# Professionalism among novice teachers

*How they think, act, cope and perceive knowledge*

Ph.D. thesis

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In the public debate on school and education in our country, the issue of how to organise general teacher education is one of the most important. This makes sense, as teacher education is one of the central elements in the nation's schooling. Both men and women are trained to teach at the elementary school that every child attends … no matter what paths they later choose. The effort to create the best possible teachers in elementary school is therefore one of the most important elements in upbringing the citizens and providing opportunities for education to the entire population. It is often said, but nonetheless true, that teacher quality and competence are more decisive for how well elementary schools work than curricula, textbooks, teaching styles and the organisation of schools. (Lange 1947, p.1 own translation).

The beginning … teacher starts out … with a fine set of liberal values and a fine set of phrases to accompany them. These ideals … are precarious cargo for the tender-minded teacher; to keep them one must have a considerable power to ignore reality (Hansot 1989, p. 127).

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## Figures and tables

## 1.0.   Introduction – novice teachers in schools

Teachers play an important role in society. Together with parents and peers, they are one of the main agents of socialisation and upbringing. They are the ones who teach, judge and evaluate the future citizens of society, and their competence and abilities and skills affect the outcome of schooling (Hattie 2009). In this project, to learn more about how the teaching profession and teachers organise and develop their work, the spotlight is focused on novice teachers. Novices are more clearly exposed to the specific characteristics of the organisation and profession they are joining, as they are new and not necessarily socialized or aligned with the habits of the profession and organisation, but must nonetheless uphold professional standards.

Research has indicated that novice teachers tend to adopt inflexible, rules-based ways of teaching, so as to cope with uncertainty in their work (e.g. Huberman 1989). Aspects of the quality of teaching, including teachers' behaviour and belief in their own abilities, also significantly influence student performance (Hattie 2009, pp. 115-119). In theories of professional learning and development, different theoretical positions and metaphors have been used to frame the problems that novice teachers (and other novices) face. Some have referred to this issue as an encounter involving the difference between theory and practice (Dewey 1904), and the transition that teachers undergo from education to work is often characterised as troublesome and as a shock (e.g. Stokking, Leenders, de Jong, & van Tartwijk 2003). Others have referred to the problems of transferring knowledge (Corcoran 1981), or recontextualising knowledge learned during teacher education to the classroom (Howard 2002). Because the differences between *knowing how* and *knowing that* (Ryle 1949) are so profound, it is only through professional practice to develop and internalise the competencies needed for adequate professional performance (Berliner 1994). Research has also suggested that teaching as a profession lacks a knowledge base that can support novice teachers in their work and that provide them with the necessary tools for teaching (Hargreaves 2007).

Much research has been undertaken on teachers and teaching, and research-based knowledge has accumulated steadily. However, it has been pointed out that there is a need to address challenges in terms of the validity or generalizability of such knowledge, and to approach teaching as a research subject with theories and methodologies not inherent to teacher education (Brouwer & Korthagen 2005). The main empirical research question in this project is as follows:

*How do novice teachers think, act, cope and perceive knowledge?*

The research question is broad, and is intended to explore novice teachers' experiences in schools. As novice teachers are new to work as teachers, their experiences provide the opportunity to describe

how schools accommodate the transition from education to work (a well-known challenge in education) and how this is related to systems for professional development and support. Novice teachers are compared to novices in medicine and nursing, and to other groups within the teaching profession. While the project has a specific focus on teachers' experiences and professional development, a theoretical framework for comparison with other professions is found by combining theories of learning with sociological theories on professions. The theoretical concepts of knowledge and autonomy, and also professional service-orientation, widely discussed in the sociology of the professions, are combined with teacher-specific issues, such as teacher competence and coping. How novice teachers think, act, cope and perceive knowledge is seen as an expression of professionalism, and how professionalism is accommodated in teaching. The main question is addressed through four more specific research questions, in four different papers:

1.      How do novice teachers report on their self-assessed levels of autonomy, service orientation and professional knowledge, and what can this tell us about characteristics of the teaching profession?
2.      What characterises novice teachers' professional development strategies?
3.      How do novice teachers assess their own coping, and how is coping related to collaboration and support?
4.      What do novice teachers perceive as important knowledge and how do they value the normative aspects of teachers' work?

This approach has been taken in order to develop the research on the qualification of teachers further, especially in the following crucial areas. First, a comparative approach is necessary to pinpoint what is specific for novice teachers, what is characteristic of teachers in general, and how teachers and teaching as a profession differ from other professions, i.e. nursing and medicine. Teacher research has been characterised as suffering from "theoretical myopia" or "tunnel vision," where scholars ask questions that are often determined by implicit theoretical positions (Shulman 1992, p. 18) and seldom use perspectives from outside their own theoretical position. Brouwer and Korthagen (2005) have suggested that the strength of the insider perspective in teacher research (with many researchers in the field being teacher educators themselves) has hindered the development of a critical view of teacher education programmes. One of the original contributions of this thesis is the comparison of novice teachers with other groups (novice nurses and novice physicians), using a theoretical framework from the "outside" of teaching.

Second, novice teachers are compared with other groups within the teaching profession. One group being student teachers (i.e. novice teachers' own responses towards the end of the teacher education programme), another being more experienced teachers. Although most teachers prepare for a role in the profession by completing a teacher education programme, and although teacher education is considered an important determinant in how teachers make the transition from education to work, analyses of these different contexts together, and the actors moving through these contexts, are rare. This makes it difficult to establish whether there are any differences between novice teachers and experienced teachers, and what role teacher education plays in novice teachers' experiences with their work. Research focusing on novice teachers' experiences has rarely included contextual analyses of both education and work for the same individuals (e.g. Andersson 2005; Andersson & Andersson 2004; Jordell 1982, 1986; Lortie 1975).

Third, Brouwer & Korthagen (2005) have called for (and contributed with) research on how teacher competence develops over time, how teacher education programmes and occupational socialisation in schools influence the development of teaching competence and which programme characteristics are related to competence development (p. 154). To some extent, the research in this project is longitudinal, and so offers an empirical connection between the period of teacher education and subsequent work in schools. The comparison of novice and experienced teachers also sheds light on the different stages of teachers' development.

Fourth, quantitative studies of novice teachers and student teachers are rare, although more have been published in recent years (Chan & Elliott 2004). Research on teachers is often focused on qualitative approaches in small groups (Andersson 2005; Nordvik, Bergsvik, & Grimsæth 2005) sometimes involving only a few teachers (Lindhart 2007) or individuals (Kuzmic 1994). This type of approach is unproblematic and may be necessary in many instances; however, it is important to seek out other approaches to be able to generalise from the results or compare them with other research findings.

In Figure 1, the various groups and themes addressed in the different papers are presented.

*Figure 1. A model of the different themes and comparisons in the study, and topics, in the four papers*



| Paper 1: | Paper 2: | Paper 3: | Paper 4: |
|---|---|---|---|
| Knowledge, autonomy, service orientation | Knowledge, workplace characteristics: support and autonomy, outcome of education | Coping, support, collaboration, professional knowledge | Professional knowledge, normative dillemmas/service orientation |
| Novice teachers vs. novice nurses, and novice vs. students | Novice nurses vs. novice physicians, and novices vs. students | Novice teachers vs. experienced teachers. | Novice teachers vs. experienced teachers and teacher educators. |

As indicated in figure 1, the main group in focus is novice teachers, who are compared with novice nurses and novice physicians, as well as with more experienced teachers and teacher educators. The rationale for the chosen approach, and the importance of developing teachers' professionalism, skills and competence, is further explained in the following sections, and elaborated on in chapter 2 and 3.

## 1.1. The importance of novice teachers' coping and competence

Teaching and teacher education have been on the international agenda for many years. Hence, teacher education programmes have been reformed in many countries. In light of the worse-than-expected and worse-than-average results from Norwegian students on international comparative surveys of student competencies (Kjærnsli 2004, 2007; Lie, Kjærnsli, Roe, & Turmo 2001), the spotlight on teachers' performance and competencies has intensified (e.g., see OECD 2005). As a consequence, campaigns have been launched in Norway to increase the quality and numbers of students applying for general teacher education, with some indications of positive results.[1]

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[1] www.hardudetideg.no is the Web site for the campaign, and www.samordnaopptak.no provides the number of applicants, which has increased during the time period from 2008 to 2010. However, the increase in the number of formally qualified applicants is not as large as the increase in the number of applicants because the entrance requirements were increased (http://www.regjeringen.no/en/dep/kd/tema/grunnopplaring/nyheter-grunnopplaringen/flere-kvalifiserte-sokere-til-larerutdan.html?id=574409) and the additional applicants were less qualified (all links accessed 13.01.2012).

An increased interest in teachers and teacher education when there is thought to be trouble in the school system is not new and is not specific to the Norwegian context. More than 25 years ago, in 1986, Lanier and Little stated that "contemporary dissatisfaction with the intellectual performance of America's students and teachers has filled the popular press as studies reporting low test scores and other school problems have renewed interest in the qualification, competencies, expectations, and attitudes of those who teach" (p. 536).

The interest in teachers' competencies and their ability to cope appears to be as high as ever before. This interest is intensified by recent research stating that variations in teacher quality (within schools) is much more important for student outcome than variations between schools (Hattie 2009, p. 108) and also by claims that teachers are the single most important factor in students' learning[2] as well as the repeated emphasis on teachers in reforms and government white papers and reports (e.g. *Stortingsmelding nr 30 (2003-2004)*; *Stortingsmelding nr. 11(2008-2009)*.

## 1.2. Qualification of teachers in teacher education and schools

The qualification of teachers is not something that only happens via the official teacher education programmes. Teachers have been taught in different settings throughout the history of organised teacher training, and "one of the most vigorously debated issues throughout the history of formal teacher education has been concerned with the role of various settings on the formation of teachers" (Zeichner 2008, p. 263). However, Brouwer and Korthagen (2005) claim that most research on teachers happen within teacher education and is done by teacher educators. Similarly, Cochran-Smith and Fries (2008) have argued that most approaches to research on the qualification of teachers deal with different formulations of the "problem" with teacher education. Furthermore, research tends to focus on what can be called the "Official Teacher Education Program" (Kennedy 2008) which refers to the institution-based organisation of formal training and certification of teachers, as opposed to the broader experience and practice of becoming a novice teacher.

In Norway, the process of qualification that takes place after graduation from a teacher education programme is often quite arbitrary. Teachers' learning and development after graduation is often unsystematic and, to a great extent, seen as an individual responsibility. Individual participation in

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[2] The common (and false) interpretation of this finding is that teachers are responsible for more than 50% of the student learning outcomes; however, it only means that the influence of teachers (on average) is greater than any other influence on student learning; the isolated effect of teachers may be very low, while teachers are still the most important factor, depending on the number and strength of other influences on student learning outcomes.

short, external courses has generally been high among teachers, but their participation in workplace learning activities has been low (Hagen & Nyen 2009; Vibe, Aamodt & Carlsten 2009). A great deal of attention has been given to these issues during the past few decades, and a similar pattern has been detected internationally (Hargreaves, A. 2000; OECD 2005, pp. 95-140).

The term *continuing professional development* (CPD) is "used to describe all the activities in which teachers engage during the course of a career which are designed to enhance their work" (Day & Sachs 2004a, p. 3). However, many other terms such as "teacher development, in-service education and training (INSET), staff development, career development, human resource development, professional development, continuing education and lifelong learning" (Bolam & McMahon 2004, p. 33) are used with overlapping meanings by different writers. Most of these terms refer to the organised forms of training of teachers after graduation, but teachers also learn and develop through informal settings and processes, including teaching itself and by interacting with colleagues and superiors in different settings.

Individuals become qualified to teach whilst participating in teacher education programmes and after graduating from these programmes; some researchers have also contended that individuals are socialised into teaching before teacher education simply based on their own schooling (e.g. Jordell 2006). However, research linking the different periods of teacher qualification, teacher education and work in schools is rare. One reason for this lack of research considering the connection between teacher education and work in schools might be that this connection is considered obvious and straightforward: individuals undergo teacher education and are then qualified to start working as teachers. An alternative, methodological reason for this research gap is that research that intends to look for an empirical connection between education and work should ideally be longitudinal and prospective. Typically, this type of research is costly and time-consuming, and demands complex methodological designs, i.e. longitudinal data collection (Brouwer & Korthagen 2005). Pragmatic reasons, such as economic conditions and funding, often prevent researchers from pursuing such approaches. Finally, education and work have traditionally been organised as two different fields of research (Bills 2004); any researchers who are occupied with the operations of both education and work must inevitably direct their attention to specific aspects of these two arenas, because of the vastness of the combined research field.

## 1.3. The need for comparative research

Novice teachers are often described as experiencing more problems than novices in other professions. In his book *Don't Smile Until Christmas: Accounts of the First Year of Teaching* (an often-

cited reference, and also a catch-phrase in teacher research), Ryan (1970) described the transition from teacher education to work as a change from being a senior student with relatively high status to being a beginner with relatively low status; from experiencing simple and easy interactions and relations to experiencing those that are more formal; from operating in a familiar environment to operating in one that is unknown and unfamiliar; from learning about abstract principles to dealing with concrete situations; from being a passive receiver to being an active teacher; from functioning in a liberal environment to functioning in a conservative one; from having great personal freedom to being a guardian; from being surrounded by friends to being relatively isolated; from being a client and critic of the institution to being an employee and a representative. However, many of these changes seem to describe general developments from student to worker, not those specific to teaching.

Ryan's list of changes in positions and relations seems to have some face validity, but it has not been confirmed or examined through research. Ryan's approach is symptomatic of an approach common to many research studies on novice teachers, as far as it focuses on novice teachers only and assumes, a priori, that this is a special period of transition. Kremer-Hayon and Ben-Peretz (1986, p. 141) stated that "the transition to working life can be said to be a difficult one in all professions. It would appear, however, that the feeling of 'shock' … is much more acute in teaching than it is in other professions". The work of a novice teacher is also considered more challenging and complex than other groups as it requires a composition of diverse skills including "business management, human relations, and theatre arts" (Danielsson 2007, p. 5). However, research that can support such statements regarding the exceptional experience of teachers is rare, because teachers are seldom compared with other professional groups or with other groups of teachers, in empirical studies. This lack of comparative perspectives can perhaps be explained by the fact that research *on* professions has often been performed *in* professions, thus leading to a focus on single groups.

Some exceptions to the single-group approach do, of course, exist. Grossman et al. (2009) compared students in teaching to those in clergy and clinical psychology training, and found they have fewer opportunities to engage in practical learning situations that resemble real professional practice than novices in the other two professions. Smeby (2007) showed that student teachers expect a lower educational outcome during their education programme than nursing students and students in administration. Student teachers are less anxious about not being able to master their work tasks and believe that they will need regular supervision and observation to a lesser extent. They are also less likely to report that they believe their work tasks will be interesting than nursing students.

Despite these scattered studies, the need for comparative research seems evident, and a framework for comparison is therefore needed to support this approach. Such a framework is found in the sociology of professions, and used in this project. Toulmin (1961) distinguished between an outsider perspective and an insider perspective for all activities. Molander and Terum (2008, pp. 23-24) used Toulmin's perspectives to establish the outsider perspective on professional practice as something entirely different from what insiders of the professions can offer. According to Toulmin, any activity will be differently perceived, depending on one's position as a participant or a spectator:

> Only the practitioner can understand the training and practice, discipline and method, strategy and imagination called for in the supreme execution of his activity. Yet, at the same time, he may also be so close to the activity that its most general features and widest connections begin to escape him. (1961, p. 13)

The spectator/outsider can contribute by seizing the opportunity "to stand back and appraise the whole sport or profession or intellectual discipline" (p. 13). This kind of outsider perspective can be found in the sociology of professions, which is preoccupied with examining the general traits and conditions of professions and professional practice. In this project, perspectives from this tradition are used to complement the insider perspective, which is found in teacher research, on novice teachers' experiences in the transition from education to work. The perspectives will be explained more thoroughly in chapter 3.

## 1.4. The theoretical approach – professionalism and learning

The theoretical perspective in this thesis is found in a combination of sociological theories on professions and professionalism and theories of learning. Sociological theories of professions vary in form and scope, but most have the key concepts of knowledge or expertise and autonomy in common: professions are knowledge-based occupations that are granted autonomy to perform their work (individually and collectively). Furthermore, they are trusted to use their competence for the common good (Freidson 2001).

Such sociological approaches to professions are useful for, and used for, providing a comparative framework where the characteristics of different professions can be examined. Newer contributions to the field have also moved beyond merely describing professions and their development, to focusing on how the idea of professionalism acts both as a guiding principle for actions (in normative-value systems), and as an ideological tool for the profession, and for controlling the profession (e.g. Freidson 2001; Evetts 2003). This focus on *professionalism* instead of *professions* points out a new direction for closer studies of novice teachers, as it provides a comparative framework as well as

emphasising the need for empirical studies in different levels of the teaching profession. In this thesis, the empirical research on how novice teachers think, act, cope and perceive knowledge is seen as providing expressions of professionalism, and how professionalism is accommodated in teaching.

However, as is elaborated in section 3.1, qualification is less often discussed in terms of the development and acquisition of knowledge, skills and values, and the relationship between education and work in terms of preparation for specific tasks, within sociological theories of professions, in older contributions or more recent ones. The knowledge and skills necessary for doing an adequate job as a professional are seen as being acquired through professional education, and how this process develops is, in general, not a topic in this literature.

In theories of professional learning, which most research on teachers draws a theoretical framework from, the development of knowledge for professional practice is more frequently questioned, and addressed in numerous ways (see e.g. Day & Sachs 2004b). It is discussed in terms of how participation in learning activities in the work place is related to increased competence and coping (see e.g. Ross 1995; Schachar & Shmuelevitz 1997), and how engaging in formal and informal interaction and collaboration with colleagues can be seen as developing professional competence (see e.g. Kwakman 2003; Little 1990; McCormack, Gore & Thomas 2006). Feiman-Nemser (2008, p. 698) distinguishes between research on how teachers learn to *think* like a teacher, learn to *know* like a teacher, learn to *feel* like a teacher and learn to *act* like a teacher. The divide in the theoretical debate on learning was summarised by Sfard (1998) via two different metaphors: either learning is seen as *acquisition* (the cognitive approach to learning) or learning is seen as *participation* (the situated approach to learning).

