions to the discourse are embodiments of cultural and historical conventions for discussing ICTs; within he students' figured worlds artefacts 'not only have a use, but also are understood as representing the mode of activity in which they are used, or the mode of their production' (Wartofsky, 1979, pp. xiii-xiv). A close examination of student teachers discourse may reveal the interplay of figured worlds when teaching with or talking about ICT. However, when the issue at hand is to explain learning as the construction of practiced identities, it is necessary to probe deeper in the material.

Within a sociocultural framework the student teachers' discourses are seen as socially situated. Holland et al. (1998) argues that in invoking figured worlds, people enact their *positions*: power, status, rank, entitlement to social and material resources, respect, and legitimacy. Positions can be understood as primary artefacts, as particular configurations of the division of labour regulating student teachers activities in internship. For example,

mentors may be granted the right to advance particular figured worlds (cf. excerpt two below). But positions are also interactionally achieved, as secondary artefacts they are the participants' tools for representing their social relations. Excerpt three illustrates how the mentors' acknowledgement of the student teachers' personal experiences as a *learner* with ICT momentarily reverses their positions as expert and novice. Building on Bakhtin, Holland et al. (1998) identify *the space of authoring* as the way in which groups and individuals orchestrate available resources as interactive responses to the situation at hand, and in so doing, advance personal and collective agency. In representing discursively for instance the use of computers for a certain purpose in teaching, student teachers 'answer' the challenges embedded in the situation in particular ways, arranging resources (or artefacts) within their space of authoring. Such responses are statements through which they accomplish outwardly actions; concurrently the students' agency, intentionality, and identities shape and are shaped through their talk (Edwards, 1997).

Student teachers and mentors also have a capacity for inhabiting imagined worlds on the margins of regulated time and space: the worlds of play, art or contemplation (cf. Holland et al., 1998, Wartofsky, 1979). Such worlds are derived from and related to actual activity, but need not be bound to or constrained by its conventions. 'Off-line', imagined representations (tertiary artefacts) can come to embody alternative canons, opening up the possibility for change in the perceptions of the actual world. However, within the constraints of the activities in teacher education, there is limited room for the virtual, risk-taking behaviour of transcending institutional conventions and regulations (Edwards & Protheroe, 2003, Meskill et al., 2002). Novice teachers first and foremost focus on their own performance, on managing the learners, and on learning outcomes, thus authoring identities as accountable practitioners (cf. Ottesen, in press, Shotter, 1984). The student teachers' use of new tools in 'old' practices produces tensions (Flo & Ludvigsen, 2002, Hauge & Wittek, 2003), potentially encouraging a re-orchestration of resources through improvisation, and a remaking of who they are and how they are seen by others, as teachers. The social and material resources at hand, such as relationships between mentors, student teachers, students and the school community; configurations of the relationship between the University and the partner school; rules and regulations allocating time, space, and modes of interaction; the availability of computers for student teachers and students constitute realms for the authoring of identities (cf. Roth et al., 2004). Holland et al. (1998) uses the term *practiced identities* for identities

under construction that are nurtured through the particular composition of available resources that are valued, brought into play, expanded or reduced through the social processes of positioning and authoring.

Moulding identities in dialogues

In this section, I turn to some empirical illustrations to further shed light on how a sociocultural approach can extend our understanding of processes of learning to teach with ICTs. In accordance with the theory, knowing and acting are seen as social in their origin, and the process of becoming knowledgeable and skilled involves interaction over time with others and with available resources. Thus, learning implies transformations of student teachers' and mentors' relations to and interactions with each other and the social and material world. The illustrations are selected from a study of the12-week internship of four student teachers, two women and two men. As participants in the PLUTO-project (see above), these students could be assumed to have experience with using ICTs in their own learning processes, as well as with pedagogical content knowledge in teaching with ICT (cf. Margerum-Leys & Marx, 2002). The primary data consist of nearly fifty hours of audio files of conversations between student teachers and their mentors before and after experiences in the classroom, and peer counselling sessions between the teacher students, and in addition, ethnographic field notes from the students' performed lessons and participation in various activities in the school provide background information. The methodological approach chosen in the study is interaction analysis (Jordan & Henderson, 1995), and data were collected in 'the naturally occurring, everyday interactions' (ibid, p. 3). The site for data collection was a medium-sized upper secondary school in a suburban area. As part of a school-university partnership, the school was committed to undertaking a three-year project to develop the use of ICTs in its educational practice, and to organise internships for student teachers from the university. Of particular interest for this paper is how the use of ICT is represented by the students, how representations are enacted in discussions between mentors and students, how ICTs as artefacts might mediate new-found spaces of authoring, and whether 'new worlds' can be seen to be in the making. The sociocultural framework, as discussed above, notably constitutes a favourable approach to studying student teachers interactions with artefacts.

Indisputably, a central idea behind schools as a social institution is teaching and learning; the business of teachers is to teach so that pupils learn. Also, and underlying the practice, is the conception that teachers' actions should be conducive of pupils' learning of *specific* contents, a 'learning of the given' (Sutter, 2002, p. 63), and sometimes by using certain warranted methods. Such conceptions are embedded in powerful artefacts in coursework in teacher education (i.e. the organisation of the course in special units for pedagogy and subject didactics, or the choice of curriculum material) as well as in internship (i.e. systems for counselling and supervision). The lesson plan[1], around which counselling sessions are normally structured, can be seen as an artefact that is '*already* invested with cognitive and affective content. The tool is *understood,* both in its use and in its production, in an instrumental fashion, as something to be made for and used for a certain end' (Wartofsky, 1979, p. 204). By way of the lesson plan, knowledge, conventions and rituals are enacted in the figured world of didactics: what should be taught and how, to achieve the desired ends.

In counselling sessions after lessons, the mentors give feedback on the students' performance, mainly related to what was planned for the lesson and to particular incidents in the lesson brought up by mentors or (more rarely) by students. The discussion in excerpt one takes place after a lesson where the student teachers have asked the pupils to use the Internet to collect information while working on a social science project. Siri and Stein were co-teaching on this occasion, and the mentor observed the lesson. The student teachers worry that the students might not be learning what was intended.

Excerpt 1

(1) Stein: How are we supposed to know what they learn when they get all sorts of stuff from the web? And then we're not expected to interfere, because they are supposed to find out on their own.