Situated theories of learning have developed in response to understandings of the relationship between education and work which suggested this is a straight forward link, and which saw learning as the individual acquisition and accumulation of knowledge. Such an approach to professional learning is found within the cognitive tradition of research on learning (Sfard 1998). Learning is here seen as an individual endeavour, not a collective task.

A basic assumption in the situated tradition is that learning is what happens when participating in social practices (Wenger 1998). In this approach, learning is not seen as a separate, individual activity, or an activity that can be distinguished from others. When discussing novice teachers within this framework, a key concept is *legitimate peripheral participation* (Lave & Wenger 1991), which describes a certain kind of participation in social practices, which includes learning as well. Wenger

(1998) stated that "peripherality provides an approximation of full participation that gives exposure to actual practice" (Wenger 1998, p. 100).

Anderson, Reder and Simon (1996) argued that situated learning, in its essence, makes the connection between education and work meaningless, as it implies that the important learning for professional practice must happen in the work-place. More recent developments seek to overcome the discrepancies between a strictly cognitive and a strictly situated understanding of learning (see section 3.3.). By emphasising individual affordances and constraints, as well as contextual factors, learning is seen as a result of, and part of, individual biography and development. Combined with the emphasis on learning as a product of social practices; this development makes this tradition an important supplement to the understanding of learning as professional knowledge acquired during education, and that is put to use later.

By supplementing sociological theories of professions with insights from learning theory and research on teachers and teaching, the aim is to provide a broad picture, where characteristics of teaching as a profession can also shed light on common dilemmas and challenges in all professions, and so clarify what the distinctive features of teaching really are.

To draw on several different theoretical perspectives in research on teachers and teaching is by no means a new endeavour. Research on teacher education and teaching has emanated from a range of different disciplines (Lanier & Little 1986, p. 527). However, although numerous studies have been performed *within* these disciplines, contributions from different traditions have seldom been discussed together and used empirically in single studies. Terum, Raaen and Havnes (2004, p. 104) maintained that sociological perspectives on education have been too occupied with questions concerning recruitment, cost-effectiveness and students' own educational outcomes. By comparison, psychological and pedagogical perspectives have focused on learning itself and have examined how teaching is organised, the teachers' role in learning processes, the implementation of curriculum and what characterises good teaching. Terum et al. called for a widening of the perspectives across disciplinary boundaries and for research that examines what role different arenas for qualification can have in preparing individuals for professional work.

The main theoretical aims of this thesis are to combine insights from the mainly sociological contributions on professions, with contributions focused on learning and, in so doing, bring questions concerning qualification for professional practice to the forefront. A second aim is to clarify implicit assumptions about how novices are defined within their profession; the connection between education and work in sociological theories of the professions; and the relevance of different

theories of learning in the professions. All in all, by viewing teacher education from the outside, through the lens of approaches to professions in general and theories of learning, this project aims to develop new perspectives and knowledge on novice teachers and on the qualification and preparation of teachers, as well as enriching both the theoretical traditions it draws on.

## 1.5.   Summary

Teachers' qualification and the development of professional knowledge happen not only within official teacher training programmes, but also in formal and informal settings that teachers participate in after graduation. In research on professions, the role of education, and the relationship between education and work, is rarely discussed. In learning theories, and in research on teaching, most attention is given to micro-contexts. It is important to see teacher qualification as involving both the official teacher training programme and informal and formal settings after graduation, as well as to try to link the two together empirically. In order to pinpoint what is distinctive about novice teachers, it is necessary to compare novice teachers to groups that are similar (within the teaching profession but at different stages) and groups that share some characteristics, but are unequivocally different (in this case novice nurses and novice physicians).

## 1.6.   The structure of the thesis

The structure of the forthcoming chapters is as follows. In chapter 2, previous research on novice teachers is presented. An introduction to the classic contributions is given, followed by more recent approaches focusing on what novice teachers think and do, and how they perceive knowledge and cope. In chapter 3, the theoretical background is provided, with a more in-depth discussion of the key concepts used in sociological approaches to professions and theories of learning and professional development. In the final section of chapter 3, the ways in which the two theoretical approaches can and cannot supplement each other are described. In chapter 4, the development and background of teacher education in Norway is presented, and compared with teacher education programmes in other Nordic countries. The empirical approaches to answering the research questions are presented in chapter 5, together with discussions of the design, reliability and validity of the study. In chapter 6, a summary of the four papers is provided, followed by a discussion of the results and conclusions.

## 2.0.   Previous research on novice teachers

Research on teachers has undergone many phases and adopted many different approaches. In this chapter a brief overview of the early phases of research on teachers will be presented as a backdrop, before presenting three studies of particular importance for this project. Following this, a more detailed account of recent approaches, focusing on what teachers do and think, and how they cope and perceive knowledge, will be presented. Most attention will be given to research on novice teachers specifically, but research with relevance to the entire teaching profession will be presented where appropriate. The focus of this section will be on empirical findings of previous research, while the theoretical background for these findings is discussed more thoroughly in chapter 3.

From the early phases of teacher research until today, there has been a development from the in-depth, context studies to more problem-specific and methodologically elaborate. Cochran-Smith and Fries (2008) have divided the research on teacher education into four phases, each focusing on distinct definitions of *the problem* with teacher education. In the first phase (1920s–1950s), the problem with teacher education was considered as a *curriculum problem*, with a subsequent focus on the content of teacher education. The underlying assumption was that improvements in the curricula would improve the quality of teachers: the inputs had room for improvement. In the second phase (1960s–1980s), the problem with teacher education was conceived as a *training problem*. According to this line of reasoning, the instruction of teachers was regarded as the main challenge; hence, if the methods of instruction were improved, those training would become better teachers. In the third phase (1980s–2000s), the problem with teacher education was framed as a *learning problem*, thus implying a rejection of the technical view of teacher training. As a consequence, greater emphasis was placed on how learning to teach was affected by student teachers' beliefs and attitudes and their development towards becoming a teacher. In the fourth phase (1990s–present), the problem with teacher education was classified as a *policy problem*, a preoccupation that highlights the efforts made to govern the broader aspects of teacher education through reforms and by controlling entry. A common feature of all these approaches was a focus on teacher education as the most important site for teacher qualification.

Research on *teaching* has also undergone different phases; however, this research has generally been divided into different schools. Many different disciplines have approached the same aspects of teachers and their work in contrasting ways. One example is research conducted on teachers' skills. Kleven (1994, p. 19) divided the research in this subfield into five broad categories from the 1960s onwards, with each period occupied with different characteristics: teachers' personal abilities,

teachers' behaviours, teachers' decision-making abilities, teachers as experts and teachers' thoughts and mind sets[3].

These examples offer only a small sample of the vast amount of research on teachers and teaching. However, according to Cochran-Smith and Fries (2008) and Hopmann (2006), relevant studies that provide a more systematic understanding of the process of teacher qualification are scarce, and the quality of them has been weak. Cochran-Smith, Feiman-Nemser, McIntyre, & Demers (2008) have also argued that "too many published studies have been poorly conceived, inconsequential, unimaginative, insignificant, and simply mirror their authors' biases rather than contributing to sound research" (p. xxxii). Thus, in setting out the background for this project, it is more important to present the most relevant contributions, focusing on novice teachers' role in school, rather than an overview of the entire field of teacher research. In the next section, three particularly relevant contributions from early research on novice teachers are presented, followed by a discussion of more recent approaches.

## 2.1.    Early research on novice teachers

The findings of three authors—Lortie (1975), Waller (1932) and Becker (1952) — illustrate the type of early research conducted on the role of novice teachers in schools and the transition from education to work. These are all sociological studies of the teaching profession, and emphasise, in different ways, the characteristics of teaching as a profession, and how this affects novice teachers. Despite the fact that they are from different periods, all three studies are often connected to the Chicago School of Sociology. The Chicago School analysed the professions as actors (Fauske 2008), and the professions' own efforts to establish themselves as professions was a central research subject. Professions were understood as an important part of modern industrial society, as the professions *profess* to have certain knowledge and skills that demand trust from the client and the public (Hughes 1984). In addition, professions claim to have a competence that not only enables them to solve problems in their professional practice but also gives them the right to serve as experts on adjacent themes. Teachers are experts in many areas, including classroom work, upbringing, and the role of education, for example. Where society acknowledged such varied expertise of teachers, teaching was a profession in the full sense. This position, however, had to be renegotiated continually. Professional status is understood as a dynamic social order that is created and recreated

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[3] The development in this field was also presented in an overview article, titled "Paradigms and Research Programs for the Study of Teaching" (Shulman 1986), found in *Handbook of Research on Teaching*, and this is further built upon in the fourth edition of the handbook (Richardson 2001).

through interaction. Abbott (1997) described it's view as follows: "In a single sentence, the Chicago school thought—and thinks—that one cannot understand social life without understanding the arrangements of particular social actors in particular social times and places" (p. 1152).

Lortie's (1975) book, *Schoolteacher: A Sociological Study* is one of the most influential accounts of teachers' work and of novice teachers' encounters with the school as a social system.[4] Lortie was occupied with factors that affect teachers' work within schools. He did not have a specific class or reproduction focus, in contrast to many of his contemporaries in educational research (see, e.g., Karabel & Halsey 1976; 1977 for an overview). Schools have been described as places where middle-class values are reproduced and reinforced. Lortie revealed his stand on the issue of class when he stated the following: "It is questionable whether all the values … are exclusively middle class—honesty, decent treatment of one's fellows, industry, and so forth are not the sole property of one class" (Lortie 1975, p. 113). Lortie's work instead emphasised the cultural organisation of the school and the inner life and workings of the school as an organisation.

Lortie's book was based on empirical material gathered in five towns surrounding Boston (it is often referred to as the "Five Towns study"), where he interviewed 94 teachers about almost every aspect of their work imaginable. He later supplemented the sample with a survey from Dade County in California and survey data from the National Education Association. Lortie emphasised that teachers should receive, first and foremost, *psychic* rewards (rather than material/financial rewards) for their work. He saw teaching as defined by three sentiments: presentism (i.e., focusing on the short term), conservatism (i.e., concentrating on the small scale rather than the whole school) and individualism (i.e., teaching in isolation from other teachers). In addition, Lortie concluded that teaching is different from other occupations (Neufeld 2009, p. 37). Teaching has a technically simple language, with loose theoretical underpinnings and a weaker knowledge base, and because of the nature of their work, teachers receive limited feedback as to whether they have won or lost in their daily battles (Hargreaves, 2010, p. 145).

In Lortie's view, teachers' work in schools is organised as a private enterprise with little collegial interaction that can provide support.[5] "Endemic uncertainties" are inherent in teaching. These result

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[4] A search in Google Scholar for "Lortie, 1975" yielded about 6600 hits in 2011, and 7300 in 2012. This is a good indication of Lortie's lasting popularity.

[5] Little (1990) argued that this privacy of teaching is perpetuated, and later studies have reached similar conclusions (OECD, 2009b; Vibe, Aamodt, & Carlsten 2009).

from the "absence of concrete models for emulation, unclear lines of influence, multiple and controversial criteria, ambiguity about assessment timing, and instability in product" (Lortie 1975, p. 136). Lortie (1975) claimed that this culture, or way of organising work in schools, is problematic for teachers, especially for novice teachers. Instead of being given the opportunity to learn the complexities of teaching tasks gradually, novice teachers are responsible for a full class and must perform the same tasks as their experienced colleagues, right from the start of their professional life. As a result, novice teachers are often filled with anxiety, which in turn inhibits learning at work and prevents accurate perceptions and thoughtful decisions as they learn the job. This anxiety is increased by the individualism and conservatism of teaching, as according to Lortie, novice teachers are often left alone with their challenges in their work.

Waller's *The Sociology of Teaching* (1932) was in many ways a predecessor of Lortie's study (Hargreaves, 2010). Waller's study, a 500-page, in-depth analysis of the everyday practices in schools, has been described as the first extended treatment of schools as organisations in social contexts (Willower & Boyd, 1989a, p. v). Waller studied schools from the inside and relied on case studies to describe the social structure as based on relationships of "competition, cooperation and domination among student, teacher and administrator" (Bidwell, 1989, p. 40). Competition and domination mainly existed between hierarchical layers: teachers tried to dominate students, students tried to minimize intrusion from teachers, and headmasters and administrators tried to control them all. The social order of a school was thus constantly under threat, and it was the maintenance of order that was Waller's point of interest. Waller found inspiration in the educational theory of Dewey (1916) and in the progressive ideas presented in opposition to traditional education. According to Dewey, education should value students' own experiences and increase students' ability to learn and develop further. Waller asserted that Dewey's interpretation of education was almost impossible to achieve in the organisational context of the school, because the curriculum represented a web of mutually reinforcing elements. Waller has been aptly described as someone who loved education but hated schools (Cohen 1989).

Teaching as an occupation has been described in a variety of ways. Waller (1932, part five) depicted schools rather harshly, as being filled with different groups striving to uphold their own logic and territory. Hargreaves (2010) referred to Waller's *The Sociology of Teaching* as a "curmudgeonly discussion of what teaching as an occupation does to teachers" (2010, p. 144). Summing up Waller, Bidwell (1989) offered the following characterisation of teaching:

Teachers were shaped into an "occupational type" that was characterized by a preoccupation with dignity, security, and formality of thought. These teacher traits only reinforced the teachers' inability to teach except by imposing a deadening round of reading, recitations, and exercises. (p. 41)

In a similar vein, Hansot (1989) stated the following:

As the novice teacher searches for some secure footing in the treacherous waters of the classroom, one technique of social control after another loses its effectiveness and must be replaced. These rapidly shifting tools of classroom control are double-edged; they scar the teachers' personality while the victim is too preoccupied with schoolroom wars to even notice what is happening. (p. 126)

The description of the novice teacher who succeeds in coping is also rather grim:

The beginning … teacher starts out … with a fine set of liberal values and a fine set of phrases to accompany them. These ideals … are precarious cargo for the tender-minded teacher; to keep them one must have a considerable power to ignore reality. (Hansot 1989, p. 127)

Waller's account of life in schools is an illustrative example of the *contextual paradigm* of the first Chicago School of Sociology, a term coined by Abbott (1997). However, Waller seems to have been ahead of his time: he has seldom been seen as a central contributor and his work has rarely been cited in teacher research. In a study of the shifts in the sociology of education, Sakslind (2002) mentioned Waller in a note, connecting him to a narrower branch referred to as "pedagogical sociology"; however, he did not discuss Waller's contribution more thoroughly. Bidwell (1989) has argued that Waller's lack of attention to questions of racial and social equity in American schools in the 1920s (when he conducted his empirical work) saw him side-lined as Weber-inspired analyses of education and educational attainment came to dominate the sociology of education from the 1960s onwards. Neither did Waller's work connect with the Durkheim-inspired functionalism that gained support in the 1950s.[6] Thus, although Waller surpassed the analyses of his predecessors by insisting on seeing the cultural organisation of the school as an important subject, he became a "central, but neglected, figure" (Willower & Boyd 1989b, p. 3). It was not until more than 40 years later, when Lortie's study (Lortie 1975) was published, that Waller and his work were reintroduced in school and teacher research.

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[6] More on these sociological shifts is presented in chapter 3.

Howard Becker was a representative of the second Chicago School, also referred to through the terms symbolic interactionism, role theory or, in broader terms, micro-interactionism (Collins 1994, pp. 242-290). He contributed substantially to sociological research on professions and became famous for his study of how student culture in medical school is important for a successful transition from medical student to confident physician (Becker, Geer, Hughes, & Strauss, 1961). His work is often cited in modern research on professional identity and socialisation (see, e.g. Vågan 2009). Becker's Ph.D. thesis (1952) was on the role and career problems of Chicago school teachers, and although his dissertation was not published, a few articles have presented his main findings. He was mostly occupied with how teaching as a career followed the stratification system of Chicago society. Becker (1955) found that teachers' careers were not hierarchically oriented but rather consisted of transitions from less desirable areas (i.e., the slums, where lower-class children and "Negro children" attended school) to more desirable middle-class areas (Becker 1955, p. 166). These career movements were distributed according to seniority, teaching ability and "career potential," thus providing the less desirable schools with a lesser share of teaching talent. Becker (1955) found that within schools, teachers and administrators tried to "erect defensive barriers designed to keep outsiders on the outside and prevent the surrounding society directly affecting the institution's operation" (1955, p. 168). To reflect back on Lortie's views, the school was again portrayed as a social system that is conservative and individualistic, as teachers try to shield their work from parents, their principals and other teachers, by various means.

The connection between education and work was hardly touched upon by Waller and Becker. Becker did not provide any insight into these questions, and Waller was content to state that one should strive to recruit teachers who are more determined, forceful, independent and generally strong enough to stand up to the endemic struggles of the school. Waller also thought that increasing salaries and removing all tasks not directly relevant to teaching from teachers would help to recruit and retain high-quality teachers; in so doing, the status of the teaching profession could be expected to rise, and attrition rates fall (Waller 1932, p. 453). The main contribution of these early sociological analyses of teaching as a profession was their emphasis on how schools as organisations accommodated teachers' work, and how the teaching profession's characteristics could reach beyond the single organisation. In this way, teachers were seen not only as individuals trying to convey knowledge to students in a classroom, but as part of a larger structure with great similarities across organisations and work-places.

These analyses of teaching as a profession with certain specific characteristics were continued by Lortie (1975). He also discussed the experiences of novice teachers and how the teaching profession

made their work difficult. The profundity of Lortie's analyses of teacher training and induction has made his analyses the starting point for many "modern" analyses of teacher qualification and work. When Lortie (1975) studied the problematic induction phase of novice teachers, he described the apprenticeship of learning as the ideal means of an "eased entry" into teaching (Lortie 1975, p. 59)—one that is preferably organised around team work in classrooms (pp. 237–238). However, as previously mentioned, Lortie regarded the teaching profession as severely lacking in this area, and referred to teachers' first few months of work as a "private ordeal" (p. 74). Novice teachers were not given the opportunity to learn through gradually increased complexity and with guidance and follow-up, but rather were left to sink or swim. In addition, Lortie thought that teacher training programmes were increasingly influenced by ideas from behavioural science and was critical of the increasing tendency to conceptualise teaching in instrumental terms:

> Those trained in behavorial disciplines are inclined to conceptualize teaching in instrumental terms—to talk of "treatments" and "options" and to assess outcomes in terms of measurable and discrete objectives. One wonders how effectively such professors communicate with the many students who, it appears, see teaching as the "living out" of prior conceptions of good teaching. (Lortie 1975, p. 66)

As Lortie saw it, the ideals of teacher education were at odds with school demands and with student teachers' understanding of what teaching is[7].

Waller, Becker and Lortie are important predecessors to more modern approaches to research on teachers and teaching, and the three provided a foundation for what was to come. Their focus on local contexts, their descriptions of the organisation of schools, and the grim descriptions of novice teachers' working conditions, have all been continuing themes in research on teacher education, and they are continuously cited. The emphasis on the conditions for novice teachers' experiences in these early contributions also led the way for empirical analyses of how novice teachers are given the opportunity to develop as professionals, i.e. how they think, act and how the school accommodates them to support their coping. The issue of professional knowledge is less elaborated in these early contributions, but the organisation and structures of schools are generally seen as inhibitors of adequate professional performance, which again involves using professional knowledge in teaching.

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[7] This is empirically examined in paper 4.

In the next section, more recent approaches to novice teachers' experiences will be elaborated, starting with a discussion of how long teachers are considered as being novices, and how being a novice affects teachers' performance.

## 2.2. More recent approaches to novice teachers' experiences

Since Lortie's 1975 study, novice teachers' experiences have been described as problematic by a large number of studies. In teacher research, this has been referred to in terms of a *transition shock* (Corcoran 1981), *reality shock* (Gaede 1978; McCormack & Thomas 2003), *cultural shock* (Wideen, Mayer-Smith, & Moon 1998), *practice shock* (Jordell 1982, 1986, 1989; Stokking, et al. 2003) and *praxis shock* (Hoel, Hanssen, Jakhelln & Østrem 2008; Smagorinsky, Gibson, Bickmore, Moore & Cook 2004). Despite the different labels, they often described the same phenomenon. The term *transfer shock*, defined as a changeover period caused by the move from a familiar setting to one that is less familiar, has also been used (Cejda 1997).

### 2.2.1. The different phases of being a novice

The time frame defining the novice period has varied in previous research. The research studies presented thus far have been occupied with novice teachers' experiences in the first few months after graduation and up to the end of their first year. In a similar vein, the study by Jordell (1982), one of the larger and often-cited studies in Norway, compared teachers in their first semester of teaching with those at the end of their first year. He found that some problems related to discipline and planning (e.g., novice teachers not knowing what students have already learnt) were more frequently encountered amongst novice teachers; however, overall, the problems that novice teachers encountered were not very different from those of more experienced teachers.

Day, Sammons, Stobart, Kington and Gu (2007) proposed that the first 3 years of teaching marks a distinguishable period in the professional development of teachers—a period of commitment, support and challenge, in which teachers' efficacy beliefs are malleable. These first few years of teaching are characterised as a two-way struggle, where "teachers try to create their own social reality by attempting to make their work match their personal vision of how it should be, whilst at the same time being subjected to the powerful socializing forces of the school culture" (Day 1999, p. 59). Research has suggested that novice teachers are rigid and rely on rule-governed practices (e.g., Bergmann et al. 1976; Flores 2003; Huberman 1989). Such behavioural patterns exhibited by novice teachers can be explained in relation to uncertainty in their role as teachers (Merry 1995; Munthe 2001a, 2001b, 2003); although they are expected to be fully responsible for their job performance,

novice teachers cannot draw on their own experience in the way more established colleagues can. From a research perspective this three-year period – when practice shock is most likely to occur – can be divided into two phases.

The first phase is the immediate reaction that teachers have when encountering work for the first time. During this phase, which lasts from the first few weeks and months through the first year, everything can seem unfamiliar and strange (Cains & Brown 1998; Ginns & Watters 1996; Onofowora 2005).

The second phase covers a longer time frame, of one to three years after graduation. Berliner (1994) maintained that teachers' professional development might remain at the novice stage[8] for as long as 2 to 3 years after the commencement of a teaching career, although some might reach the "advanced beginner" level within this period. According to Berliner, it is not until the end of the third year (and start of the fourth year) of experience that many reach the level of performance that can be considered as competent practice. Research on this period often directs attention towards coping and control, the perceived opportunity to influence everyday work in school (Skaalvik & Skaalvik 2007, 2008, 2009; Yost 2006) and understanding how coping, influence and control are related to burnout and stress (Friedman 1993; Friedman 2000; Friedman & Farber 1992; Gold 1985). Thus, novice teachers faced with the initial challenges of school life can perhaps be expected to have poorer, or to cope less well than their experienced colleagues. Issues of coping and stress are further related to turnover and occupational dropout (Grant 2006; Yost 2006). Thus, studying coping and novice teachers' workplace experiences and their reactions to them are of vital importance to the teaching profession. Paper 3 addresses these issues directly.

## 2.2.2. How schools accommodate novice teachers

The school as a workplace and its organisational culture seem to be important issues shaping the qualification and coping ability of novice teachers. Cains and Brown (1998) examined different stressors amongst teachers in their first year of teaching and found that having "disobedient" pupils was an important stressor, as well as a heavy workload (especially marking and class preparation), mixed-ability teaching and contact with parents. The findings suggested that positive feedback and guidance from colleagues eased these stressors. Ginns and Watters (1996) studied two teachers,

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[8] Berliner's approach to teacher expertise was built on the model for professional development proposed by Dreyfus and Dreyfus (1986), which is presented in chapter 3, and also strongly built on the model put forth by Benner (Benner 1984).

who were interviewed halfway through their first year and at the end of their first year, and found that involvement in cooperative teaching and a supportive, small school environment positively affected their self-efficacy and ability to cope. Kuzmic (1994) observed one teacher during her first semester of teaching. He suggested that organisational literacy was something that new teachers lack and that it should be better integrated into the teacher education curriculum. An analysis of data from 25 novice teachers in their first week of a professional development programme revealed that novice teachers described themselves as lacking confidence and challenged by discipline issues that overshadowed their instruction (Onafowora 2004). Using a mixed-method approach (surveys of 27 new teachers and their 16 mentors, and interviews with a smaller sample of novice teachers, mentors and school leaders), Bickmore and Bickmore (2010) found that induction programmes for novice teachers should consist of many different elements (e.g., interaction between the new teacher and the principal, collaborative structures between colleagues, professional development approaches, mentor teachers and new teacher orientation) as all these elements helped meet the different needs of novice teachers.

Another line of research on novice teachers, and teachers in general, addresses the challenges associated with increasing bureaucracy and "red-tape" in schools, where teachers have to spend so much time reporting and documenting their practice that they cannot find time to perform their main task, teaching, properly (see e.g. Jordfald, Nyen & Seip 2009; Aili 2007). Murphy (1990) describes the teaching profession as bureaucratized. Dahle and Thorsen (2004) argue that the control and privatisation often associated with the New Public Management (NPM) ideology has become an important way of organizing the Norwegian welfare state, but perhaps to a lesser extent than in the rest of Europe. The educational sector in Norway has undergone several reforms in recent decades. Changes have been made in primary and secondary school as well as in higher education. The greatest changes have probably been the curricula reforms made in primary and secondary education in 1997 ("Reform 97"). The implementation of detailed curricula in all subjects has been described as a step based on a Norwegian neo-conservative New-Right ideology, and an adaptation to an economic view on education, with education positioned as a means for future economic growth (Hovdenakk, 2004). Day (2002) argues that government interventions in the form of national curricula, national tests and criteria for measuring the quality of schools can be found in most countries around the world (p. 678). It has been argued that, in Norway, the 1990s was the decade of educational reforms (Karlsen 2002) and that while the pedagogic focus of the 1970s put the

development of the student in centre, the educational politics of the 1990s were oriented towards economic and political concerns (Hovdenakk 2004)[9].

The concept of professionalism plays an important part in this development, and also affects novice teachers and teachers in general. In chapter three, the concept of professionalism will be discussed more closely, arguing that the concept is both a tool for professions, and a guarantee of conduct in line with professional standards. It is widely acknowledged in research on professions, and research on teachers that the contestable nature of professionalism opens up an opportunity to steer teachers' (and other professionals') actions in specific ways (Mausethagen & Granlund 2012). Day (2002) argues that as a new accountability agenda has been promoted, as part of a larger debate on restructuring the public sector, teacher professionalism has become an increasingly contested concept, examined through many different research approaches. For instance, macro-analyses, such as A. Hargreaves (2000) have been used to distinguish stages in the development of professionalism in teaching: from the pre-professional, to the autonomous, to the collegial, to the post-professional. In the latter stage teachers struggle against centralised curricula and testing regimes.

Attempts have also been made to analyse the extent to which curricula actually direct the work of individual teachers, and some findings suggest that the curriculum was the most important planning tool for the teachers (Imsen 2003), and had a clear influence on teachers' work at the individual level. However, the implementation of Reform 97 did not mean a clear cut development of more direct control of teachers' work, as the teachers' retained the opportunity to choose their own methods of teaching, which is highly valued in Norwegian schools. However, increased demands for teachers to document activity and progress have placed more and more pressure on teachers' time. This seems to relate particularly to time documenting student-assessment and follow-up after testing, and the local implementation of the curricula (Jordfald, Nyen & Seip 2009, p. 6).

Another important research topic is how schools as organisations accommodate novice teachers' professionalism. Teaching has traditionally been a profession where the professional work has been done individually, where individual teachers have been alone with their classes. Lortie (1975), who described this individualism as one of the defining sentiments of teaching, argued that this was also a major obstacle to teachers' coping with their work. Hargreaves (2010) summarised Lortie's argument as follows:

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[9] Reforms in Norwegian teacher education are presented in chapter 4.

Individualism … was reinforced and rewarded by a job that had uncertain criteria for successful performance and that drove teachers to rely instead on their own "indicators of effectiveness," which led them to align their goals with their "own capacities and interests" (Lortie 1975, p. 210). Teachers therefore had a stake in their own autonomy and were likely to resist changes in conditions that would threaten it. With weak criteria for assessment, a lack of clarity on agreed goals and techniques, and "sink or swim" principles of socialization, teachers were isolated in their own classrooms, insulated from collegial feedback, and unlikely to engage in substantial, collective change. (2010, p. 147)

Many have claimed that this individualism in teaching has persisted, despite efforts to change it (Little 1990) and that it has inhibited collegial collaboration in teaching. This raises an argument that the potential for collaboration amongst teachers is very strongly influenced by the particular ways that work is organised in schools. This topic has been addressed as part of the research on school culture. According to Hargreaves (1995), school culture as an analytical concept was first introduced by Waller (1932), but has been used in a variety of ways since its introduction.[10] Hargreaves himself presented two different typologies of school cultures. The first typology differentiates amongst schools possessing high, medium and low levels of social cohesion (with a medium level of social cohesion being considered optimal), and amongst schools possessing high, medium and low levels of social control (again, with a medium level of social control considered optimal). A well-functioning school culture is presented as involving an optimal blend of social control and social cohesion. Hargreaves further developed the model by introducing political structure, micro political structure, maintenance structure, development structure and service structure.

These variables can be used to distinguish between the ideal types of school that Waller described: the traditional school, characterised by a feudal-consultative political structure, a fissile-ingratiative micro political structure, a bureaucratic-positional maintenance structure, an individualist-hierarchical development structure and an autocratic-deferential service structure; and, the collegial school, involving an egalitarian-participative political structure, an integrative-exclusive micro political structure, a delegative-rotational maintenance structure, an institutional-collaborative development structure and a contractual-accountable service structure. Hargreaves has argued that a drift from the traditional school to the collegial school culture occurred during the last century and

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[10] School culture has most frequently been used in relation to the anthropological definition, which emphasises the knowledge, beliefs, values, customs, morals, rituals, symbols and language—"some 'way of life', in short" (Hargreaves 1995, p. 25).

that this development represents broader societal and social-institutional changes taking place towards the end of the 20th century. Because this process of change remains on-going, schools are traditional in some aspects and collegial in others, and can have traits of both the professional bureaucracy and the knowledge-centred organisation. Empirical research in Norwegian schools has shown that although Norwegian teachers cooperate, cooperation in a binding form (i.e., not just planning ahead) is still less common. Their technical autonomy—namely, their freedom to choose how to perform and carry out their work—remains high and still starts at the classroom door (Vibe, et al., 2009). For novice teachers, this creates a highly challenging work and learning environment.

### 2.2.3. Where do novice teachers learn to teach

Another important discussion in the research on novice teachers and the development of professional skills is about where professional skills are best developed. Teacher education is ordinarily seen as the arena where the knowledge and skills necessary for teaching are acquired and developed. There are several indications, however, that many of the skills and knowledge necessary for coping with work as a teacher are better learned through continuing work experience. Practical placements during teaching education are one way of accommodating this, and provision varies between different types of teacher education programmes. Traditionally, apprenticeship models have been seen as one of the most important ways of learning a craft—sometimes in combination with theoretical training, sometimes not. Barnett, Becher and Cork (1987) described how pharmacy training in Britain has developed from a pure apprenticeship model (5 years in a chemist's shop) to almost pure academic study; similarly, nursing has moved from a pure apprenticeship model to a mix of apprenticeship and school training; and, teaching (in Britain) shows a drift in the opposite direction, from an essentially school-based model to the inclusion of more apprentice-like models in professional practice. Dewey (1904) stated that the "adequate professional instruction of teachers is not exclusively theoretical, but involves a certain amount of practical work" (Dewey 1904, p. 249) and that this practical work was traditionally organised through apprenticeship.

Socialisation into teaching cannot be viewed as a passive, gradual transition into an existing school context. It must be regarded as an interactive process of interpretation between the novice teacher and the school context, as well as between the novice teacher and the school as a collective (Kelchtermans & Ballet 2002; Kuzmic 1994; Rust 1994).

Different perspectives and methodological approaches have been put forward in research on teachers' learning in the workplace. Summarising and expanding on previous empirical and theoretical studies of early career learning in the workplace in various professions, Eraut (2007)

distinguished between learning factors and context factors in a two-triangle model. Learning factors are the challenge and value of the work, feedback and support, and confidence and commitment/personal agency. Context factors are allocation and structuring of work, individual participation and expectations of performance, and progress and encounters and relationships with people at work. According to Eraut (2007), the important issue in novice professionals' learning is that their work has to be sufficiently challenging, yet not so challenging that it reduces their confidence. They must have control of situations so that they can fulfil their learning potential. If they lack control of situations, they may develop negative coping mechanisms, which in turn may prevent learning.

Eraut's (2007) model bears some resemblance to Csikszentmihalyi's (1996) research on how the feeling of *flow* in performing a task depends on striking a balance between the complexity of the task and the skills of the performer. A similar argument can be found in research using the Job Demand-Control-Support (JDCS) model as a starting point for investigations into teachers' learning in the workplace (Karasek 1979; Karasek and Theorell 1990). This model is based on perceived control over one's work and the demands experienced from the work: when jobs are highly demanding and provide high levels of control, there is great potential for learning (active jobs); but, when demands are high and control is low, stress and poor health result (high-strain jobs). This model was later expanded with the addition of a third dimension that would affect both learning and strain: social support (Karasek and Theorell 1990, pp. 68–76). Social interaction is a major component of health and behavioural reactions, and social support in the workplace can affect learning behaviour by acting as a buffer between psychological stressors at work and adverse health outcomes.

The JDCS-model, and other similar models, has been used in many research projects focusing on teachers' learning in the workplace. The results from empirical tests of the learning hypothesis in the JDCS model have been ambiguous (Kwakman 1998; Parker and Sprigg 1999). Taris et al. (2003) tested the hypothesis among Dutch teachers and found that job demands had a negative effect on learning, contrary to the initial assumption. Job control had a positive effect, which was in line with the model. It seemed that the highest levels of learning (and self-efficacy) were found among those with high control and low demands and, furthermore, that the transition from a teaching job with low demands and low control to a job with high demands and low control was particularly harmful. Kwakman (1998) found the hypothesis to be only partially supported; that is, groups of teachers with low or moderate job demands, in combination with a high variety in work performed, experience more professional learning situations.

Focusing on similar dimensions to those included in the JDCS-model, McCormack et al. (2006) found that collaboration with colleagues and former peers in an informal, unplanned way is important for novice teachers' professional learning, as is participation in traditional types of formal induction programmes and mentoring. These findings are supported by those of Flores (2006), who also emphasized the important role of school leadership. Garet et al. (2001) investigated what makes teachers' professional development effective and found that improvements in professional development activities are more dependent on the duration of the activity (longer lasting activities have more potential for active learning), the collective participation of the teaching staff and the content and coherence of the activity than on the type of professional development activity (workshops or other course-based activities vs. mentoring and induction programmes). Klingner (2004) found that teachers' professional development activities are most successful when administrative support is clearly evident, the duration of activities is longer and sustained and teachers take ownership of their own professional development activities and mentor their peers. Meirink et al. (2007) found that this type of learning activity leads to changes in teachers' cognition.

Despite the many publications examining novice teachers' learning at work, it has been pointed out that these tests do not adequately take into account the role of individual factors (such as what the individual brings from higher education and their learning behaviour) on workplace learning and continuing professional development (Gijbels et al. 2010; Parker and Sprigg 1999). Kwakman (1998; 2001) called for an expansion of the JDCS-model and for the inclusion of more variables to predict learning at work for teachers. In their 2010 study, Gijbels et al. concluded that the initial hypothesis put forth by Karasek is intriguing because of its simplicity, but that the model needs to be updated with the inclusion of individual learning behaviour variables. They therefore included a measure of self-directed learning orientation and found self-directed learning orientation to be a more important predictor of work-related learning than the initial variables in the JDCS model. The effect of self-directed learning and the JDCS-model is empirically examined in paper 2.