(2) Siri: That's what I mean. It's so – to have a goal, like, what's the point? Otherwise we regulate everything, well, if we tell them what to look for. On the other hand, it's decided, the curriculum, what they should learn sort of, and we are *responsible* for it. And then they're so inefficient, waste time on all the useless, or what the only accidentally end up with that might be fun or interesting, but that doesn't have anything to do with the task, you know.

[1] The outline of this plan is developed at the university, and it has a didactic profile. The students (or teachers) are expected to state *goals* for student learning, account for the *content* of the lesson (themes, tasks, educational resources), the *methods* (what pupils are expected to do, and what the students as teachers are expected to do, and the amount of time allocated to each task), and the *evaluation* (what the student as teacher would focus on in evaluating the pupils' work, and how he/she would give feedback to pupils).

(3) Mentor: But let's look at the targets you have formulated, how does it comply with your intentions for the pupils' activities? I mean in actual practice, when they were gathering information from the Internet. That's what it's about, isn't it? That there should be consistency between the different parts here. If the target is that they should be able to find what they can use for understanding more about their problems, how can we find methods that could help them? I think you did a good job in helping the groups to find good search words.

(4) Stein: Actually, we *told* them which search words to use.

(5) Siri: The goal becomes so huge and distant, sort of. We never knew that they would have all that trouble searching. Assumed they knew something about it. But perhaps we could have set another goal, that was more technical, and practiced a bit first.

(6) Mentor: Are you suggesting that the goal should have been broken down?

(7) Stein: But we never know in advance – or they don't do what we thought they would when we filled this in. They know what we want them to do, but some of them don't care – or they happen to find something else, and lots of time is wasted. So maybe it's better to have a stronger regime, then, like you do this first, and then you do this. So maybe in the end they will get the relevant information.

(8) Siri: That would be completely wrong; all they would learn is to follow instructions.

(9) Stein: Perhaps that's what they need.

In this illustration, the use of the Internet challenges the conventions of the practice in several respects. First, by letting pupils download information from the web, the student teachers lose control of the input to pupils learning processes, the 'given' is no longer transparent to them (1). Also, they lose control of the methods used by the pupils. It is conceivable that the student teachers represent work on the net in the figured worlds of their personal experiences as Internet 'surfers', as Stein says in (1), they are 'not expected to interfere'. All three participants are persistently striving to settle the problematic issue within the figured world of didactics: controlling pupils' activities to ensure that they learn the given (i.e., 3, 5, and 7). And finally, within the practice of counselling, as 'instructed' (cf. Sutter, 2002) by the planning document, the space of authoring for alternative voices is efficiently closed down (i.e., 8).

It is important that this passage is not merely seen as student teachers' and mentors' *application* of authoritative societal discourses to talk about their practice. On the contrary,

such discourses are developed and sustained through their contributions and the tensions occasioned by different horizons for meaning-making. As the discussion proceeds they ease the tensions through the authoring of responses to the situation and to each other. Siri's comments in (6, 9) encompass several voices: She is responsible for ensuring that the students efficiently learn what is prescribed or intended; on the other hand, the attributes of the tool in use hold a potential for learning. This could be a bid for position, divulging tensions inherent in the technology as used in historically developed instructive activities; however, her line of thinking is not followed up by the others. The mentor's contribution is didactic; he overlooks the discord embedded in Siri's comment, and reconstructs the issue to be one of *how to plan* lessons in a way that would promote learning of the prescribed content. It follows that the specifics of the technology in use and its relationship to the tasks and learning processes of students remain indistinct. The mentor authors a practiced identity as 'keeper' of the didactic discourse. The asymmetry embedded in the social and cultural configuration of the mentor/student relationship (as an artefact in the production of teachers) supports their positioning as expert and neophytes, even when they all are learners. From his expert position, through warranted questions and elaborations, the mentor invokes didactic resources as the figured world against which the experience should be represented: technology is discussed as an 'add-on', a more (or perhaps less) efficient way to retrieve information.

In contrast, in peer collaboration sessions the student teachers' positions are not constrained by the asymmetry inherent in the student/mentor relationship; the space of authoring is indeterminate, allowing the production of responses from variant figured worlds. The following short example illustrates the point:

Excerpt 2

(10) Siri: It's – what are they supposed to – they learn different things, right, maybe something else or just to search. I don't know. But why do we have to hand everything to them, because they need to find out on their own.

(11) Stein: That's not what I mean. But they don't have time, or how much time is to be used to read what's not of any use before they find something they can use? And what about those who never get there?

(12) Siri: Get where?

In her comments, Siri unveils and expands on aspects of the experience that were not elaborated in the mentoring session. This is expansive in the sense that it connects to the potentialities of technology embedded in discourses of teaching and learning. In making this move, she authors herself, and this emergent identity is different from the one worked out in the first excerpt. Although the contextual constraints and affordances of internship promote the cultivation of warranted identities, tensions between discrepant figured worlds occasion possibilities for authoring distinctive identities.

In the lesson referred to in the next excerpt, the student teacher Silje wanted the pupils to use the discussion-tool in their learning management system. As several pupils did not take the task seriously, Silje was distressed, and the mentor suggested that she might have given the initiation of the discussion more thought.

Excerpt 3

(13) Silje: But I tried, didn't I? But this was so something they had no interest in discussing. I maybe… Yeah, I can see what you mean. We talked about it in the subject didactic course. I thought being allowed to do this discussion could be motivating in itself, when it was computer-based.

(14) Mentor: What was the purpose of the discussion?

(15) Silje: Yeah, what was I … We're supposed to use ICT when teaching. So I guess that was it. [laughs] No, in a way… I really thought it would be fun for students to discuss on the net. And some of them…or not all of them. But it might have been just as well to do a group or class discussion. But yes, I did think it might be easier for them to be sincere or perhaps… I thought … but also, that they could see what others wrote, and hold on to it sort of, and more easily hear, or see, well, what were the others' opinions. And then make up their own minds.

(16) Mentor: Yes.

(17) Silje: Yes, because that's something I think we have done in the group [the group of teacher students] on the few occasions we have managed to do a net discussion, that you get sort of a thinking break where you can see the others' opinions in front of you, and relate to it and not give an answer at that exact moment. Though the students are much quicker to reply than we are. For some of them it's like talking with their fingers. (…)

What is at stake here is the expediency of technology. Silje seems to search for justifications for her choice of method, and draws on several figured worlds. Though local and global institutional expectations ('We're supposed to use ICT') are referred to in a jesting manner, for these students they constitute a substantial requirement. Silje also invokes the figured

world of subject didactics, but does not elaborate on this. What stand out as imperative to her argument are her personal experiences as a learner. It is conceivable that she has learned about the merits of on-line discussions during her university course, and that her own experiences substantiate these precepts.