### 2.2.4. The role of teacher education

Despite the extensive research on how workplace factors might promote easy entry into teaching, teacher education is seen by many as the cause of novice teachers' troubles. Some have argued that there is a "lack of goodness-of-fit between its pre-service curriculum and the on-the-job performance" of teacher education graduates (Corcoran 1981, p. 19). Others have contended that teacher education conveys an idealistic, and unrealistic, picture of teaching (Kremer-Hayon & Ben-Peretz, 1986). These views are also typical of the approaches in public debate—either the teaching

education programme is thought to be poor quality or the students who are accepted for teacher education are seen as simply not good enough. This resonates with the "problem of teacher education"-approach presented in section 2.0 (Cochran-Smith and Fries 2005), that has characterised previous phases of research on teaching.

To be able to pinpoint how teacher education fails, it is important to discuss what the purpose of teacher education is. What kinds of knowledge and skills should be emphasised? The knowledge base for teaching has been described by many in terms of the tension between practical knowledge and academic knowledge (e.g., Joram 2007). However, good teaching does not rest solely on academic or practical knowledge. Labaree (2008) argued that "teaching is an enormously difficult job that looks easy" (p. 298). Successful teachers must acquire content knowledge, general pedagogical knowledge, curriculum knowledge, pedagogical content knowledge, knowledge of learners and their characteristics and knowledge of educational contexts and of pedagogical ends, purposes and values (Ben-Peretz 2011; Shulman 1987).

In acknowledgment of the complexity of this task, researchers have challenged the traditional, university-based model of teacher education during the past few decades. For example, Kennedy (1990) argued that a limited educational course can hardly cover all aspects of professional work. This argument naturally draws attention to the question of what competencies teachers need to perform their work as well as where teachers should be taught (see e.g. Ben-Peretz, 2011; Labaree 2008; Zeichner & Conklin 2008). How can a curriculum be organised in such a way that teacher education, and higher education in general, can be as good a preparation as possible for teachers?

The introduction of new ways of organizing professional education can encounter severe difficulties because of the already established curriculum discourses in higher education and teacher education. Karseth (2006) distinguished between two classical curriculum discourses found in higher education: the vocational/professional discourse and the discipline-oriented discourse. According to Karseth (2006) the discipline-oriented discourse presents education as an apprenticeship into more elaborate and powerful ways of knowing, and it is explicitly stated that teachers in higher education should set the goals and select the curricula; the driving force is knowledge production itself. In contrast, the vocational discourse views education as an apprenticeship into specific knowledge domains, so as to develop the particular skills that are relevant for specific professional work. Students who have acquired the knowledge base and the relevant technical skills are then ready to practice as professionals. Sullivan (2005) described professional education in all Western countries as a "competition between practitioner-controlled and school-based forms" (p. 27). Within teaching,

Fenstermacher (1994) put forth a similar argument, distinguishing between the P-discourse (*P* stands for "practice," similar to the vocational/professional discourse) and the R-discourse (*R* stands for "research," similar to the discipline-oriented discourse). The understanding of what constitutes valid knowledge differs between these discourses: practical, specific and situational knowledge is emphasised in the P-discourse, whereas technical, abstract, and often written knowledge is emphasised in the R-discourse.

Although the traditional debate about the knowledge base in teaching most often revolves around the distinction between research- and experience-based knowledge (i.e., the P-discourse and the R-discourse), it is important to stress that both these concepts are insufficient as a way to provide a foundation for teachers' professional judgments. Teaching is by no means a neutral enterprise; as in all professions, there is also a strong normative aspect to professional practice, and teachers have to perform many normative, discretionary acts in their work (Berlak & Berlak 1981). Teaching as a profession is given a mandate by society to provide education to its citizens in the best way possible, and teachers are given the task to carry out this mandate. Hence, teachers have to make discretionary judgments in many different situations. Teachers constantly have to think on their feet and make quick decisions of a practical nature while balancing different values and dilemmas. Some have gone so far as to describe decision making as *the* basic teaching skill (Shavelson 1973) because classroom work is multidimensional, simultaneous, immediate, unpredictable, public and cumulative (Doyle 1986). This approach to decision making refers to the immediate decisions that teachers make during classes. In early teacher research, these decisions were investigated empirically in the classroom, with meticulous registration of teachers' decisions as they happened. However, because ethical/normative dilemmas are often overarching and long-lasting, and because they concern the role of schooling in society, they can also be addressed with other research methods. In paper 4 attitudes towards inclusion in different groups within the teaching profession are used to provide a basis for discussing the dilemmas involved in teaching and the demands on teacher education.

Another approach to examining the problems facing novice teachers' after the transition from education to work can be found in activity theory[11]. Based on the writings of Vygotsky and Leont'ev, but substantially developed later, particularly by Engeström (1987, 2001), activity theory "starts with the assumption that a person's frameworks for thinking are developed through problem-solving

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[11] While research findings from this tradition are emphasised here, the theoretical framework is presented more fully in section 3.4.2.)

action carried out in specific settings" (Grossman, Valencia, Evans, Thompson, Martin, & Place 2000, p. 2). However, the theory also focuses on how these settings are structured by historical forces through the actions of individuals (Engeström 1999). Grossman et al. (2000) used a version of this specific framework to try to get beyond the claims and counter-claims about teachers' practices and what is learned, or not learned, in teacher education, based on data from the first year of teaching. They conducted a longitudinal study of 10 novice teachers, from their final year of studies through their first two years of teaching. The results showed that the novice teachers were not only influenced by the teacher education that they had received (i.e., teaching tools—principles, frameworks, and ideas about teaching and learning), but also by the practical demands of the teaching situations they faced. By their second year of teaching, the novice teachers had become more experienced. As the novice teachers tried to convey their ideas about what constitutes good teaching, the pedagogical tools they used became more important.

Edwards (2005) approached student teachers and teacher education using a development of activity theory called cultural historical activity theory (CHAT). She found that student teachers very rarely interacted with other teachers while they were in classrooms learning to teach; their work was guided by lesson plans, often supplied by the class teacher; the feedback they received focused on their delivery of the lesson and the pace at which the children moved through the curriculum; and, by sticking to lesson plans student teachers became less responsive to children during their training. This happened at the same time as the school teachers were occupied with developing their expertise in new ways. In these schools specialists were given responsibility for children with special needs, and individual teachers were given responsibility as head of teaching in different subjects. The schools were designed as systems of distributed expertise, but the student teachers turned away from this and focused on the planned events in their own classrooms. The student teachers worked alone in their classroom and did not get the chance to develop via an apprenticeship with the experienced teachers. As a result of these observations, Edwards developed *relational agency* as a theoretical concept within the CHAT-framework. Relational agency is a tool to focus on the joint action and the impact on those who engage in it between and across activity systems. Thus, Edwards argues that it combines a focus on individual learning with a focus on the activity system, without giving primacy to either the individual or the activity system.

## 2.3. Teachers compared with other professions

Much of the research on novice teachers provides a weak basis for generalisation because it either lacks any comparison with other groups (of different types of teachers or other professions) or

involves analyses based on small numbers of respondents. An important point that is often overlooked in research on teachers is that similar descriptions of novices can be found in other professions. Research studies on physicians (e.g. Flynn & Hekelman 1993), nurses (e.g. Halfer & Graf 2006), engineers (e.g. Riordan & Goodman 2007) and social workers (e.g. O'Connor & Dalgliesh 1986) have all presented their own discussions of the hardships novices face. In engineering, tough conditions for newcomers are often related to unrealistic expectations, which are established at different stages of professionals' career and life (Riordan & Goodman 2007). Discrepancies in expectations of work content and what is actually involved in work were particularly emphasized. In social work, O'Connor and Dalgleish (1986) emphasised that students do not feel prepared for work and that this feeling of unpreparedness exists partially because students' own "personal models" of social work do not fit with their experiences. In nursing, different approaches have been taken to investigating novices' experiences: some have emphasised job satisfaction and job stress, and how the former results from a feeling of belonging in the work environment others have called attention to the intensity of the work environment and tensions in role adjustment that exist amongst novice nurses (Halfer & Graf 2006).

Studies comparing novice teachers with other professions are rare. Some studies on teachers' labour market participation in their first year after graduation have indicated that teachers experience somewhat more difficulty in the labour market compared with other groups, especially when it comes to finding a relevant full-time position (Arnesen 2009). Smeby's (2010) study of students enrolled in general teacher education programmes in Norway revealed that student teachers were partially satisfied with the quality of their programme but were more satisfied with the practical training parts of the programme; were more satisfied than nursing students but were less satisfied than preschool student teachers; and were less satisfied with the vocational orientation than the other two groups. Terum and Heggen (2010) found that students from teacher education were more likely to characterise their education as fragmented, less meaningful and less cohesive (i.e., less integrated) than preschool student teachers and nursing students. This characterisation of their education is important as it affects both their professional commitment and the perceived outcome of their programme. Studies that examinee novice teachers' transition from education to work using either longitudinal material, or a comparative framework that includes teachers, seem hard to find. As previously mentioned, Grossman et al. (2009) found that students in teaching have fewer opportunities to engage in practical learning situations that resemble real professional practice than novices training towards the clergy or clinical. Smeby (2007) showed that during their education programme, student teachers expect a lower educational outcome than nursing students and

students in administration. Student teachers are less anxious about not being able to master their work tasks and less likely to think that they will need regular supervision and observation. They also report that they believe their work tasks will be interesting less frequently than nursing students.

When choosing other professional groups for comparison, there are several issues to consider. First of all, one can choose between a "most similar design" and a "most different design" (Przeworski & Teune 1970, pp. 31-46.) In this project novice teachers are compared to novice and student nurses and physicians, as well as teacher educators and experienced teachers; is this a "most similar"-design or a "most different" design? From the perspective of theories of the profession, teaching, nursing and medicine have very different statuses. Medicine is often seen as one of the "model" professions or an ideal type of profession (Myers 2008), while nursing and teaching have been described as *semi-professions* by Etzioni (1969), or weak professions (see for instance Wise 2005). This implies that nursing and teaching do not possess the same qualities as medicine in terms of an established, formalised knowledge-base, and therefore do not have the same status.

However, although teaching and nursing have a similar relative status when compared to medicine, they also have different characteristics. For instance, the two professions have handled the high, and increasing, demands placed on professional knowledge very differently. Nursing can be seen as having used its subordinate position relative to medicine to find new ways to develop professional knowledge and competence as a professional project (see e.g. Melby 1990; Slagstad 2006). In Norway this development was inspired by international trends, especially how nursing developed in America (Melby 1990; Caspersen 2012). By establishing a professional scientific knowledge base, with a similar model to medicine, nursing succeeded in a dual strategy of usurping some of the responsibilities of medicine, while simultaneously closing the profession to groups with less education and a less formalised professional knowledge base, such as auxiliary nurses (Dæhlen & Svensson 2008; Høst 1997; Parkin 1979). In Norway, the scientific development of nursing did not only happen by using medicine as an ideal, but also by taking up an orientation towards nursing practice inspired by the Norwegian philosopher Skjervheim, and his critique of the positivist approach to scientific knowledge and research (Skjervheim 1963). This development has led to descriptions of nursing as a profession that has succeeded in gaining professional status and in establishing a professional knowledge base (see e.g. Slagstad 2006).

Teaching, on the other hand, has been described in less positive terms. Karseth & Nerland (2007), discuss the different "discourses of knowledge" among groups including the Union of Education Norway (UEN) and Norwegian Nurses' Organisation (NoNA). The authors describe UEN as a

restorative agent in terms of knowledge and professionalization, while NoNA is described as a progressive agent. Both unions are engaged in issues concerning knowledge development and pursue this through various means. However, the authors portray NoNA as an association which emphasises scientific knowledge, while UEN advocates practice-based and personal knowledge. Others have also described how the teachers' associations have gradually promoted traditional union-issues, such as wages, instead of having a strategy for developing and promoting professional knowledge (Rovde 2004, p. 116).

Descriptions of teaching as a profession with a less developed, or fragmented, knowledge base are not only found in Norway but are widely used internationally. D. Hargreaves (2007a, pp. 3–17), who has discussed the differences between teaching and medicine extensively, has criticised the scientific field of education for having decoupled teaching from educational research, whereas in medicine, most practitioners often double as researchers, with the intent of improving practice and being able to "translate" and implement research (pp. 4–6). ). The knowledge base in teaching has been described as either non-existent or, where it is present, as irrelevant to professional needs (Barnett et al. 1987). As a result, teaching has been described as "not at present a research-based profession" (Hargreaves, D. 2007a, p. 3).

The differences in developing and establishing a professional knowledge base among these professions can also be illustrated by the introduction (or absence of) evidence-based procedures. Medicine has been at the forefront of the development of evidence-based procedures, and the development of the field was initially based on the need to link research and practice more closely. The goal was not only to improve practice but also to steer research in relevant directions for practice. Nursing has, by and large, adapted to the standards of medicine in terms of accepting evidence-based procedures, although not without debate and critique (Estabrooks 1998). In education the call for evidence-based professional practice has developed as a response to serious doubts about the quality of educational research, and its lack of relevance for educational practice; nonetheless, the use of this type of scientific knowledge is often met with considerable scepticism (Biesta 2007). In medicine, evidence-based procedures are established as a part of everyday practice through the development and implementation of procedures and protocols. Many researchers have argued in favour of similar developments in education; however, these developments have been met with opposition and have not been nearly as extensive (see e.g. Biesta 2007; Hammersley 2007a; Sackett et al. 1996).

Whether teaching has adopted the standards of evidence-based professional practice does not decide whether teaching is a knowledge based profession. But it seems clear that many believe that the use of scientifically encoded knowledge is neither established at the individual level nor at the level of teaching as a profession. Teachers do not have the same "toolbox" as physicians because the tradition of basing professional practice on research results, which stem from evidence-based procedures, is not as developed in teaching as in medicine.

Teaching, medicine and nursing are also interesting cases for comparison due to their differences in work organisation. The use (or lack of use) of scientifically encoded knowledge is reinforced by the organisation of these professions' work. Both teachers and physicians have a great deal of what Freidson (1970) referred to as *technical autonomy*, which is the individual opportunity to decide the technical content of the work. Nurses are more bound by the position they have as mid-level workers in a highly specialised organisations (at least in hospitals), where they have the responsibility for upholding technical standards, while the decision-making authority is concentrated on a superior level (with the doctors). Nursing work is also typically carried out in groups or teams, most often in wards.

Teachers usually perform their work alone with a group of students and are free to choose their procedures. Physicians also have considerable choice of methods but are more closely guided and restricted by procedures and, it can be claimed, by the consequences of their actions. The act of teaching is therefore an individual enterprise, resulting from how school work is organised, whereas doctors' collaborative work may vary more depending on the task at hand. As A. Hargreaves (2000) has discussed, teacher collaboration has increased as a reaction against the traditional, autonomous, one-teacher–one-class model. However, A. Hargreaves (2000) also emphasized that collaboration that is initiated via imposed curriculum reforms fades away after a short while, and that routine teacher collaboration is rare. Great efforts have been made to promote new ways of organizing teachers' work in schools during the past few decades, but researchers have argued that the actual level of collaboration remains low, both internationally (e.g. Jang 2006) and in Norway (Imsen 2004). Research also suggests that when collaboration does occur, it often involves two or more teachers doing what one teacher could have done alone (Welch 2000).

Great differences also exist between the professions in terms of how novice professionals are introduced to their first job. Residency positions provide an institutionalised space for novices in medical education worldwide, whereas teachers have been described as starting their career with little or no follow-up, where they must "sink-or-swim" (Fantilli and McDougall 2009). In nursing,

clinical ladder-programmes[12] and "shadowing" of experienced colleagues are two examples of institutionalised ways of organising the introduction to the work place and developing professional skills (Bjørk 1999; Bjørk et al. 2007; Drenkard & Swartwout 2005), although in Norway there are great differences in how novices are accommodated between hospitals and work places in the municipalities, such as nursing homes (Førland 2005, p. 62-63).

Comparing teachers with other professional groups obviously has its challenges, especially in describing similarities and differences in work context and organisation. The sketches of the professions presented here might seem a bit caricatured, and indeed they have been met with some opposition by scholars (e.g. Hammersley 2007b). The jobs that teachers and physicians perform have very different goals: teachers are responsible for the upbringing and education of children, whereas physicians are responsible for treating the sick. They work in very different environments (schools, hospitals, clinics and offices), with very different patterns of organisation of work and large variations in technical complexity. Grossman et al. (2009, p. 2057) stated that making comparisons across professions is difficult because the differences in status and the nature of the work can be so great. However, these differences can also provide the opportunity to highlight the specific characteristics of a profession, and avoid over-stating any similarities. D. Hargreaves (2007b) has argued that doctors and teachers are similar in having to make decisions involving complex judgments; they are different in that many doctors draw upon research about the effects of their practice so as to inform and improve their decisions, whereas most teachers do not.

In the context of this study it seems that comparing between professional groups is, by and large, a "most different" – design, to relate back to Przeworski & Teune (1970). One can ponder about similarities in the professional knowledge base, in historical developments and processes, the amount of autonomy and so forth, but the most important contribution that can be made by comparing teachers with other professions is the opportunity to point out what is specific about teaching and the teaching profession.