In the example, the mentor adopts a distanced position, thus granting legitimacy to the voice and experiences of the student teacher. Holland et al. (1998) argue that positions are not universal characteristics of certain relationships, but that they are interactively negotiated. Thus, the student teachers' first-hand experience with ICTs as tools for learning may render them, and not the mentors, experts within this particular figured world, augmenting the scope of potential responses to the situation. In the excerpt, the problem develops from a question of how to entice students' interest to possibilities in and grounds for using ICT. Silje initially authors herself as bewildered regarding her choice of tools ('But it might have been just as well to do a group or class discussion'), but increasingly (and perhaps encouraged by the mentor's affirmation), she ardently construes the tool as displaying characteristics that distinguish it from the tools of conventional teaching practice. This space of authoring represents a potential for the making of new worlds. The personal that is brought to bear on the conventional could make an imprint on the practice in question, and for the participants it sustains potential for the development of new practiced identities.

Discussion

In teacher education, a number of figured worlds are potential artefacts that could mediate the construction of practiced identities, i.e. the students' prior experiences as learners in school or at the university, common-sense constructs of teaching and learning, involvement with ICT for various purposes in their daily lives, or theoretical conceptions of teaching and learning with ICT. Holland et al. (1998, p. 270) view identity as 'a central means by which selves, and the sets of actions they organize, form and re-form over the personal lifetimes and in the histories of social collectives'. Identity in practice is the nexus of figured worlds, position and voice in configurations of activities at specific moments in the history of persons and collectives. Artefacts become real to the activity through their use in processes of production and meaning-making. New artefacts, such as ICTs in educational practice, do not simply move in and occupy empty slots in ongoing activities. Rather, the tools and the activities in

which they are used are re-constructed and given meaning through the actions of the participants. Although ICTs can be seen as already invested with intention, what tools 'become' to the teacher students are representations of the artefact *in use*. Figured worlds (Holland et al., 1998), or canons of representation (Wartofsky, 1979), as authored in the communication between mentors and student teachers and through the agency and position of each person, in turn orients the activity. The examples above illustrate how artefacts like the lesson plan and the situated manifestation of divisions of labour in internship can be seen to delimit participants' space of authoring, supporting the enactment of specific didactic discourses that give primacy to the goals and contents of the lesson (cf. Tyler, 1949, Kelly,1999), reflection as a question of planning (deciding which methods, tools, pace, etc. would help these pupils reach the prescribed goal), and evaluation (did it work?). In the first example, it is from within this figured world that spaces of authoring are established: The problems assigned to ICT in this case can be talked about as questions of accountability and teacher control (Stein), or as an issue of teacher control vs. pupil agency. In particular, Siri's contribution in (5) shows how she readjusts her contribution within the figured world of didactic reasoning as the warranted way of talking about such issues.

However, though the student teachers are learning to master and act in accordance with the figured world of didactics, alternative figured worlds are concurrently at play, as illustrated in (8) and in excerpt two. Dialogue is not built on a single world; it is always worked out in relation to other possibilities (Holland et al., 1998). The positions of the participants, as well as socially and historically developed constraints, instigate certain figured worlds and depreciate others.

In their study of student teachers' learning during initial teacher training, Edwards & Protheroe (2004) argue that learning to teach is a process whereby students develop ways of seeing and interpreting classrooms, enabling them to fashion responses in increasingly informed ways. However, student teachers' being, seeing and responses are mediated by the artefacts of the practice as figured worlds within which discourse, positions and perceptions are enacted. Thus, ICTs may reasonably be represented as just another set of tools to reach educational goals as prescribed in the curriculum. But rather than solving possible problems of delivering the curriculum, new tensions arise, tensions to which remedies are sought within the conventions of the practice, for instance as illustrated above, through more control or

clearer targets. Computers as tools for learning are in schools, as imperatives to act. In the discourse student teachers and mentors struggle with the issue of deciding how it can efficiently be put to use in educational practices, just as they struggle to cope with didactic reasoning, classroom management, and pupils' learning when using traditional tools like books, blackboards, pens and paper. This could mean that rather than spurring the development of new practices or eliciting enhanced learning opportunities, ICTs in classrooms become tools that reinforce aspects of the existing practices (cf. Lilja, & Lindström, 2002). What might be needed in teacher education is the allocation of time and space for the student teachers' development of representations of ICT in the playful, off-line manner as new figured worlds (Holland et al. 1998) or tertiary artefacts (Wartofsky, 1979).

Conclusion

Presently, teacher education programmes such as the PLUTO-project in Norway aim to develop cutting edge ICT competence in student teachers as a means of change in schools. However, although more teachers and student teachers are becoming personal users of ICT and the availability of technology is increasing, it seems that this does not simply translate into new teaching practices in a straightforward way (de Lange & Skedsmo, 2004, Pelgrum & Law, 2003). Research on teacher education often focuses on the input (what and how students learn in university courses or during internship) or output (what their beliefs, skills and knowledge about teaching are or how they develop) (see i.e. Sikula, 1996). The sociocultural framework proposed in this paper alerts the researcher to the urgency of recognising that in the practical activities of student teachers, ICTs needs to be studied in their combined modes as primary, secondary and tertiary artefacts. Moreover, what artefacts become to the student teachers is contingent on how the interplay between representations of its use is made transparent in the practice. The interface of variant horizons for meaning-making emerges in the student teachers ongoing transactions involving processes like positioning, authoring and the making of new worlds.

Clearly, teacher education needs to facilitate the students' development of definite skills and competences, with a focus on the students' emerging identities as teachers within current practices. In addition, educational policies (KUF, 2000, OECD, 2001) contend that ICT has a potential for transcending and transforming practice (although from what and to what is less obvious). The process of becoming a teacher is deeply embedded in the institutional practices

of the school, university and teacher education, and new tools, such as ICTs, may first and foremost be represented within traditional canons and conventions However, student teachers use ICTs for a number of purposes in their lives, and the sociocultural framework alerts the researcher to the grains of alternate figured worlds and corresponding budding identities that can be seen to be nested within the dialogues of student teachers and mentors during internship. In teacher education it is imperative that such figured worlds are cultivated, allowing for the development of teachers' identities as potential architects of 'new worlds'.

Acknowledgements

I would like to thank the Department of Teacher Education and School Development at the University of Oslo for financial support of this project. This research is also supported by the strategic research effort "Competence and Media Convergence (CMC)" at the University of Oslo. For additional information about CMC, see http://cmc.uio.no/.

I also want to thank colleagues at the Department of Teacher Education and School Development, Professor Sten Ludvigsen at InterMedia, the University of Oslo, and the anonymous reviewers for challenges, advice and support.

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Article III

Reflection in Teacher Education

By Eli Ottesen

Submitted to *Reflective Practice* in October 2005

Reflection in Teacher Education

By Eli Ottesen, Department of Teacher Education and School Development, University of Oslo

Abstract

The concepts 'reflection' or 'reflective practice' are entrenched in the literature and discourses of teacher education and teachers' professional development. The concept is rather vague, although Schön's notion of the reflective practitioner seems to be at the core of several understandings. In this paper, conversations between student teachers and their mentors during internship are analyzed to explore how they reflect and what they seem to accomplish through reflection. Building on sociocultural theory, reflection is constituted as collaborative communicative action through which an object of reflection is constructed and expanded by the participants. By introducing the notion "mode of reflection", the relationship between reflective action and the motive of the activity are explored. In this paper, three modes of reflection during internship in teacher education are discerned and discussed: 1) reflection as induction to warranted ways of seeing, thinking and acting; 2) reflection as concept development; 3) reflection as off-line or imagined practices.

Keywords: Teacher education, sociocultural theory, activity theory

Introduction: Perspectives on reflection

The notions 'reflection', 'reflective practice', and 'reflective practitioners' abound in the literature on teacher education and teachers' professional development (i.e. Admiraal & Wubbels, 2005, Birmingham, 2004, Loughran, 2002, Rodgers, 2002), and reflection has been advanced as an ideal in numerous teacher education programs. In the Norwegian context, the endorsement of reflection in teacher education is authorized as a key objective in the General

Principles for Teacher Education (UFD 2003, p.14). Despite its apparent ubiquity in research conducted and reported, the term reflection remains problematic encompassing a range of theoretical and practical approaches. Schön's work (1983, 1987) is often considered a watershed, initiating what has been labelled "the reflective turn" (Schön, 1991); however, the seminal impact of Dewey (1910/1997) and van Manen (1977, 1991) has strongly influenced the development of a variety of understandings and perspectives on reflection in education (see among others Calderhead, 1987, Grimmet & Erickson, 1988, Korthagen, 2001, Russell & Munby, 1992, Valli, 1992, Zeichner, 1987, Zeichner & Tabachnick, 1991). The ideals or purposes of reflection in education are as manifold as the term itself: development of self-monitoring teachers, teachers as experimenters, teachers as researchers, teachers as inquirers, teachers as activists, to mention but a few (cf. Cornford, 2002, Tom, 1985). It is not always clear whether reflection is conceptualized as an exclusively cognitive activity (as a special case of thinking, pondering etc.), or what exactly constitutes its relationship to ongoing, past or future events. Across the diversity of perspectives and positions, reflection is generally assumed to promote understanding and insight and to have transformation or empowerment as its purpose or effect; however, this assumption is disputed (cf. Cornford, 2002).

The employment of a sociocultural approach allows for empirical investigation of actions as embedded in and emerging from people's engagement in social activities. In the study presented here, the focus is on "reflective conversations"[1] between student teachers and mentors during internship. I have found it useful to make a distinction between reflection as object of teacher education and reflection as a discursive tool mediating learning. For example, numerous teacher education practices are designed to develop students as reflective practitioners (cf. Admiraal & Wubbels 2005, Korthagen 2001, Zeichner 1994); reflection is constructed as the object of the activity. In contrast, the focus of this paper is on student teachers' and mentors' employment of reflection in communicative action as a culturally constituted tool in processes of meaning-making.

Based on analysis of reflective conversations between student teachers and their mentors during internship, the research questions for this study are:

- How do student teachers and mentors reflect in discussions during internship?

[1] The notion "reflective conversation" is a descriptive term which is institutionally coined, and is also used copiously by students and mentors in the project.

- What do they accomplish through reflection?

Below I will advance a view on reflection based on sociocultural and activity-theoretical perspectives on human activity (Vygotsky, 1986, Leont'ev, 1978), recognizing reflection as action embedded in societal activities, i.e. as processes involving student teachers and mentors in sociocultural contexts. I will argue that the *mode* of reflection, that is, the direction it takes and the cultural resources employed, emerges in action, contingent on what is construed as the purpose or goal. Through the analysis of empirical evidence from discussions between student teachers and mentors during internship, three such modes of reflection emerged: 1) reflection as induction to warranted ways of seeing, thinking and acting; 2) reflection as concept development; 3) reflection as off-line or imagined practices. These are further explored below.

Making sense of reflection

> "Reflecting, reflecting, reflecting. I think all the time, don't I? I mean, it's not like I don't think. What <u>is</u> it with this reflection thing that makes it so important?" (Stein, student teacher)

Stein's outburst above stems from a discussion among student teachers in peer collaboration during internship. The students are discussing a case assignment[2], and Stein has been confronted for not going about it in a reflective way. His comment is pertinent; obviously, in some sense he <u>is</u> thinking "all the time", and such thinking is connected to his participation in teaching and learning. It makes perfect sense to ask what "this reflection thing" is, and why and how it is an important issue in teacher education. In fact, a number of research papers pose similar questions (i.e. Birmingham, 2004, Loughran, 2002, Calderhead, 1989, Korthagen, 2001, Zeichner, 1994). As Rodgers (2002) points out, a number of problems emerge in the practice and research on teacher education from this confusion about the meaning of reflection, for instance: What kind of thoughts qualify as reflection? How can reflection be assessed? How can it be talked about? How can it be researched to determine its effect on student teachers' learning?

[2] The students were given case assignments by the university teachers to be worked on during internship and on campus.

In the socio-cultural approach adopted for this paper, reflection is seen as embedded in and emerging from activity. Thus, whether achieved as individual or collective action, reflection is always social. Being represented in the language of social practices, and inscribed with warranted repertoires for action (cf. Wartofsky, 1979), reflections cannot be seen as "copies" of the world to be pondered upon in individual minds. To clarify the notion of reflection in teacher education, a distinction needs to be made between *reflecting* and *thinking*. The notion of the object of the activity (Leont'ev, 1978, Miettinen, 2005, Stetsenko, 2005) is helpful in making this distinction.