A comparative perspective provides an opportunity to pinpoint the specifics of teaching: does teaching differ from other professions in any way that can cause particular problems for teachers? Or

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[12] Clinical ladder programs are intended to provide an institutionalised way of ensuring nurses' clinical advancement, and were introduced in the 1970s "as a means to recognize, reward, recruit, and retain bedside nurses" (Drenkard & Swartwout 2005, p. 502). The clinical ladder programme in Norway was trialled for the first time in 1991, initiated by the Norwegian Nurses Association together with special interest organizations for specialised nurses. The programme was finally approved in 1996 (Kvamme 2004).

do teachers face the same challenges in early professional development as everybody else? Dewey (1904) stated that comparative research could contribute positively to the knowledge needed for the optimal training of teachers:

> The problem of training teachers is one species of a more generic affair—that of training for professions. Our problem is akin to that of training architects, engineers, doctors, lawyers, etc. Moreover, since (shameful and incredible as it seems) the vocation of teaching is practically the last to recognize the need of specific professional preparation, there is all the more reason for teachers to try to find what they may learn from the more extensive and matured experience of other callings. (Dewey 1904, p. 250)

Comparison is not only useful where it involves comparing teaching with other professions. A comparative perspective *within* teaching is also needed, to make it possible to pinpoint the specific challenges faced by novice teachers. Are the experiences of novice teachers different from those of other teachers? In this project novice teachers are also compared with other groups *within* the teaching profession, e.g. experienced teachers, teacher educators, teachers with another educational background and teaching students. This opens up possibilities for a "most similar"- design as well. If being a novice teacher is particularly stressful, novice teachers should show lower levels of coping than experienced teachers. Studies trying to address the different stages and developments that occur in teachers' careers (e.g. Day, et al. 2007; Kelchtermans 1993) have specifically focused on novice teachers, but these career stories have seldom included the period of professional preparation. This also means that the judgements and views of teacher educators are rarely included in the analyses. This lack of attention given to the period of professional preparation is somewhat surprising, considering that teachers in most cases and countries begin their careers by participating in a teacher education programme.

## 2.4. Summary

Waller (1932), Becker (1952) and Lortie (1975) provide three classic encounters with the work of teachers and the organisation of schools. They are important contributors to research on teachers, as they have laid the foundations for how research on teachers is carried out. Reviewing international literature, this holds especially for Lortie, who stood on the shoulders of Waller and Becker. His theoretical concepts, such as the three defining sentiments of teaching, and the description of the egg-crate structure of schools, are still used and discussed, and seem to remain relevant for contemporary analyses (this will be addressed more in the four papers). Another important part of

the heritage in this field was the focus on the level of, and context of schools, which also characterizes later research.

More recent approaches to research on novice teachers have continued to focus attention on the local context and local processes, and this has characterised much of the research in the period after Lortie's "Schoolteacher" report in 1975. However, most research on novice teachers has been focusing on the local contexts, without addressing what is specific about teachers' experiences, and what is specific about novices' experiences. Studies focusing on coping, work-place learning and qualification, changes in teachers working conditions due to public sector reforms and discussions on teacher knowledge and competence have all contributed to widen the scope of research on novice teachers, but are limited by only studying one professional group and not paying attention to differences and similarities. The fact that similar descriptions of the initial phases of work life can be found in most other professions is an indication that novice teachers' experiences are not necessarily unique, as Kremer-Hayon and Ben-Peretz (1986, p. 141), among others, have argued (see section 1.4.). However, in order to empirically examine this issue, novice teachers must be compared to other groups, as is done in this project.

As discussed in section 2.3, comparative analyses can be done using a "most-similar" design, or in a "most-different" design (Przeworski & Teune 1970, p. 31-46.) In this project, novice teachers are compared to novice nurses and physicians. Based on the framework of sociological theories of the professions (elaborated in chapter 3), nursing and medicine are similar, in the sense that they can be seen as professions, but are more appropriately seen as offering "most-different" groups from teaching and teachers due to the major difference in the organisation of working life and the role of scientific practice in professional decision making. In order to include a "most-similar" design as well, novice teachers are compared to experienced teachers, and to teacher educators and other groups of teachers with a different educational background. This comparative design is used in order to pinpoint what the specific challenges and experiences of novice teachers are.

# 3.0. Theoretical framework: professionalism and learning

In this project, how novice teachers think, act, cope and perceive knowledge is seen as expressions of professionalism, and how professionalism is accommodated in teaching. Professionalism is of course not only important to novice teachers. But as stated in the introduction, novices are more clearly exposed to the specific characteristics of the organisation and profession, as they are new and not necessarily socialized to, or aligned with, the habits of the profession and organisation, but are still expected to uphold professional standards.

The empirical research on novice teachers presented in the previous chapter was mainly based on research focusing exclusively on teachers. Although these contributions provide important insights, there are shortcomings that need to be addressed. One is the lack of comparative approaches and comparative frameworks, steering the research towards conclusions that teachers' experiences are unique, without empirical support for this conclusion. Another shortcoming (although there is some research is done in this area) is the lack of attention given to the ability of novice teachers to cope as professionals as a result of both individual and contextual factors that are developed over time. In order to address these issues, a theoretical framework is needed that provides an opportunity to address specific traits of teaching and consider teachers in a comparative perspective. Such a framework is provided through the theoretical discussions on professions as occupational groups with certain characteristics.

As argued in chapter 1, however, the relationship between education and work is rarely treated as an important topic in this tradition, although education is seen as the foundation for professional practice. A framework for understanding the relationship between education and work is therefore found in what is referred to as theories of learning. This theoretical approach is presented in the second half of the chapter, before the use and purpose of combining these two different theoretical traditions is discussed in the final section.

## 3.1. Two lines of approaches to professions

Within the sociology of professions, Carr-Saunders and Wilson (1933) provided the historical background on groups that could be characterised as professions—that is, they were organised bodies of experts applying abstract knowledge to particular cases, had established training programmes to which they controlled entry, and normally had a code of ethics or behaviour. Etzioni (1969) coined the term *semi-professions* to describe those groups that did not match up to all of the characteristics of the traditional professions of law and medicine. Carr-Saunders and Wilson's list

became the point of reference for later discussions on what characteristics defined a profession—an exercise that was regularly repeated throughout the years but provided limited analytical power (Abbott 1988, pp. 3-9; Evetts 2009). This so-called taxonomical approach to professions has since been discarded (Fauske 2008) and professions are now often referred to as knowledge-based occupations (Evetts 2003) or as groups of experts with jurisdiction over a certain area of work (Abbott 1988). Others have emphasised that a specific value orientation and the ability of professions to control how their work is performed—through licensing, education or more direct forms of control—are as important as a professional knowledge base (Freidson 2001). In this way, the focus has shifted from how professions are established and developed, to how professionalism is accommodated and maintained.

Evetts (2003) stated that sociological research on professions has developed along two main lines: professions as normative value systems and professions as an ideology of occupational powers.[13] Brante (1988) distinguished between the same traditions but referred to them as the functionalist and the neo-Weberian traditions, with the epithets "naïve" and "cynical," respectively.

MacDonald (1995) argued that the functionalist ("naïve") view on the professions had its background in Durkheim's writings (e.g., *Professional Ethics and Civic Morals*, [Durkheim 1992]) and was continued through Parsons's works (e.g. Parsons 1968). According to Fauske (2008), more recent works, such as by Freidson (2001), have included and continued many of the ideas in Parsons' synthesis of previous research. To Durkheim, the division of labour and occupational groups represented the moral basis for modern society. His major concern was how a system of moral restraint, relevant to modern conditions, could be found. Part of the answer was the evolution of systems of professional roles and civic values (Durkheim 1992, p. xiv). This led him to focus on

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[13] This dichotomy does not, of course, fully cover the variety of approaches to professions in sociology. Fauske (2008) distinguished between a wide variety of discussions on professional groups; those from classic social theory, such as those put forth by Adam Smith, Herbert Spencer, Marx and Weber; approaches that discuss the characteristics of a profession; empirical studies of professionalism; studies of the processes of professionalisation; professions from an institutional perspective; professions as actors; professions and power; projects of professionalisation; and, attempts at a synthesis of different approaches. However, because the relationship involving education and work and qualification of professionals is the topic at hand, this rough dichotomy is sufficient.

professions as entities embodying all the positive functions of social forces (Macdonald 1995, p. 2).[14] Carr-Saunders and Wilson's 1933-book viewed professions as those groups that "inherit, preserve and hand on a tradition," as the "centres of the resistance to crude forces which threaten steady and peaceful evolution" and, together with the church, the family and certain associations of intellectuals, as social phenomena that "stand like rocks against which the waves raised by these forces beat in vain" (p.497).

This view on professions continued through the post-war period when the educational system underwent a massive expansion, aiming to utilise human capital optimally. During this phase, Talcott Parsons became one of the central theoretical contributors. Parsons viewed what he called "the professional complex" as consisting of "occupational groups that perform certain rather specialized functions for others ('laymen') in the society on the basis of high-level and specialized competence, with the attendant fiduciary responsibility" (Parsons 1978, p. 40). As examples, Parsons (1959) used the teacher-student relationship and the physician-patient relationship. The types of functions that the professional complex performs can be categorised as follows: the actual service performed, the teaching of the knowledge and skills necessary for performing these services (in university education) and the development of the necessary knowledge through research (at universities). From a Parsonian point of view, education provides teachers with the level of competence necessary to perform their classroom work adequately. Teacher education not only *conveys* the knowledge necessary for teachers to perform their duties but also *produces* this knowledge.

Within the conflict approach, Collins (1979) claimed that education serves, first and foremost, as certification—not as qualification. The rapid growth of institutions of higher education in modern society is not a response to the increased need for knowledge, skills and competence. Collins argued that this growth is related to different occupational groups' strategies for monopoly and market power. Larson (1977) also presented similar perspectives. She claimed that the standardisation of knowledge by professions is only performed as a means for commodifying it, so as to achieve a

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[14] It should be noted that this clear-cut, functionalist presentation of Durkheim's work is not uncontested. In his 1986 book, Cherkaoui (as cited in Sakslind, (2002, p. 123)) pointed out that in *The Evolution of Educational Thought*, Durkheim (Durkheim 1977) tried to bridge the gap between those claiming that social order and cultural order are value-neutral and are preconditions for societal order (consensus), and those asserting that cultural order is forced upon schools by the dominating social powers (conflict). Durkheim argued that order is dictated by groups with social power; however, what is called consensus expresses only a provisional stability, which is valid for a period of a generation or two, and which represents the winning ideology of one or more groups that are all engaged in an eternal struggle for cultural hegemony.

favourable position in the market. Larson maintained that professional training is important for instilling students with a cognitive commonality and that it is "indispensable if professions are to coalesce into an effective group" (p. 40).

Although the conflict perspective and the functionalist perspective address central aspects of professionalism, they do so from different points of view. Brante (1988) argued that the conflict perspective is "an *inversion* of traditional functionalism" (p. 135, original italics). Functionalism describes professions as using affective neutrality, universalism, collectivity, achievement and specificity as guidelines (p. 121). By contrast, the conflict perspective states that professional conduct is guided by affectivity, particularism, self-interestedness, ascription and diffuseness.

## 3.2. From professions to professionalism

According to both Evetts (2003) and Brante (1988), the conflict and functional approaches to professions have been surpassed. Evetts stated that researchers on the professions today use the concepts of professionalism to understand "occupational and organisational change and the prominence of knowledge work in different social systems and global economies" (p. 395). Using a similar line of reasoning, Brante (1988) argued that all-encompassing and all-explaining theories of professions need to be supplanted with realistic approaches that view professions as historically specific, social modes of production.

Abbott (1988) argued that professionalism is about performing the sequence of diagnosis, inference and treatment, and the clients' or public's trust in the professions' ability to perform this sequence, which legitimises the jurisdiction over the professional field. Freidson (1994; 2001) defined professionalism as a specific way of organising and coordinating work. Professions themselves have the power to control both entry to the professions and the quality of work within the professions. Professionals not only possess the technical skills that are required to perform the specific work to which they are licensed, but also uphold moral norms and a code of ethics that legitimise their privileged position. Professionals are seen as "crusaders seeking Justice, Health, Truth, and Salvation" (Freidson 2001, p. 221) and as the keepers of morals in society. Freidson's work is regarded by many (e.g. Evetts 2003) as typical of the research on professions that was developed from the late 1980s. This line of research emphasised the normative and ideological importance of the professions in society, continuing and modernizing the approaches of those such as Parsons (1978). This interpretation of professions and professionalism has been developed as a cautious reappraisal of professions as value systems, where ideological claims used to promote the self-interests of professions are also acknowledged (Evetts 2003, p. 404-405).

To Freidson (2001), professionalism is about the social control of work, and "professionalism" offers an alternative to both the free market and to the ideal type of bureaucratic model of social control of work. He argued that there are five contingencies for establishing and supporting professionalism: (a) an esoteric knowledge base that requires considerable discretion, (b) an occupationally controlled division of labour, (c) an occupationally controlled labour market, (d) an occupationally controlled training programme and (e) an ideology serving some transcendent value. Professionalism, as Parsons (1978) also elaborated in his account of the professional complex, thus concerns the organisational level and the individual, performative level of professions (Molander & Terum 2008). From this perspective, autonomy is granted to individual professionals in acknowledgement of the history of their collective knowledge base, their competence and their claims to organise and supervise their work in such a way that their responsibility is upheld. Professionalism is understood as the performance of employees in line with these standards.

Evetts (2003) argued, however, that Freidson's understanding of professions as normative value systems tends to neglect the potential for professionalism being used as an ideology. Evetts admits that an important part of professionalism is consistent with the understanding that lay people place their trust in professional workers, confident that the professionals will use their knowledge to the clients' best interests. In return, professionals are granted authority, status and rewards, such as autonomy at an individual (micro), organisational (meso), and societal or market (macro) level.

At the same time, a re-interpretation of the concept of professionalism emphasising what Evetts refers to as Foucauldian concepts of legitimacy (Evetts 2003, p. 405), has developed, where 'professionalism' is seen as the government of professional practice at a distance. Acceptance of the authority of professional experts has gone hand-in-hand with the consolidation of the authority of states (Evetts 2003, p. 405). With reference to Fournier (1999), Evetts argues that professionalism is appealing as a myth or an ideology that includes aspects such as exclusive ownership of an area of expertise, autonomy and discretion in work practices and occupational control of work. But the reality of professionalism that is actually envisaged is different:

> The appeal to professionalism most often includes the substitution of organizational for professional values; bureaucratic, hierarchical and managerial controls rather than collegial relations; budgetary restrictions and rationalizations; performance targets, accountability and increased political control. In this sense, then, it can be argued that the appeal to professionalism is an "effective" mechanism of social control at micro, meso and macro levels (Evetts 2003, p. 406-407).

Following this line of thought, Evetts sees the introduction of New Public Management and the promotion of managerialist/organisational cultures in the professional public sector as an attempt to redefine professionalism in line with a focus on budgets, audit and control. Within this system, those who see themselves as professionals are self-controlled and self-motivated to perform in ways the organisation defines as appropriate. Those who achieve targets will be rewarded.

According to Evetts, professionalism is therefore presented as both a normative value-system, and an ideology constraining professionals and their opportunities to follow basic ideals. In order to grasp how different professions (say teaching and nursing) have handled this ambiguity, Evetts distinguishes between *professionalism from within* and *professionalism from above*. Where professionalism from within has been in place, the profession has been able to "use the normative aspects (and the discourse) in constructing its occupational identity, promoting its image with clients and customers and in bargaining with states to secure and maintain its (sometimes self) regulatory responsibilities" (Evetts 2003, p. 409).

Professionalism from above implies that professions see the normative values as appealing, but that these values are "inserted or imposed and a false or selective ideology is used (…) as a disciplinary mechanism of autonomous subjects exercising appropriate conduct" (Evetts 2003, p. 409). Furthermore, "professionalism is being used to convince, cajole and persuade employees, practitioners and other workers to perform and behave in ways which the organisation and institution deem to be appropriate, effective and efficient. And "professional" workers are very keen to grasp and lay claim to the normative values of professionalism" (p. 411). Day (2002) provides a similar analysis within teaching when he argues that the repeated implementation of new reforms has changed what it means to be a teacher. Nevertheless, "being a professional" is seen as an expectation placed upon teachers, meaning adhering to the professional standards of a professional knowledge base, a service ethic and commitment, and professional autonomy. However, the professional standards can, and have been, changed to make them more explicit and so they can be measured through outcomes.

To sum up, the notion of professionalism must be acknowledged as both a true concept, and as an ideological tool. Thus, the meaning of professionalism is contestable, and implies both a normative value system, and a means of controlling occupational groups in modern societies. The conflict in the latter perspective is not between client and professional, as in Brante's (1988) conflict perspective, but between the profession (at the micro, meso and macro level) and those aiming to control professional conduct. Professions have different opportunities and strategies when trying to

withstand this professionalism from above, and as described in section 2.3, and it is clear that teaching, nursing and medicine are three professions that have taken different paths and strategies.

Over 50 years ago, Goode (1960) proposed that there are two core characteristics of a profession from which ten other characteristics are frequently derived. The two core characteristics are "a prolonged specialized training in a body of abstract knowledge, and a collectivity or service orientation" (p. 903). Of the ten derived characteristics, five refer to the autonomy of the profession and the professional. In the following sections, the core characteristics of professions—professional knowledge and competence, professional autonomy and service orientation—are discussed in greater depth. The role of education in the literature on the professions is then discussed, and insights from other traditions are used to complement this discussion.

## 3.2.1. Professional knowledge and competence

Arguably, the most central concept in sociological theories of professions and professionalism is knowledge. The early theorists on the professions viewed knowledge as the foundation for the role of professionals in society. A profession must give "primacy to the valuation of cognitive rationality as applied to a particular field" (Parsons 1968, p. 536). Parsons and Platt (1973) regarded the university system as the producer, maintainer and conveyer of professional knowledge. According to Abbott (1988, p. 323), professionalism is the main way of institutionalising expertise in industrialised countries. Freidson (2001) stated that "the ideal-typical position of professionalism is founded on the official belief that the knowledge and skill of a particular specialization requires a foundation in abstract concepts and formal learning" (2001, p. 34-35).

However, the role of "knowledge" in relation to the professions can be approached in different ways. The distinction between conflict and functionalist approaches to professions can again be used to present these different positions. According to the functionalist approach, knowledge is the foundation of professional practice in society's best interest. The conflict approach sees knowledge as a commodity that professionals can use to strengthen their position in the labour market; that is, professionals use knowledge as a closure device (Larson 1977). When contributions from both approaches are taken together, learning is depicted as the individual accumulation of knowledge, and this accumulated knowledge can later be put to use in settings other than those where it was originally accumulated.

According to Parsons and Platt (1973, p. 225), the institutionalisation of professions at universities is important for the development of professional knowledge in both the universities and the

professions: the scientific rigour of the universities strengthens the scientific knowledge base of the professions, while the professions' focus on the application of knowledge provides a sense of direction for research conducted at universities, thus preventing the uncoupling of universities from societal demands relevance. The connection between professions and universities and the development of a scientific knowledge base within professions have played important roles in influencing society's decision to grant a certain status to professions. Taking up this line of reasoning, Parsons and Platt argued that teaching as a profession has struggled, and generally not succeeded, to establish such a scientific knowledge base; however, they believed that the developments within psychology and social science could signal a new direction (pp. 246-247).

The discussions about the weak knowledge base in teaching, and what the knowledge base in teaching should consist of, have been continued by many. More recent contributors than Parsons have claimed that teaching lacks an independent, documented scientific knowledge base and that the disciplines are therefore what constitute teaching as a profession (Hargreaves 2007; Hiim 2003; Lortie 1975; Skagen 2006). Some scholars have stated that complexity and diversity characterise the role of teaching (Dewey 1904; Hargreaves, D. 2000; Lortie 1975), and others have claimed that this characterisation has become more profound over the years as society has become more complex and diverse (Bratholm 2003; Le Maistre & Paré 2010; Sundli 2002). However, the emergence of pedagogics as a scientific discipline has not had the unifying or synthesising role it could have had (Kvalbein 2002; Løvlie, Slagstad, & Korsgaard 2003; Michelsen & Halvorsen 2002), and recent discussions have focused on the importance of knowledge-use models with a background from medicine (Hargreaves 2007; Skrefsrud 2010). The general claim is that teaching still lacks an independent and established knowledge base that can support the professional practice of teachers.

In the more modern sociological approaches to the professions, the role of knowledge has been emphasised even more. As the usefulness of the trait-approach to the professions has been questioned, as has the usefulness of the distinction between naïve and cynical approaches (Evetts 2003), professional knowledge has been brought even more to the fore as the essential trait of professions and professionalism.

Brante (2011) argues that a scientific knowledge base is the defining, invariant, characteristic of a profession. Abbott (1988) argues that professional knowledge most likely plays more of a symbolic role than a practical impact, by legitimizing professional work through a connection with rationality, logic and science. However, he also emphasizes that professional knowledge plays an important role in itself, for instance by generating new diagnoses, treatments and inference methods. The academic

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knowledge system of a profession therefore accomplishes three tasks – legitimation, research and instruction – and the development of each shapes the vulnerability of the professional jurisdiction to outside interference (p. 54-57). If the professional knowledge system fails in providing new methods and tools, its jurisdiction gradually weakens.

In sociological analyses of professionalism, knowledge or expertise in a particular field is seen as the central characteristic of professions and professional performance, together with the pledge to use that knowledge in the best interests of the public (the professional service-orientation). But professional knowledge is not only an individual means, but also a tool for making ideological and jurisdictional claims to autonomy. Autonomy and service-orientation will be discussed in the next section.

## 3.2.2. Professional autonomy and service-orientation

Autonomy is granted to professions and professionals on the bases that they are trusted not to misuse their scope of action, and that they have the knowledge and competence to perform their work adequately. Thus, professional autonomy is derived from professional value-orientation and professional knowledge and expertise. But the concept of autonomy can be approached on different levels, as is also the case with professional knowledge. Freidson (1970, pp. 23-46) distinguished between socio-economic autonomy (operating at the collective level) and technical autonomy (operating at the individual level). Professions have the autonomy to set and evaluate their own standards. Individual professionals can perform their work without interference from others; that is, they have some degree of individual freedom. Eraut (1994, p. 224) argued that it is more accurate to think in terms of a continuum of autonomy being in place at these level of the individual and the profession as a whole. The argument is the same for both levels: only those with the specific kinds of knowledge and skills can judge, comment or evaluate professional practice. Thus, control must be performed either by colleagues (peers with the same background) or by institutionalised arrangements within the professions.

The relative weight given to knowledge and value orientation in determining autonomy varies in different contributions. Freidson (1970) argued that technical autonomy is based on "the possession of a skill so esoteric or complex that non-members of the profession cannot perform the work safely or satisfactorily and cannot even evaluate the work properly" and that it is "at the core of what is unique about the profession" (1970, p. 45). Later, Freidson (2001, pp. 122-123) emphasised that it is the coupling of service claims with specialised skills that provides the professions with legitimacy; both are necessary conditions, and neither of them is adequate alone. It is because professions

"claim to be a secular priesthood that serves transcendent and self-evidently desirable values … that professionals can claim independence of judgment and freedom of action rather than mere faithful service" (p. 122).

The "trait" approaches to professions vary in how they emphasise a service orientation (Fauske 2008). In his 1957 study, Greenwood (1957) stated that professions are characterised by an ethical code that regulates relationships with clients and colleagues (an organisational feature). By contrast, Barber (1963), Millerson (1964) and Pavalko (1971) all emphasised the individual aspect, stating that an it is the individual's primary interest in serving society's best interests, through a sense of service orientation or individual calling, which best describes professionals.

The idea of a calling has been associated with the professions throughout their history, perhaps most notably with the health professions such as medicine and nursing. Stichweh (2008) described how the choice of a professional career in the development of modern (Western) society was widely seen as founded on a religious or spiritual sense of duty, or a calling, which was later secularised and seen as connected to innate talent or gifts. Brunkhorst (2008) pointed to Weber's (1995) analysis of the Protestant ethic and his description of the transition from a religious calling (*Ruf*) to an occupational calling (*Beruf*) after Luther.

Some have argued that as Western societies have experienced an increased individualisation, the idea of a calling or a choice of occupation and career based on anything other than self-interest has become a marginal phenomenon (Jensen & Tveit 2005). When making career choices, individuals are not necessarily motivated by the classic virtues of altruism and self-sacrifice but rather by personal gain. Jensen and Tveit argued that this picture has changed: energy and work engagement are found in the motivation provided by a sense of helping others, and in this way the difference between an "other" orientation and self-interest becomes blurred.

Grimen (2008) argued that professions are unions or organisations that are built on collegial structures; they are not just accumulated masses of individuals with the same educational background. Therefore, certain collective issues regarding their professional morality become relevant. If a profession is understood as an organisation with a mission on behalf of society, and this mission demands that those who carry it out keep their self-interest in check, a profession can also be understood as a mechanism for controlling self-interest. It is a mechanism for institutionalised

internal distrust:[15] the profession is the upholder of moral responsibility and has to act to exert control over the interests of the performers. If the public, or parts of the public, believes that the profession does not keep order in its own ranks, the profession faces a crisis of legitimacy. This take on professional ethics emphasises the organisational aspect of professionalism, rather than the performatory aspect.

These perspectives also point out how autonomy, and belief in a professions' willingness to use its position in the best interests of the public, are connected to the institutionalized aspects of the profession. Membership (employment) in a professional organisation means that a share of control over professional work is transferred to the organisation, thus affecting the autonomy of the individual professionals. Because it is in the common interest of the members of the organisation for it to perform proficiently, the organisation has the authority to demand a certain degree of consent from its members. The opportunities to sanction members are typically provided through material rewards (little used in Norwegian schools) or through norms, ideas and other cognitive influences. In some instances, these organisations can demand (through cognitive persuasion) not only time and competencies/knowledge but also a specific way of thinking (i.e., a way of thinking that is incorporated in the culture of the organisation) (Svensson 2008, p. 131-132). As previously discussed, part of the introduction of new forms of control in the public sector in Norway (often referred to under the general heading of "New Public Management") has been to decrease teachers' autonomy by replacing it with auditing and control. Research has suggested that the frequent reforms in teaching (see section 4.1. for further elaboration) have undermined the opportunity for teachers and schools to use their discretionary competence in deciding how to plan and carry out their work, and in this way the reforms have reduced their autonomy (Bottery 1996; Hovdenakk 2004).

The introduction of new forms of control in the educational system also seems to undermine the teachers' opportunities to act autonomously (Bottery 1996). The attack has come from at least two sides: the introduction of new forms of management in the public sector (see, e.g., Karlsen (2002), for a discussion of how this has affected the Norwegian educational system) and the call for evidence-based practice in teaching (see, e.g., Davies, Smith, & Nutley 2000; Hammersley 2007). Research has suggested that both movements reduce teachers' autonomy through the routinisation

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[15] Grimen draws a parallel with Merton's famous writings on the ethos of science. Merton (1968, pp. 604-615) viewed the basic norms in science (communism, universalism, disinterestedness, organized scepticism [CUDOS]) as institutionalised imperatives that create the premises for collaboration between researchers. The important point here is that these norms were not individual virtues but were institutionalised through organisational arrangements, such as peer reviews and independent committees.

of their work, by removing the discretionary element and challenging their professional knowledge base (e.g. Skrefsrud 2010). However, one of these movements (the standardisation of procedures in the call for evidence-based practice) is a way of controlling professional autonomy before any action, whereas the other movement (the introduction of new forms of control in the public sector) controls practice through reporting and auditing after an action (Svensson & Karlsson 2008).

Teachers' autonomy is of two different kinds: one is derived from a professional knowledge base (what perhaps can be referred to as *positive autonomy*); the other is derived from the structural and historical arrangements of teachers' work (what perhaps can be referred to as *negative autonomy*), of the kind that Lortie discussed. For many, the latter is the more problematic issue, whereas the former is what is at stake when new forms of control and practice are discussed. Sceptics would argue that teachers have never possessed positive autonomy due to their unclear professional knowledge base. They have instead only possessed negative autonomy, which is derived from the structural arrangements of their work. Evetts (2008) distinguishes between "occupational professionalism", a discourse constructed within the professional group, and "organisational professionalism", relating to the structural aspects of professional work. One could argue that positive autonomy is related to occupational professionalism, while negative autonomy is related to organisational professionalism. However, the relationship is not exact or exclusive, as negative autonomy also relates to how teaching organises its work, not how teachers' work is organised from above.

### 3.2.3. Education and learning in theories of professions

The key concepts of knowledge and autonomy have been discussed thus far. The important role of education has not been given the same attention, although education is seen as crucial independent of the theoretical position. The reason for this is simply that education is not discussed in any profound way within theories of the professions. Basically, two perspectives exist: one considers education to be the foundation for professional practice; the other regards practical training to be the best way in which to learn the necessary skills and knowledge for professional practice.

Within the latter approach education is seen as no more than symbolism. In the aforementioned 1979 book, *The Credential Society*, Collins claimed that the expansion of higher education, first and foremost, was about different occupational strategies for securing a monopoly in performing certain tasks rather than a means for achieving a higher level of skills or knowledge. Collins disputes the idea that the number of jobs requiring specialised knowledge and competence increases with rapid technological development and that this must be the driver of educational expansion. Collins did

attribute some degree of importance to education in fostering certain values and attitudes; however, he did not believe that education had a qualifying function in terms of providing skills or knowledge. Collins' argument suggests that individuals learn what they need to know for professional work from performing that work itself, rather than from engaging in higher education.

Freidson (2001) is a modern proponent of the first perspective. He argues that three patterns of specialized education can be distinguished, relating to three distinct educational categories: crafts, technicians and professions. The crafts have relied on an apprenticeship-model, where primary training is provided on the job, and where the teachers are members of the occupation. Technicians receive a large amount of training in schools, but are not always trained by members of the occupation. Professions receive a large amount of training in school, the teachers are members of the occupation, they are affiliated with higher education institutions (universities), and teachers are also expected to do research. Student professionals are expected to be given a thorough introduction to the knowledge-base of the profession, and to develop a critical attitude towards knowledge and knowledge claims, through participating in institutionalised educational programmes (Freidson 2001, p. 93). The professional curriculum is not oriented towards practical training but rather towards abstract, theoretical knowledge, as professional work "may require extensive exercise of discretionary judgment rather than the choice and routine application of a limited number of mechanical techniques" (Freidson 2001, p. 95). Those latter kinds of skills are better learned after they leave school and are not the central knowledge foundation for professionals, claimed Freidson. This claim seems to align with Parsons' view, that professional training "must give primacy to the valuation of cognitive rationality as applied to a particular field" (1968, p. 536).

The classical contributions such as Parsons (1968) and Larson (1977), and modern approaches such as Freidson (2001) all share the assumption that higher education emphasizing theoretical knowledge provides the foundation for professional practice, but little or no regard is given to how this relationship works or is best developed. To address these questions, insights from theories on learning in the professions will be presented in the following sections.

## 3.3. Learning and professional development

A starting point for a discussion on professional learning can be found by differentiating between theories and approaches focusing on apprenticeship models, emphasising informal learning (most often in the workplace), and theories presenting learning as the accumulation of cognitive knowledge. Sfard (1998) distinguished between the two by describing the first as using a *participation-metaphor* for learning, while the latter uses an *acquisition-metaphor.*

Sfard (1998) stated that "since the dawn of civilization, human learning is conceived of as an acquisition of something. Indeed, *Collins English Dictionary* defines learning as 'the act of gaining knowledge'" (1998, p. 5). Learning, in the early years as a child and later as an adult, is seen as the acquisition and accumulation of concepts, which are gradually refined and combined into more sophisticated and richer cognitive structures. Within these models, a professional knowledge base should be understood as being constituted by specific cognitive structures, which provide the legitimisation for the professional as an expert in specific areas, with the attendant privileges (and responsibilities).

However, this understanding of knowledge, and the built-in assumption that knowledge acquired in one setting (e.g., professional education) can be applied directly to another setting, has been challenged from many directions. An alternative, or more elaborate, model for professional learning and development was introduced by Dreyfus and Dreyfus (1986). In their model for professional development, several stages in professional development are envisioned, from novice to expert. The novice enters a field or scientific domain by adopting the rules of practice and conduct in the field. These explicit procedures become routine and tacit, making it easier to perform and act efficiently. Professional development is therefore seen as an internalisation of procedures, instilling experts with the ability to apply their skills easily in increasingly complex situations to the point where the experts can understand atypical situations and act appropriately (Dreyfus & Dreyfus, 1986; Lahn & Jensen, 2008). It places an emphasis on the tacit dimensions of knowledge through internalisation. However, the linear model of development from novice to expert has been criticised, and the model seen as insufficiently context sensitive (Lahn & Jensen 2008).

Schön (1983 (especially ch. 1 and 2); 1987) provided a more complex view of professional knowledge and development. With specific reference to professional activity, he claimed that a dilemma between rigour and relevance within the professions needs to be addressed. Professions seek their foundations and legitimacy in abstract, codified knowledge, with a stringent structure. However, this kind of knowledge is unimportant for the "messy, indeterminate situations" in which professional action occurs because "the problems of real-world practice do not present themselves to practitioners as well-formed structures" (Schön 1987, p. 4). The tension that is described as emerging between practical work and the "academic" knowledge base (i.e., "knowing how" and "knowing that") has been said to characterise all professions (Ryle 1949; Shulman & Wilson 2004). Schön (1983, p. 21-75) referred to these real-world situations as the "swampy lowlands" of professional

practice. In these quagmires, the technical rationality embedded in the understanding of professional work as general problem solving is inapplicable and, thus, irrelevant.

Schön (1987) suggested that another approach be taken. Professional practitioners work should be considered in how they *frame* problems and situations — depending on their tacit preconceptions — with reference to Polanyi (1967) who first coined the term *tacit knowledge*. When they are confronted with complex problems, they use analogies and codified knowledge to handle the situation. Schön referred to this as *knowing-in-action*. When situations are ill-defined and not easily framed, information from different sources must be combined. This problem setting is in itself not a technical problem that can be solved in a means-ends way. Schön used the concept of "thinking on one's feet" to illustrate how this happens in simple situations and coined the term *reflection-in-action* to describe it. When professionals recognise the relationship between their actions and the desired results, they internalise the routines involved (Schön described this in a manner strikingly similar to the Dreyfus model). Schön described these routines as *knowledge-in-action*. However, some situations are harder to define and need several processes of going back and forth between alternative understandings. He referred to this as the framing and reframing of situations, so as to find a solution. Framing and reframing, knowing-in-action and knowledge-in-action are thus modes of reflection-in-action. The central concept in Schön's writings is "the reflective practitioner," a concept that caught on and has inspired a wide range of research studies on teachers' work (see Calderhead, (1989) for an early overview, or Killeavy & Moloney (2010) for a more recent one).

Although Schön presented a critique of the idea of a straightforward relationship between knowledge and the application of knowledge, it is a critique from within, as was also emphasised by Lahn and Jensen (2008). Schön did not argue against the understanding that knowledge is accumulated and refined in humans; he simply claimed that professional education and practice that relies solely on technical rationality is destined to fail. Thus, he criticised the *comprehensiveness* of this way of thinking and claimed that it was not suitable for professional knowledge and practice.

Dreyfus and Dreyfus can also be said to have presented a critique from within, perhaps even more explicitly than Schön. In a retrospective article, Herbert Dreyfus (2009) discussed how what became known as the Dreyfus model for professional development was created in a direct response to

Newell and Simon's General Problem Solver.[16] He claimed that one of the most important critiques that arose during the development of computer models for problem solving "was knowing which facts were relevant in any given situation" (p. 41), and he referred to this as a framing problem, not as a critique of the thinking about knowledge and learning itself.