The constituting characteristic of an activity is its object-orientedness.[3] According to Leont'ev (1978, p. 52), the object is doubly constituted in activity: as the object to be transformed or produced in the activity, and as representations in individual minds. By acting in the world, subjects incorporate relations into the object of their activity, thereby re-constructing the object as an entity in the world *and* as a social representation (Wartofsky, 1979). The objects so constructed give direction and generate meaning and intention; goal-directed actions constitute the empirical realizations of activity (Leont'ev, 1978, p. 63). It is this sense of purposeful object-oriented action that distinguishes reflection from "mere" thinking. During internship, aspects of student teachers' and mentors' experiences can be seen as troublesome, arduous or perplexing, prompting the construction of objects of reflection. Reflective action is the transformation of such objects through the consideration of available cultural resources that may support or deprecate the representation. Taken as the current configuration of the historical dialogue between alternative representations as generated in activity (Wartofsky, 1979), any object of reflection is ambiguous and contested. In reflective dialogues, the representations of student teachers and mentors are turned outwards and possibly augmented in the interplay with alternative representations. While the motive is connected to the activity (learning to teach), the directions taken in reflective actions correspond to the goal, understood as the empirical instantiation of the object in particular actions (i.e. learning how to perform particular operations in teaching or expanding conceptual understanding).

[3] See Mind, Culture and Activity, (2005), 12,(1) for discussions about the notion of *object* in activity theory

Above, I have detailed how reflection can be understood as concurrently being deeply engrained in and motivated by the activities of which it is a part, and as actions directed by situated goals and purposes. While “proper” reflection is often depicted as a tool for connecting experience and learning through experience, frequently postulating the need for advancement to higher levels of theorizing (cf. Rosenstein, 2002, Zeichner, 1994), in the activity-oriented approach discussed above, the “horizons of possible actions” (Engeström, 1994, p. 48) are defined in the activity. For student teachers in internship the centre of attention is primarily on what to teach and how to teach it (Edwards, 1995, Sundli, 2001, Søndenå, 2002). Through the careful guidance of experienced teachers acting as mentors, student teachers are encouraged to make note of certain aspects of their practice and to act on these aspects in certain ways. Through collaborative reflection on certain aspects of the activity, horizons of alternative actions are made transparent to the student teachers.

Sometimes the students and mentors engage in a mode of reflection in which the object, though suggested by the situation at hand, is of a more principled character, such as: How can we know that pupils learn? How could the needs of all pupils be attended to? Such issues cannot (without great risk of forming misconceptions) be resolved by reflecting on alternative or accountable actions in specific classrooms. The goal directing reflection is changed from knowing *how* to teach to understanding teaching. The outcome of such reflective actions is conceptual development, a generalization of knowledge in order to develop tools for future problem solving within a domain. Understanding emerges at the intersection of scholarly knowledge and practical experience. What has been taught is re-contextualized in practical actions, while at the same time, practical experiences mediate new understanding of what is taught. However, such development is contingent on a deliberate expansion of concepts; the fossilized form of concepts (Wardekker, 1998) conceals their dialogic qualities which led to their development in the first place. Such conscious and systematic development of concepts could be a vital aspect of reflection in teacher education, in that it allows for “Scientific concepts [to] restructure and raise spontaneous concepts to a higher level” (Vygotsky, 1987, p. 220). Concepts mediate student teachers’ understanding of practical experiences, while at the same time, the meaning of the concepts are developed.

As an action of mind, reflection is not confined in time, space and purpose. Though objects of reflection often emerge from problems in the real world, and the process of reflection often is

teleological in the sense of aiming to resolve such problems, this is not so by necessity. Objects of reflection may be imaginary constructs, as in art or play; they need not "make sense", as it were. The possibility of creating a temporary disjunction from "the real" allows for low-risk imaginary enactment of practices or understandings. Constraining aspects pertaining to the practice of teaching may be bracketed and alternative worlds with different canons of representation brought forward, thus possibly affording divergent actions and understandings (cf. Wartofsky 1979). Such imaginative practices incorporate available cultural resources, but also allow for new combinations and improvisations. In turn, off-line reflection "feeds back into actual praxis, as a representation of possibilities which go beyond present actualities" (ibid, p. 209).

The study and its methodology

The four student teachers in this study were enrolled in a one-year course on top of their disciplinary degrees to qualify as teachers. The course was part of a reform project, the Programme for Teacher Education, Technology and Change (PLUTO)[4] at the University of Oslo, which intended to develop ICT-based approaches to learning and teaching, problem-oriented methods, portfolios for learning and assessment, and viable relations between schools and the university through a partnership model for internship. An all-embracing concern in the program was to integrate theoretical and practical knowledge in all parts of the program.

Reflection is often considered to be mental and teleological; that is, it takes place inside people's heads when they experience problematic or puzzling situations which they subsequently seek to resolve or understand (Dewey, 1910/1997, Fong Lee & Loughran, 2000, Schön, 1983). In the present study, the ambition is not to uncover what might be going on in individual minds; rather in accordance with sociocultural theory, the situated discourses of student teachers and mentors are envisaged as possible loci of reflection. In order to capture and theorize reflection in the social interactions of student teachers and their mentors, interaction analysis is an applicable approach in positing that "knowledge and action are fundamentally social in origin, organization, and use, and are situated in particular social and

[4] See, for instance, Flo & Ludvigsen, 2002, Hauge, 2004, Ludvigsen & Flo, 2002.

material ecologies" (Jordan & Henderson, 1995, p. 41). What emanates in reflection cannot be reduced to the actions or routinized operation of any one individual; the contributions to discourse by any one participant are grounded in the past and potential contributions of the others, as well as in mediated sociohistorical conditions (Dreier 1996). The actual interaction between student teachers and their mentors, rather than their reproduced accounts, constitute the primary data of this study.

The site for data collection was a medium-sized upper secondary school in a suburban area. During the twelve-week internship (four weeks in the autumn and eight weeks in the spring term) discussions between mentors and students and between students in peer collaboration were audio taped, amounting to nearly 50 hours of talk. In addition, ethnographic field notes from the students' performed lessons and participation in various activities in the school supply background information (cf. Jordan & Henderson, 1995).