### 3.3.1. Learning in the workplace

Schön's model for practical training and professional practice (Schön 1987) has been important for the development of the sociocultural, or situated, understanding of knowledge, along with others emphasising the situatedness of experience (Wenger 1998, p. 281). The situated tradition, a counteraction to the cognitive understanding of learning, has developed to become an influential perspective. It has a substantial impact on teacher research and research on learning in the professions, but does not refer to the classic theories of the professions. The basic assumption is that learning happens when engaging in social practices (an assumption that inverts the cognitive approach). A key concept in this tradition is *legitimate peripheral participation* (Lave & Wenger 1991), which describes a certain kind of participation in social practices, which includes learning as well. Wenger (1998) stated that "peripherality provides an approximation of full participation that gives exposure to actual practice" (Wenger 1998, p. 100). This kind of approximated exposure can be accommodated through lessened intensity, lessened risk, special assistance and close supervision, amongst other things. In addition, newcomers must be granted legitimacy and be treated as real

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[16] In 1957, Newell and Simon wrote the General Problem Solver (GPS), a computer programme, taking up the idea that with restricted possibility conditions, one could enter all the necessary information into the programme and so produce the best possible outcome (Newell 1963; Newell, Shaw, & Simon 1959, p. 34; Newell & Simon 1972). The innovation was not the programme itself, but rather the separation of knowledge about problems, which could be stated as rules in the GPS, from strategies for arriving at a solution. In practical terms, the user of the programme defined objects and how these objects could be affected, and the GPS provided heuristics to solve these problems as a means-ends analysis. It is undoubtedly a technical rationality that is applied in this approach. As long as the relevant information is provided (and in the model, it is assumed as a precondition that it can be provided) problems can be solved. In professional work this thinking can be applied as follows: as long as professionals have the appropriate knowledge, they can find the best solution to the problems they face in their professional practice.

When problems could be defined within clear limits (e.g. in chess), the GPS provided solutions. However, as a *general* problem solver, it did not deliver. In many cases, one needed domain-specific knowledge: solving a task as a teacher requires a different kind of knowledge than solving a task as a physician or as a social worker (Lahn & Jensen 2008). Another critique appeared when research on knowledge, reasoning and learning was moved beyond laboratory settings, into studies of everyday thinking and reasoning. The complexity of everyday practices knocked the bottom out of the GPS. However, it did not change the general understanding of knowledge as something that could be accumulated and then applied in specific cases. The current critique of the model developed mainly within cognitive psychology, and the critics of the model referred to inner mental structures as universal human traits so as to explain specific professional efforts (Horvath & Sternberg 1999; Lahn & Jensen 2008; Rogoff & Lave 1999).

members of the community. In the traditional apprenticeship models, this was done through the sponsorship of a master.

Schön (1983) opposed the assumption of a direct relationship between education and applied knowledge in professional practice. Technical rationality is the norm of professional schools, and professional education can be described as technical training. He argued against the approach whereby professional education involves the learning of theories taken from basic scientific disciplines and their routine application to solve practical problems, in a value-free way. This will, and have, lead to a crisis of confidence where professions are no longer entrusted with the privileges granted to them by society (i.e., some degree of autonomy and control).[17]

Schön's (1987) solution was to introduce "the reflective practicum" with the "main features [of]… learning by doing, coaching rather than teaching, and a dialogue of reciprocal reflection-in-action between coach and student" (Schön 1987, p. 303). This reflective practicum is "neither the traditional academic world of research and teaching nor the world of practice where there are many constraints that inhibit learning" (Rutherford 1987, p. 740). It is a middle ground, where coaching and guidance (in specific forms explicated by Schön) provide the best possible learning conditions for those who are destined to manoeuver in the swampy lowlands of professional practice (e.g., schools). It calls for a total reformation of educational programmes so as to achieve the intensity necessary for learning in a reflective practicum. With reference to settings such as the architectural studio, traditions of psychoanalytic supervision and musical apprenticeships, Schön said that "students do not so much attend these events as live in them" (Schön 1987, p. 311).

Wenger (1998, p. 4) stated that cognitive approaches to learning overlook several aspects. He began by proposing four premises about knowledge: (a) the fact that we are social beings is central to learning; (b) knowledge is a matter of competence with respect to valued enterprises; (c) knowing is a matter of participating in the pursuit of such enterprises; (d) meaning is the end goal of learning. Thus, Wenger viewed learning not as a separate activity, but as something that cannot be separated from doing anything else. It is part of a situated, contextual practice. Apprenticeship models for learning are thus not only more effective but also more "epistemologically correct," according to Wenger (p. 101).

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[17] Stuart (1988) pointed out in a short review that Schön described American society in the 1980s and did not thoroughly discuss the transfer value of the crisis argument.

The alternative to the cognitive approach to learning is the situated approach. The specific understanding of knowledge and learning in the situated learning tradition was the point of departure for a debate between Anderson et al. (1996) and Greeno (1997), which sheds light on the central differences between the two understandings of learning. According to Anderson et al. (p. 5) situated learning can be characterised by four claims: (a) action is grounded in the concrete situation in which it occurs, (b) knowledge does not transfer between tasks, (c) training by abstraction is of little use and (d) instruction must be done in complex, social environments. Anderson et al. claimed that when this line of argument is applied to professional education and training other than in a workplace setting, these forms of learning become pointless. The best way to learn is by participating in communities of practice. The claims of the situated learning perspective make the assumed connection between education and work meaningless.

In teacher research, many have emphasised workplace socialisation as the crucial period of becoming a teacher, and have correspondingly downplayed the importance of initial teacher education programmes in different forms (e.g., Ryan, (1970), and Jordell, (1982, 2002, 2006) considered the period after teacher education to be of greater importance). Many of these studies were directly inspired by, and theoretically founded on, the situated learning understanding of professional knowledge. This perspective has been used to discuss different mentoring programmes and relationships (Edwards & Protheroe 2004), to act as a starting point for empirical investigations on teacher learning (Flores 2003; Lillejord & Dysthe 2008) and design of teacher education programmes (Korthagen 2010), and to initiate further theoretical development and discussion (Billett 2002; Hodkinson & Hodkinson 2003). The overall emphasis is on informal learning situations and learning from experience and day-to-day practices (Eraut 1994).

### 3.3.2. Models for work-place learning

Eraut (2004) discussed what promotes and accommodates professionals' learning in the workplace. He distinguishes between learning factors and context factors, where learning factors are the challenge and value of the work, feedback and support, and confidence and commitment. Context factors include allocation and structuring of work, encounters and relationships with people at work, and expectations of each person's role, performance and progress. He emphasises that for both novices and experienced teachers *confidence* is of utmost importance, that confidence arises from successfully meeting *challenges* at work, and that support is crucial for taking on these challenges. Eraut (2004) focuses on informal learning at work, which is often associated with the participation metaphor for learning.

Interestingly, a similar model for explaining and promoting learning at work has been proposed (Karasek 1979; Karasek & Theorell 1990), where the understanding of learning aligns clearly with the acquisition metaphor for learning and cognitive learning. This could support a conclusion that the same factors are important for informal and formal learning at work. In fact, some of the research testing models developed for cognitive, formal learning at work have explicitly argued for an understanding of learning as a situated and participatory process (e.g. Kwakman 2001; 2003).

Central to Karasek's (1979) and Karasek and Theorell's work (1990) was their active-learning hypothesis: high levels of learning and self-efficacy will occur among those who have high job demands and high control jobs, whereas low levels of learning and self-efficacy will occur among those who experience low demands and low control in their jobs. In figure 2, Karasek's own model for exploring his learning hypothesis is presented.

*Figure 2. Karasek's model for the description of work place Job-Demand-Control (Karasek and Theorell 1990, p. 32.)*
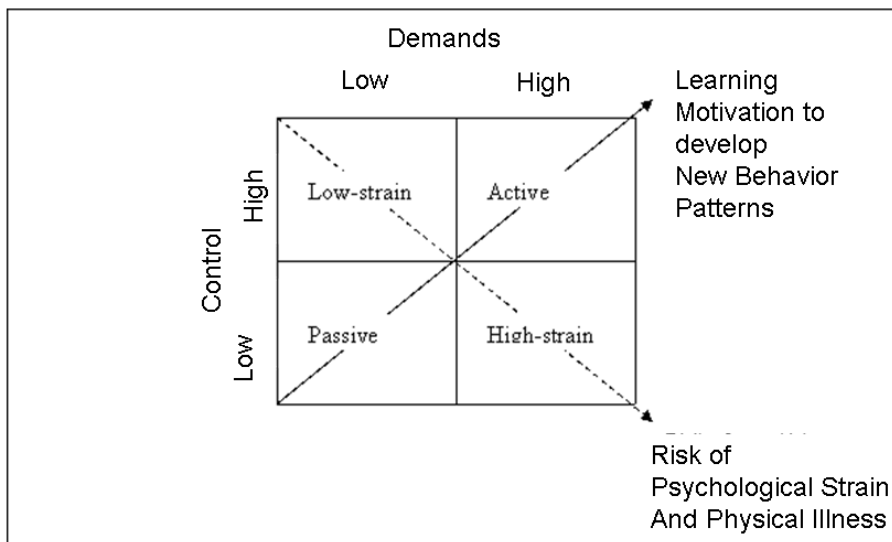


Karasek's model is based on the hypothesis that "effective learning occurs in situations that are challenging enough to be interesting but not so demanding that capacities are overwhelmed. In such situations new skills and the motivation to tackle new challenges develop apace" (Karasek & Theorell 1990, p. 170-171). This implies that jobs can be high or low on perceived control, and high and low on perceived demands. Karasek describes a job that is high on perceived job demands and high on perceived job control as an active job: "From such jobs we predict an optimistic set of psychosocial outcomes – learning and growth" (1990, p. 35.) An example offered by Karasek that fits this description is of surgeons performing difficult operations, but this category would fit all types of jobs that are high on demands and high on control.

Jobs that can be described as low on demand and high on control, the top left corner of the model, are referred to as low-strain jobs. Jobs of this kind are exemplified by repair-personnel of different kinds, and one could expect high levels of job satisfaction among workers in these kinds of jobs.

Jobs that can be described as low on control and low on demands are termed passive jobs by Karasek, with reference to the learnt helplessness hypotheses put forward by Seligman (1975). People who inhabit these jobs are experiencing "a gradual atrophying of learned skills and abilities" (Karasek & Theorell 1990, p. 37) and "lost skills, lack of job challenges, and environmentally rigid restrictions preventing workers from testing their own ideas (...) can only mean an extremely unmotivating job setting and result in long-term loss of work motivation and productivity" (p. 37-38). This condition is also marked by a de-skilling of the workers, i.e. the opposite of the learning in an active job.

The fourth category of jobs is high strain jobs, which are high on demand and low on control. Karasek and Theorell consider this the most negative type of job, and predict that the most "adverse reactions of psychological strain (fatigue, anxiety, depression and physical illness) occur when the psychological demands of the job are high and the worker's decision latitude in the task is low. These four dimensions are described by the authors as different variations of decision latitude. Decision latitude implies both discretion over the use of skill and social authority (Karasek and Theorell 1990, p, 56).

Karasek & Theorell (1990, pp. 68-76) later expanded their model by adding a third explanatory dimension, social support. Social interaction is a major component of health and behavioural reactions (p. 69), and social support at the workplace can affect learning behaviour by being a buffer between psychological stressors at work and adverse health outcomes. Karasek & Theorell argue that the effects of social support take place by stimulating physiological processes that are important to both health maintenance and the acquisition of new knowledge; in this way it can facilitate active coping patterns and provide the worker with a positive feeling of self-identity. This paves the way for high feelings of self-efficacy and accomplishment.

Karasek can be argued to have a cognitive or socio-cognitive understanding of learning. The notion of learning in Karasek's model thus seems to be largely restricted to individual gains, and Karasek & Theorell themselves speak of learning as "incremental additions to competence" (1990, p. 92), as a result of external factors: for them, learning occurs in situations that are demanding, but have a good range of decision latitude. Mastering and developing abilities in response to these demanding

situations builds motivation for taking on new challenging tasks and seeking new knowledge and learning. Karasek relates his work to two important intellectual traditions, the social learning /social cognitive theory work of Albert Bandura (Bandura 1999), often referred to as self-regulation theory and the action theory introduced by the German psychologist Hacker (1978), and later developed by Sabini and Frese (1985)[18].

Bandura's work regards human activity as a result of mutual influence between personal factors (cognitive, affective and biological events) and events in the surroundings (Bandura 1986). He understands social processes and structures as important factors, but leaves room for individual agency and action (Bråten 2002). For Bandura, the belief that one's actions can bring about changes is the core issue in human agency. This perceived "self-efficacy refers to a belief in one's capabilities to organise and execute the courses of action required to produce given attainments" (Bandura 1997), and helps people to decide what activities and tasks they should involve themselves in, how they cope with changes and unexpected events. Eraut (2003, p. 269) also emphasises self-efficacy in his model for what promotes informal learning in the workplace. His idea of confidence (which he sees as important for taking on challenges that promotes learning), is related to Bandura's concept of self-efficacy, i.e. the ability to execute a particular task or successfully perform a role.

Karasek & Theorell claim that an important shortcoming of models derived from Bandura's tradition is that they do not acknowledge the negative impact of situation-stressors, the demands arising from the work situation (1990, p. 171). However, in the action regulation theory tradition they find an explicit focus on "the multiple levels of environmental restrictions on a worker's control" (ibid: p. 171). Three different levels of individual action are traceable, and in order for learning to take place all three of these levels must be under the individual's control: intellectual strategy formulation, flexible action repertoires and sensorimotor reactions. If these levels of action are not controlled by the individual worker, then their intellectual capabilities will not develop (Hacker 1978, in Karasek & Theorell 1990). Also, when people are experiencing high levels of stress they will favour automated actions over those that require intellectual strategy formulation, making it harder for previously learned, routinized responses to be exchange with new patterns of action (Frese & Stewart 1984, in Karasek & Theorell 1990). This acknowledgement of situational stressors leads Karasek & Theorell to distinguish between open-loop learning, where workers develop solutions to anticipated future

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[18] The presentation of Banduras theory and the social-cognitive perspective in the following is very much inspired by Bråten (2002).

problems, and closed-loop learning, which is more about the perfection of automatic error-correction responses (1990, p. 173, with reference to Umbers 1979).

As noted earlier, Karasek's JDCS-model has been used, and tested in some research on teachers' learning, which led to inconclusive results (Kwakman 2001; 2003). In the papers in this project, Karasek's initial variables are included in the analyses in paper 2, opening up the potential for directly testing his active-learning hypothesis, but also for developing the model by adding the outcome of education as a variable. The concept of self-efficacy is also discussed in paper 3, where self-efficacy and teacher certainty are used as an empirical measure of coping in teaching. Workplace organisation and accommodation for novice teachers professional learning is an important topic in paper 1, 2 and 3.

### 3.3.3. Newer developments in theories of learning

The assumption that either education or work provides the novice teacher with the relevant competence is rather rigid, and does not allow much room for individual agency (Saunders 2006). The debates between the situated learning and apprenticeship models and the technical-acquisitional view of learning and knowledge have been heated, and various attempts have been made to bridge the gap. Sfard's (1998) paper, titled "On Two Metaphors for Learning and the Dangers of Choosing Just One," indicated that we need both the acquisition metaphor and the participation metaphor for learning. To Sfard, these understandings of learning are complementary— in the same way that physiology and psychology are two complementary approaches in the study of humans (Bråten 2002).

Greeno (1997) argued that learning theories could be developed that unite the different perspectives. This process would involve developing the individual, acquisitional perspective further and building "towards broader theory by incrementally developing analyses of additional components that are considered as contexts" (p. 5). Another approach might involve developing the situated perspective to generate increasingly detailed analyses of the information structures used in individuals' interactions. The second approach was preferred by Greeno, and in a later article (Anderson, Greeno, Reder, & Simon 2000), he teamed up with the critics of the situated learning approach and presented a similar solution. According to Bråten (2002), the way forward in these attempts at synthesis seems to be carved out through competition: the different alternatives are founded on one of the two perspectives. The risk is this might simply lead to greater competition between the perspectives, rather than synthesis.

Some researchers (Cobb 2001; Cobb & Bowers 1999) have maintained that it is not necessary to choose between either the individual or the collective as the unit of analysis; in a situated perspective, it is possible to include both approaches. Therefore, they see the way forward being the development of the situated perspective. Individual activity is fundamentally understood as participation in a larger social system. A reflexive relationship, involving mutual reinforcement, exists between individual cognition and thinking and the collective practice. It is also possible to find qualitatively different ways of thinking being used by different individuals, thus making them involve themselves in different ways, in different practices.

Within the self-regulated learning tradition, which has developed within social-cognitive theory (Bandura 1986, 1997), the basic assumption is that humans are both products of and producers of their social environments. This implies that cognitive, affective and biologic events are in mutual, causal relationships with the environments. Learning is neither only situated nor only cognitive. What people do creates new possibilities and restrictions for their personal development, but with plenty of leeway for personal agency. Individuals' behaviours are not determined by their surroundings; they are free to choose to behave in ways other than those dictated from the surroundings. However, the surroundings are still influential. According to self-regulated learning theory, people are active and independent in their learning behaviour (Pintrich 2004). Four different phases are distinguished in learning: (a) planning how to achieve certain goals, (b) monitoring one's own behaviour, (c) implementing control strategies to analyse whether one has reached the desired goals and (d) acting and reflecting. Learning is depicted as a dynamic, self-regulating process that is developed through interaction with others, such as peers, tutors, teachers and parents, and through the examination of learning material or objects (Boekarts, Pintrich, & Zeidner 2000).

Meirink, Meijer, Verloop and Bergen (2007) argued that, in addition to views of learning as participation and acquisition, a constructionist approach may be applied in learning theory. In a constructionist approach, more attention is drawn towards the learning processes than the outcomes of learning. The construction metaphor - which according to Ip (2003) emerged during the 1970s and 1980s - views learners as autonomous constructors of knowledge who possess metacognitive skills and monitor their own cognitive processes during learning. In this way, the constructionist approach seems to align well with the self-regulated learning approach. Learning implies selecting and interpreting relevant information. The teacher development literature in this tradition emphasises the development of teachers' knowledge and skills as a part of the in-service education of teachers. Individual acquisition is still the focus — though not simply seen as involving inputs but rather as involving individual learning processes. Hodkinson (2009) has argued that English

policy approaches have "assumed a crude version of acquisition" (p. 157) and that the workplace learning tradition has emphasised participation, whereas the teacher development literature has emphasised learning as construction.