Interaction analysis often attempts to avoid preconceived coding schemes in order to facilitate the emergence of categories from the material itself. (Jordan and Henderson (ibid) use instead the term *foci for analysis.*) However, to be able to deal with large amounts of data, and guided by my research questions, I found it practical to develop a coding scheme that would facilitate analysis of individual chunks of data, while rendering it possible to reorganize across instances and develop emergent foci and categories in intimate interaction with the texts. Inspired by Barab et al.'s (2001) CN-ARE methodology[5], the data were broken down into units of action relevant episodes, that is, "identifiable behavioral units" (Jordan & Henderson, 1995, p. 57), and coded according to topics or objects of discussion. In this material, several objects of discussion are commonly entwined within an episode, and the data are coded accordingly. For instance, student assessment is a recurring topic that may be nested within or wrapped around discussions about students' learning, about how to use ICT, classroom management, etc. The practicality of this way of coding is that in combination with the scientific software Atlas.ti used as a "workbench", it facilitates the trailing of topics across episodes, without losing track of their emergent and situated properties. Initiation and participation constitute a second layer in the coding scheme. Initiation refers to how an action

[5] Constructing Networks of Action-Relevant Episodes

is produced, and by whom. In the study reported here, and contingent on the research questions, a central interest is to discern who (i.e. students or mentors) initiates formation of the various objects of reflection, as well as how a trajectory of participation unfolds. A pivotal concern is to be sensitive to the initiative of individuals, while not losing perspective on the interdependence of contributions. Resources for carrying out reflection are coded according to their emergence and development in actions (Barab et al., 2001). Material resources are, for instance, students' textbooks, student teachers' or mentors' planning documents, or their notes after observing teaching. Conceptual resources are participants' representations: their ideas, theories and understandings as they emerge in the discourse. By using the notion of resource, focus is directed toward material and ideal elements *in use,* rather than idle objects of the environment. In an individual episode, resources emerge and disappear; by coding the data in the manner described here, resources-in-use may be traced across time and instances. Finally, what is being accomplished in the discussions, such as inquiring, explaining, positioning, challenging, and reflecting, are coded as actions. Within the overall activity of learning to teach through internship, a variety of actions are carried out, such as teaching, planning and discussing teaching, and writing. Any of these may be seen as realizing several activities or transgressing from one activity to another (Leont'ev, 1978). Thus, seeing discourse as action, a central task in coding and later analyzing the material is to discern what actions are carried out, what (implicit or explicit) goals direct the action, and the action's relationship to the overall activity and its motive.

While coding a material as described above has the advantage of creating orderliness and overview, a weakness is the possibility that the researcher becomes blind to other dimensions in the data. A continuous back-and-forth movement between coded transcripts and recorded talk may reduce the possibility that the researcher produces accounts of events at the expense of the participants' activities. Also, it has been useful to oscillate between the "levels" of the coding scheme. For this paper, identification of actions that could be described as reflection constituted a starting point in the analysis. Each episode of reflection could then be scrutinized for resources at work and initiation and participation, thus allowing for dynamic accounts of reflection at work to be produced.

Results

Categorization of 36 taped conversations between student teachers and their mentors (21) and between the students (15) indicates that although reflection is evident in nearly every session, it is commonly neither systematic, nor extended in time. Typically, the objects of reflection emerge from puzzling or disturbing aspects of teaching experiences, or student teachers' raising some problematic about their plans. The object is expanded in the course of 5 – 20 turns, and some objects are brought up recurrently within or across sessions. In this paper, I am interested in the "how" of reflection: how the object of reflection is expanded through the communicative actions of the participants, and the "doings" of reflection: what is accomplished through these actions (cf. Linell, 1998). Three distinctive modes of reflection were identified and distributed across the data in the following way:

	Mentors/student teachers	Student teachers	Total
Reflection as induction	55	41	96 (56.8%)
Reflection as concept development	12	41	54 (32%)
Reflection as imagined practice	4	15	19 (11.2%)
	N=71	N=98	N=169

Table 1: Distribution of modes of reflection across the total corpus of data

In the next section, I have selected one example from each of the three modes of reflection to illustrate how objects are constructed and instantiated (cf. Nardi, 2005) in student teachers' and mentors' discussions.

Reflection as induction: Learning the "how's" of teaching

In the first excerpt, Siri is planning a lesson in which the students are to individually read a text. She has made some questions related to the text on a hand-out sheet which she wants the students to discuss in groups. Her concern is that, on the one hand, she would like to arrange the groups according to what she perceives as pupils' needs; on the other hand, this is just a minor part of the lesson, and she wants the change from one task to the next, and back again, to occur swiftly and without loss of time-on-task. In this classroom, the pupils are normally seated in pairs facing the front.

Excerpt 1

(1) Siri:	I want the students to do this in groups, but I'm not sure how.
(2) Tom:	Well that's a good idea I think.
(3) Siri:	But how to make groups. I mean, it's... I don't want to make so much fuss about it. Just quickly arrange it and then go back to their places.
(4) Tom:	Just ask them to turn their chairs. How big groups do you
(5) Siri:	I thought four or five. But I was thinking maybe you know, pay some attention to who should be in each group.
(6) Tom:	Yes. Sometimes that's a good idea. But you want to spend how long on this group work? 10 minutes? A quarter of an hour?
(7) Siri:	Something like that.
(8) Tom:	It's just too much work. The changing of seating and working out who should be in each group. Just tell them to turn their chairs around. Then you can easily turn back to whole class when they're finished.
(9) Siri:	What's practical, then. Yes, I … Not to worry about… Yes, that's… I'll do that

This is a routine exchange about some of the practicalities of teaching; Siri has a problem, and Tom tells her what she could do. Exchanges like this one prevail in the discussions between student teachers and mentors (cf. table 1). Based on some problem that the student teachers grapple with prior to teaching or some puzzling experience brought up after teaching, mentors provide workable solutions from their pool of practical knowledge, and at the same time, model ways of speaking, thinking and acting. Objects of reflection are constructed based on

uneasiness or suggestions (cf. Dewey, 1910/1997) emerging in actions, and through deliberate reflective processes they are re-contextualized by invoking knowledge about what teachers normally would do in such situations. From the start it is not evident what exactly Siri's problem is. Does she want to discuss principles for grouping students, whether group work is appropriate for this exercise, or how to manage the classroom work? Collaboratively they construct their object of reflection as the modeling of the anticipated group work as a practical enterprise. In the process, they draw on cultural knowledge to underpin their contributions: theoretical (to create groups according to some pedagogic principles) and practical (without too much fuss). Tom's eliciting of Siri's intentions (how big groups, how long time) can be taken to rest on implicit principled knowledge, practical know-how, or both. When Tom above asks about the duration of the group work and the size of groups, he is also imparting the information that his assessment of how to do group work is contingent on such elements. Thus, implicitly his contributions more generally refer to how things are done by teachers, drawing on the stock of teachers' practical knowledge. In this sense, this amounts to more than the passing on of "practical tips" (Edwards, 1995, Edwards & D'Arcy, 2004) to cope with practical problems in teaching; rather, by constructing and discursively expanding objects of reflection, using a range of theoretical and practical resources, student teachers learn what are seen as reasonable, appropriate and legitimate actions in teaching.

Reflection as concept development: Learning about teaching

In the next excerpt the participants talk about an experienced episode of teaching. Though they are preoccupied with this particular incident, in the dialogue the concept "learning" is elaborated in a way that transcends the present experience. The theme of this unit of lessons was politics and influence, and in the excerpt the student teachers and the mentor are discussing student assessment. As part of the unit, one of the assignments given to the class was to arrange a discussion modelled after a TV program. They were divided into groups representing the variety of Norwegian political parties, and after studying the parties' ideologies and standpoints on current issues, the class discussion was carried out.

Excerpt 2

(10) Stein:	In doing that [the role play discussion], they learned more than from reading all the texts.
(11) Tom:	Why do you say that?
(12) Stein:	Well I just know. I mean, doesn't everybody learn doing something like that, that is fun and you get to use what is learned?
(13) Siri:	But it's easier to see that when they answer questions correctly, like when we talk to them, or they write answers, what they actually learn…Well, I guess then and there. It's not like... it's perhaps just remembering words or sentences, not really knowing. Like – not constructing or what's that pair from Imsen [curriculum material in the teacher education program]?
(14) Tom:	You mean they just reproduce?
(15) Siri:	No, it's that just adding on and not changing the structure.
(16) Stein:	I know. But when they acted in the role play, the students participated. So we could see exactly how they used the material when they acted. And supporting each other in the process. But we do not know what exactly they have learned.
(17) Siri:	We talked about this before. We can't know what's in their heads. Only what they do or say.
(17) Stein:	Or write. That's the social perspective. Whatever, they need to perform according to some norm. We can see how they develop their arguments in the discussion, that's the use of it. Or what they write in the test, that's the use, too, just a different use.

This is one of a few examples in my material in which theory is explicitly brought into play. The student teachers' uneasiness stems from their *impression* of the role play as conducive to learning, and their inconclusiveness about *what* is learned and *how to find evidence* of learning for the purpose of assessment. Thus, pupils' learning is constructed as the object of reflection, and the student teachers' need for understanding pupils' learning is the motive that directs the interaction. In the process they use everyday concepts (we all learn doing something that's fun), personal experience (Stein just knows), practical experience (they know by observing what students do), and theories of learning (reference to course material). The participants' understandings are developed in a reflective process in which different kinds of knowing are brought to bear on the problem. The interaction opens up the possibility for a dialogue about different understandings of what learning is; thus, rather than serving the immediate purpose of resolving the initial problem of assessment, it can be seen to expand their understanding of the concept of "learning".

Reflection as imagined practice: Transcending the constraints of the practice

In the final excerpt, the students are in a peer collaboration discussion. Routinely, these sessions are used for planning, discussing teaching experiences or observations. Silje has presented a planning document to the others, when the following exchange occurs:

Excerpt 3

(18) Silje:	What do you think about this?
(19) Siri:	I'm so tired of this looking at what we plan to do or just did over and over. It's the same every time! Boring. Well, no offence to you, Silje, it's just that we know how to do this now, make these plans that are so neat.
(20) Silje:	But I feel much better when I've made the plan and discussed…
(21) Siri:	I know and agree. But maybe do it differently, not start with what's in the book. What students need, and what we want, not just the textbooks.
(22) Stein:	That's new coming from you, Siri [laughs]. Usually you're the one who submits to the rules [they all laugh].
(23) Siri:	What I've looked for since we were here the first time is an opening to use some music. Songs and…
(24) Silje:	Surely you could have done that.
(25) Siri:	Yeah, but it would just be as a supplement to the important stuff. I'd like the songs to be the centre. To teach them songs, which is a way to learn languages.

The "planning document" is a powerful tool in student teachers' and mentors' discussions, as are the students' textbooks and the overall plan for delivery, compellingly influencing the discourses produced: the student teachers appear accountable to the extent that what they plan to do or have done is coherent and sound with respect to what Siri (25) refers to as "the important stuff": goals, content, methods and evaluation. What they seem to be doing here is transforming the reflection *within* the didactic model to reflection *on* the model. Doing this enables them to reflect in implausible ways, by combining resources that previously appeared separate: cultural (and local) knowledge about foreign language education and music. To make this move requires the apprehension that things *could* be represented differently in a fundamental way, as (25) Siri argues, not just as a supplement. The reconstruction of the

object of reflection allows for an imagined practice (language teaching and learning through music and song-texts) to be constructed, a practice that is both connected to and separated from the real world of teaching. Rules and conventions of the actual practice are bracketed, allowing for a playful construction of a new practice. Thus, this kind of reflection could serve the important function of surpassing tradition, even when, as in this case, the proposed action is not carried out.

Discussion

Based on the analysis of student teachers' and mentors discussions, three modes of reflection were discerned (see above). Two important points need clarification. First, the three modes referred to here are not to be taken as levels in a hierarchic structure leading to more "true" reflection, or necessarily "better" learning. Rather, they must be seen as empirically developed constructs, demonstrating how an object's expansion is carried out in dialogue, contingent on the purpose directing the action. How an object of reflection is expanded is neither intrinsic to the object nor the experience. Secondly, any one reflective event may (and often does) comprise elements of all of three modes. What it becomes is contingent on contextual influences as well as the agency of the participants and the work of dialogue itself.

Above I have defined reflection as the volitional extrication and subsequent expansion of an object. However, the objects constructed, though in some sense triggered by experience, are also resilient and evolving (Leont'ev, 1978). It is through their discursive construction of the object that student teachers and mentors establish the purpose of their actions. There are no immanent characteristics in objects that pre-determine the mode of reflection: an object may be developed as a practical concern, drawing on the convention of the practice about how things are done; as a theoretical issue, invoking scientific knowledge of pedagogy or didactics to expand the participants understanding; or it might occasion an "off-line" reflection, disconnected from the constraints of the current context.

Consistent with other findings from studies of internship (Edwards 1995, Edwards & Ogden, 1998, Søndenå and Sundli, 2004,) instances of reflection as practical induction are abundant in the material collected in this study. Rather than seeing this as an imperfect or inadequate form of reflection or not reflection at all, I would argue that it is crucial to the "becoming" of

teachers. Student teachers are presented with the ways teachers think and act on an everyday basis, informed by experience and common sense (cf. Van Manen, 1991). Through the expansion of the object of reflection, experienced teachers share the resources and enterprises that mediate their teaching practice, thus facilitating the student teachers' access and enabling participation.

Teachers' knowledge is often described as tacit or craft knowledge that eludes verbalization (Brown & McIntyre, 1993), hence the abundance of research on teacher-thinking and teacher beliefs aiming to describe and theorize "the invisible". In contrast, the argument posed here is that unveiling and verbalizing tacit practical and theoretical assumptions are inferential to the purpose emerging in the situation. If the purpose is teaching, the expert's (mentor's) verbalizing of craft knowledge or professional wisdom may serve the purpose of expanding (or condensing) the object, by advancing a sense of what is seen as appropriate. On the other hand, when the purpose is to advance student teachers' understanding, variant cultural resources may mediate reflection. In the first excerpt, when Siri asks how to organize groups, the object is discursively constructed as a practical issue: how can it be done in this particular situation. However, her utterance might just as well be taken to be a theoretical question, prompted by her experienced dilemma in planning the lesson. Her utterance is a potential turning point (Kärkkäinen, 1999) in the discussion, a point where the expansion of the object (and purpose of reflection) could shift. Such potential turning points are ample in the material; however, very often during internship reflection is directed at the "how's" of teaching (cf. also Edwards & Protheroe, 2004).

The purpose of teacher education is the production of teachers, individuals who are legitimate participants of the teaching profession. In addition to learning what teachers do and how they do it, student teachers need to learn the distinct ways of talking and thinking within the profession, the concepts and classifications that are historically developed. Vygotsky (1986) sees two lines in the development of concepts: scientific concepts develop through systematic formal schooling, while everyday concepts develop on the basis of everyday experience in the world. The crucial point is the interaction between the two lines:

> "In working its slow way upward, an everyday concept clears the path for a scientific concept in its downward development. It creates a series of structures necessary for the evolutions of a concept's more primitive, elementary aspects, which gives it body and vitality. Scientific concepts, in turn, supply structures for

> the upward development of the child's spontaneous concepts toward consciousness and deliberate use." (Ibid, p. 194)

I take this to mean that the development of students' understanding of teaching requires knowledge and experience of concepts (as taught) *and* knowledge and experience of the practice from which it is derived and applied (Smagorinsky et al., 2003). The discussions between mentors and student teachers during internship are arenas that might afford opportunities for reflection as mindful interaction between scholarly and spontaneous concepts. As indicated above, this study demonstrates only a few such instances, though the opportunities are manifold. When theoretical issues are raised, it is typically done by the student teachers, perhaps manifesting the fact that the student teachers oscillate between course activities at the university and teaching activities during internship. Also, the students carry along case assignments from the university, encouraging the use of theory to understand their experiences. Edwards (1995, p.608) discusses school/university partnerships in teacher education, arguing that they "require both [partners]to be able to cope with student learning needs as students move back and forth in their individual progress through a cycle of learning." It seems that reflection as concept development may require a distinct intention on the part of the participants. The turbulence of life in schools, combined with the tacit and implicit nature of teacher knowledge, might not be conducive to reflection as concept development.

The guidelines for Norwegian teacher education state that teachers need competence for change and development of educational practice (UFD, 2003, p.5). This means that teacher education should develop competence for critical reflection in the sense of incorporating moral and ethical issues (Zeichner, 1994), but also for the ability to use imagination and creativity to develop new forms of practice. For student teachers whose formidable task at hand is to learn to participate in the current practice of schooling, this is an extremely challenging enterprise. However, an important asset of reflection is the possibility for exploration of ideas and undertakings in an off-line manner; that is, to engage in a totally risk-free construction of alternatives: what could be done rather than what should be done. In such reflection, constraints, rules and regulations may be temporarily discarded, as Siri (23) does in her pursuit of the idea of music and songs "to be the centre" of foreign language learning. While such reflections can easily be disregarded as shots in the dark, they do serve the

purpose of feeding back on the intentional planning of real activities (cf. Wartofsky, 1979). The ability to represent "what is" by way of disparate cultural resources may be the core of educational change.

Conclusion

In this paper I have argued that reflection is a discursive process in which an object is elicited from the flow of events and expanded in communicative action. Analyses of discussions between student teachers and mentors during internship suggest three modes of reflection: reflection as induction, as conceptual development and as "off-line" actions. Induction is by far the most common, and rather than understanding this as an inferior mode, it is argued that it serves the important purpose of enabling the students to participate by focusing on the contingencies and restrictions of this particular practice in its cultural manifestation at a specific moment in history (cf. Edwards & Protheroe, 2003). Paraphrasing Vygotsky, one could say that the student teachers are prepared for and expected to enter a "ready-made world". Reflection is conducive to students' learning of what to do in this world; however, it also holds the potential for expanding students' understanding of what is being done, as well as understanding this understanding. To mediate such understanding, student teachers need to make use of and be open to the inherent (but often invisible) dialogicity of the reified cultural past (cf. Cole, 1995). Finally, in student teachers' occasional off-line, imaginative reflection, divergent cultural resources are at play, envisioning new forms of practices.

The results of this study indicate that there is a huge potential for expanding reflection in teacher education. However, conditions may be limited. The tacit nature of teachers' knowledge and the focus on student teachers as performers rather than learners are constraining influences. Also, there seems to be an implicit division of labour between schools and universities as sites for teacher training and teacher education (Stephens et al. 2004). In order for reflection to meets its full potential in teacher education, an important issue to be worked out in partnership enterprises concerns the learning of the teacher educators in schools and university, to make mentors more aware of the theoretical underpinnings of their work, and to make university teachers more aware of the embodiment of theoretical concepts in the practices of teaching.

Acknowledgements

I would like to thank the Department of Teacher Education and School Development at the University of Oslo for financial support of this project. This research is also supported by the strategic research effort "Competence and Media Convergence (CMC)" at the University of Oslo. For additional information about CMC, see http://cmc.uio.no/.

In addition, I want to thank my colleagues at the Department of Teacher Education and School Development and Professor Sten Ludvigsen at InterMedia, University of Oslo, for their advice, support and constructive criticism.

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