Paavola and Hakkarainen (2005) had argued for the addition of yet another metaphor, the knowledge-creation metaphor, which is somewhat similar to the construction metaphor. They also referred to this as *trialogic learning*, in contrast to the monological learning presented in the acquisition metaphor and the dialogical interaction approach in the participation metaphor. Their four main areas of focus are (a) the collaborative processes of creating and developing new material and artefacts, (b) conscious knowledge advancement, (c) discovery and (d) innovation. Their theoretical foundations are found within research on knowledge-creating organisations (studies of large firms and corporations in Japan), activity theory, and what Paavola and Hakkarainen referred to as *knowledge-building theory* and the *epistemology of mediation*. The units of analyses they employ are individuals and groups that create mediating artefacts within cultural settings.

The construction metaphor was originally used to describe individual cognitive processes within the mind. The knowledge-creation metaphor is used to describe how learning is part of interaction and collaboration with others. In this way, the construction and knowledge-creation metaphors still seem to accept the acquisition and participation metaphors, respectively. Hodkinson (2009) admitted this to some extent and argued that Schön's concept of reflective practice is a common point of reference for both those staying with the participation metaphor and those supporting the construction metaphor. She maintained that both teacher development literature (Day 1999; Hargreaves 1994) and workplace learning literature (Beckett & Hager 2002; Billett 2001a) are striving to move beyond purely individual views of learning, but are not yet managing to fully explore the processual links between cultures and learning.

Hodkinson (2009) has suggested that longitudinal analyses should be carried out to determine how teachers' battery of dispositions leads to individuals orienting themselves differently in different situations and influences their actions and reactions. She used Bourdieu's concept of habitus to describe these dispositions, and suggests that these dispositions must be seen in relation to the learning environments in which teachers participate, and how they make teacher learning possible. Learning environments can be expansive or restrictive (Fuller & Unwin 2003); that is, they can present either wide-ranging, diverse opportunities for learning in a culture that values and supports learning, or not. Billet (2001b) referred to this in terms of different learning affordances at work. Hodkinson's idea for future research following from this is quite simple: researchers should examine

individual dispositions for learning and how these dispositions interact with their surrounding learning environments. Within teacher research, Kelchtermans' (1993) biographical-narrative framework seems nearest to achieving such an approach, but Day (2002) also argues that professional identity and self-development should be included in research on how professionalism is developed and maintained in teaching. However, neither of these contributors are bound by the Bourdieu and habitus approach that Hodkinson promotes, indicating that this particular theoretical position is not necessary to analyse teachers' development in this way.

Research originating from the activity theory framework was presented in section 2.2. Engeström (2001) summarised five principles for activity research on learning at the workplace. The first principle is that the entire activity system (comprising the subject, the object and the mediating artefacts, but also societal rules, the community and the division of labour) and network relations to other activity systems are taken as the prime unit of analysis. The second principle is to include the many voices of the activity system, and see the activity system as community of multiple points of view, traditions and interests. The third principle is historicity, meaning that the problems and potentials of the activity system must be seen as a product of a specific history in the activity system, as must the theoretical ideas and tools that have shaped the activity[19]. The fourth principle is to acknowledge the role of contradictions, which are described as "historically accumulating structural tensions within and between activity systems" (Engeström 2001, p. 137), one example being the use value and exchange value of commodities in capitalism. The fifth principle highlights the possibility of *expansive transformation;* this can be described as the development that occurs when the activity system is aggravated or de-stabilised. This might lead to questioning of the established norms and deviation from them, and this can potentially escalate into a deliberate collective change effort. A wider horizon of possibilities than was previously available opens up. A detailed analysis of learning within activity systems is made possible by combining these principles with the following questions: who is learning; why do they learn; what do they learn; how do they learn. Education and work can be linked together in this way, as different activity systems, with learning seen as participation in the activity systems.

Within the activity theory framework, research has suggested that the potentially troublesome relationship between education and work is a problem of knowledge transfer from one context to another. Engeström (2001) and Guile and Young (2003) introduced the theoretical concepts of

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[19] This could be rephrased as focusing on professions and their activities and systems, the many different actors and interests in the professions, and the establishment and development of a profession.

boundary crossing, and Van Oers (1998) put forward the concept of recontextualisation to describe such transitional processes. Boundary crossing refers to the transfer between different contexts in general. When novice teachers (or professionals from any group) have made the transition from education to work, they have crossed boundaries of both time and space. However, these boundaries can be bridged by the following measures: (a) allowing learners to experience elements of future practices as a "rehearsal," (b) enabling learners to move from one kind of learning experience to another, (c) permitting facilitators of learning to innovate and change, (d) allowing the learning potential of moving from one system of activity to another and (e) enabling learners in one activity system to work in concert with learners in another system, towards the accomplishment a common "project" (Saunders 2006, p. 18).

To sum up, the newer approaches to learning in the professions point out some ways to move beyond the dichotomy between acquisition and participation. One important insight is that the longitudinal aspect of teachers' professional development should be taken into account, both empirically and analytically. Thus, being a novice teacher is a phase in teachers' professional careers, not and end-stage or static position. This should be reflected in how the situation of novice teachers is interpreted, with being a novice acknowledged as a distinctive phase. Empirically, research on novice teachers should also aim to include a longitudinal perspective. In this thesis, all papers include a longitudinal perspective, to a lesser or greater extent, either by following the same teachers from education into work (paper 1 and 2), or by comparing novice teachers to experienced teachers (paper 3 and 4).

## 3.4. Summary and questions for investigation

By combining the two traditions of sociological theories of professions and professionalism and learning theory in an empirical project such as this, it is possible to highlight characteristics of teaching, while at the same time empirically examining how novice teachers think, do, cope and perceive knowledge; in short, how professionalism among novice teachers is accommodated in teaching. In this way, it is possible to build on, and expand, research on novice teachers, and add a new element to the understanding of the role of education in the theories of the professions. In the *Handbook of Research on Teaching* (3rd ed.), Shulman (1986) wrote the following:

> Insufficiencies of particular [research] programmes can be overcome through proper
> blending with the insufficiencies of other programmes. This image of a yoking of
> inadequacies to produce a hybrid more vigorous than either of its parents is certainly not

alien to the practice of agriculture, but it has not been widely touted in the social sciences. (Shulman 1986, p. 6-7)

Sociological theories of the professions have, first and foremost, been occupied with how professions such as teaching form, organise and develop. Newer developments in this field have moved on from focusing on professions to professionalism, and have developed a theoretical framework for studying the processes of control and opposition in professions. Professional knowledge or expertise, autonomy and service-orientation are the key theoretical concepts. Freidson (2001) stated that professions have: (a) an esoteric knowledge base that requires considerable discretion, (b) an occupationally controlled division of labour, (c) an occupationally controlled labour market, (d) an occupationally controlled training programme and (e) an ideology serving some transcendent value. The central discussion in sociological theories of the professions and professionalism has been whether professional knowledge and service orientation are "true" characteristics, or strategies for promoting group interest, i.e. ideological tools, or even tools for controlling professions (Evetts 2003; Fournier 1999). By focusing on professionalism instead of professions, the aim is to include the historical perspective, but also to focus on occupational competence and ability in carrying out the process of diagnosis, inference and treatment (Abbott 1988), and investigate how this is accommodated in the professions.

In socio-historical discussions on professions the theoretical concepts are used as to describe the ways in which professions have developed in different areas are described, e.g. the development of a professional knowledge base for teaching (see e.g. Helsvig (2005); for nursing( see e.g. Slagstad 2006:156-157); and for medicine (e.g. see Skaset 2006). This kind of socio-historical perspective is also developed in section 2.3, where the background for comparing novice teachers with nurses and physicians was discussed.

In this section, however, it is argued that sociological approaches to professions do not address the relationship between education and work in any explicit or satisfying way. This is a paradox, as formal education is widely seen as crucial for the professions: education is where professional knowledge and skills are developed, where socialisation into the values and norms of the professions starts, and also the source of legitimizing credentials for professions. One could argue that there are implicit theories of learning in the professions to be found in the different strands of sociological research on the professions. In the so called naïve approach (Brante 1988), education is seen as the place where professional knowledge is developed and refined by teachers within the higher education institutions, and in this way is acquired and accumulated by the professionals who can

then put it to use after graduation. This relationship is seldom explicated, but lies as an implicit foundation in many discussions of professional knowledge and learning. In the cynical approach, by contrast, professional education is dismissed as a learning arena with all relevant professional learning taking place after graduation (see e.g. Collins 1979). The role of education is thereby simply a sorting mechanism to uphold the privileges of the professions.

However, as learning was never really a central topic for sociological analyses of professions and professionalism, it is important to look to other sources for a potential framework for empirical investigations of learning in the professions. This is found in what is referred to as learning theory. Sfard (1998) distinguished between two metaphors for learning: the acquisition metaphor and the participation metaphor: within the acquisition metaphor, learning is seen as the individual accumulation of knowledge; and, within the participation metaphor, learning is seen as participation in social processes, which cannot be understood as an individual activity. Learning for professional practice would therefore be expected to happen through participation in professional practice, often including informal learning. In contrast, theories based on the acquisition metaphor would tend to emphasise individual cognitive learning through formal education, be it before or after graduation.

Many theoretical models have been put forward for examining informal and formal learning in the workplace, and, interestingly, they seem to emphasise the same factors. Irrespective of the type of learning they stress the factors challenge, support and confidence (see e.g. Eraut 2003 and Karasek & Theorell 1990), in addition to context factors, such as the allocation and structuring of work, encounters and relationships, and expectations towards each person. The importance of self-efficacy is also stressed. In the analyses presented in this project's four papers, variables taken from previous research are used directly, namely Karasek & Theorells (1990) measures on job-demands, control and support (paper2), but also internationally acknowledged measurements of self-efficacy (paper 3). However, in acknowledgement of the shortcomings pointed out in previous research (discussed in section 2.2.3) other variables, such as the individual outcome of education are included. The relationship between education and work is also discussed explicitly in paper 4, where novice teachers' understandings of relevant knowledge for teaching, and of normative judgments, are compared to teacher educators' and experienced teachers' views. Insights from newer approaches to learning in the professions are also used to frame and discuss the empirical findings (e.g. Engeström's work (1987; 1999; 2001) is used in paper 3 in a discussion of how novice teachers are accommodated in schools).

The sociological theories of professions, and the theoretical concepts developed within this tradition, thus provide a comparative framework for examining how professionalism is accommodated in teaching, compared to other professions. The key concepts in the sociological theories are used as empirical variables in line with the important variables from previous research on novice teachers (section 2.3.), and also as macro-historical descriptions of what characterizes teaching as a profession. Freidson (2001, pp. 5-10) has argued that the different characteristics of professions should not be seen as a make-or-break list of characteristics for professional status, but rather as ideal-typical traits of professions. Theories of professions and professionalism can be used as one perspective, or as analytical tools, to focus in on central concepts relevant for occupational groups, such as teachers. To approach professionalism in teaching in this manner is by no means a new enterprise, and similar approaches have been used by many, and been widely discussed (see e.g. Day (2002, pp. 680-682) for references on professionalism in teaching). The novelty of using professionalism and the key concepts from sociological theories of professions in this project is the way they are built into an explicitly comparative approach. This is done most clearly in paper 1, where knowledge (expertise), service-orientation and autonomy are examined as aspects of professionalism in teaching and nursing, but this approach is also evident in the three other papers as a background, especially in paper 2. Here, teaching and medicine are compared, with a focus on strategies of learning in the workplace among novices, using the professional knowledge base of teaching and nursing as a background.

Before moving on to a more thorough description of how Norwegian teacher education is arranged[20] (chapter 4) and of the methodological approach of the project (chapter 5) it is useful to restate the main empirical research question: how do novice teachers think, act, cope and perceive knowledge? The theoretical aim of the project is to examine how the concepts in the theories of the professions and the theories of learning can contribute to identifying the decisive and important factors in the experiences and actions of novice teachers in schools. Four more specific research questions are addressed, via the four papers:

1.  How do novice teachers report on their self-assessed levels of autonomy, service orientation and professional knowledge, and what can this tell us about characteristics of the teaching profession?

2.  What characterises novice teachers' professional development strategies?

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[20] Until fall 2010, where a new teacher education programme was established. This is presented in section 4.1.

3.      How do novice teachers assess their own coping, and how is coping related to collaboration and support?

4.      What do novice teachers perceive as important knowledge and how do they value the normative aspects of teachers' work?

# 4.0.  Norwegian teacher education in a comparative perspective

The research context and the theoretical background for this project have been presented thus far. It is also necessary to present the Norwegian context, so as to establish the main questions for investigation. When investigating professions in a specific society and context, one should attempt to describe how central concepts of professional work are constituted and carried out and the conditions under which this is done (Brante 1988). An overview of the Norwegian programme of general teacher education is presented in the subsequent sections, before a discussion of the Nordic and international relevance.

## 4.1.  Some key points in the historical development of Norwegian teacher education

The Norwegian system of education is typical of the so-called Nordic model of education.[21] Historically (post-1945–1970), this model has been characterised as closely coupled with the expansion of the welfare state. Educational reforms in general have been launched on the basis of national policies, which in turn have been founded on strong and innovative state policies in association with business organisation and industry (Telhaug, Mediås, & Aasen 2006, p. 245). The general teacher education programme has played an important part in this development.[22] However, it is evident from the implementation of the latest curriculum, as part of the Quality Reform introduced in 2003 (Stortingsmelding 16[2001-2002]), that teacher education in Norway increasingly reflects the international trend of harmonising state educational systems to the extensive globalisation and institutionalisation of a standardised world system, where international frameworks have required large-scale system changes (Karlsen 2005, p. 411).

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[21] See the 50-year anniversary issue of *Scandinavian Journal of Educational Research* for several discussions of the Nordic model of education, particularly the articles by Antikainen (2006) and Carlgren, Klette, Myrdal, Schnack and Simola (2006).

[22] There are several routes into teaching in Norway, with the general teacher education programme being the most common and largest. Preschool teachers have their own 3-year Bachelor's degree route and are allowed to teach in the first grade in elementary schools and up to fourth grade with further education. Specialist teacher education exists in arts, crafts and design, physical education and sports, music, dance and drama, and practical-aesthetic subjects. A 1-year undergraduate teacher training programme is a requirement for employment in primary and secondary schools for candidates with a higher vocational or general academic educational background. A 5-year master's programme also exists, which allows for subject specialisation, and the 1-year undergraduate programme is incorporated into this programme. A Sami general teacher education is also taught.

The development of today's general teacher education programme in Norway is a story of changes, expansions and reforms, with different actors exerting pressure and influence on different occasions. The model for the teachers included in this study is a 4-year programme, which is taught at 21 Norwegian university colleges and universities (22 university colleges and universities if the Rudolf Steiner University College, which teaches Waldorf pedagogy, is included). However, many different models have been developed throughout the years.

In 1826, the first public teacher education seminary was established in Norway, and by 1839, all five dioceses in Norway had their own teacher seminaries, as determined by law in 1827. Some private initiatives had existed since the 18th century (Hagemann 1992, p 10-15). In 1835, 5 candidates graduated from the seminaries, and by 1858, 1159 teachers had graduated. In most cases it was young boys who entered the teacher seminaries. From 1837 to 1869, the seminaries had common regulations, which defined the criteria for admission and the length, content and organisation of the education programme. To elevate the quality of the teacher education programmes, a law emphasising control and assessment was passed for the first time in 1890 (*Lov af 14. juni 1890 om Seminarier og prøver for lærere og Lærerinder i Folkeskolen*). Strict guidelines for examinations were emphasised in particular (Karlsen 2003). Eight years after universities in Norway had been opened to both genders, women were granted admission to seminaries under this law. From 1870 to the late 1880s, women's admission was a much-debated issue (Halvorsen, Kjosavik & Jordheim 1999). The establishment of private seminaries was also allowed, and several were established. In 1902, a new law was passed, making teacher education a 3-year programme (Karlsen & Kvalbein 2003). The programme was extended to 4 years with the passing of yet another law in 1929. Students who successfully wrote an examination upon completion of secondary school (*examen artium*) could instead opt for a 2-year education programme in either a "regular" or an English line of study. This expansion meant that more women from the upper echelons of society started applying to and entering teacher education programmes (Aubert, Halvorsen, & Tiller 1956; Karlsen 2003; Lange 1947). In 1938, it became compulsory for students enrolled in teacher education programmes to write an essay on pedagogy. This emphasis on pedagogy was probably related to the formation of the Institute of Educational Research at the University of Oslo and the appointment of Helga Eng as a professor of pedagogy in 1938 (Karlsen 2003).

Since 1954, more experimental forms of teaching in teacher schools have been allowed, coinciding with the introduction of experimental forms of teaching in compulsory schools. During the 1960s and 1970s, even more reforms were implemented, partially because of changes in compulsory education. In 1973, a new law was passed, which stated that individuals planning to pursue a teaching career

must successfully write an examination upon completion of secondary school and complete a 3-year teaching programme. The 4-year teacher education programme with an entrance examination was thus removed. Following this new law (in 1973) a white paper was introduced which emphasised students' choice of curriculum and local determination of structure and content (NOU 1974:58), and this functioned as a temporary curriculum until 1980. In 1980, a curriculum for the general teacher education programme was finally finished, providing the foundation for the curricula introduced in the 1990s, and the four-year teacher education programme was reintroduced in 1992.

According to Hansén et al. (2006, p. 15), the contemporary debate on teacher education started with the publication of the white paper, titled "Med viten og vilje" ["With Intention and Purpose"] (Hernes 1988). This challenging paper about the educational system in Norway led to more reforms in the 1990s. The points of departure set out by the white paper were that the national policies on knowledge were insufficient and that the talent of the Norwegian population was insufficiently utilised. The internationalisation and globalisation of knowledge was thought to put pressure on the current educational systems and policies. Furthermore, because the quality of applicants to the general teacher education programme was decreasing, the programme was described as having problems with recruitment. A number of areas of concern were identified (p. 28):

1. Few mandatory requirements existed in the subjects and the composition of subjects.

2. Few mandatory requirements existed for previous knowledge, meaning teacher education started at basic levels and only occasionally moved beyond the upper secondary school curriculum.

3. Few mandatory requirements existed concerning specialisation in subjects.

4. One third of students who wrote an examination in Norwegian either failed or received the lowest passing grade.

5. Student teachers had poor knowledge of scientific subjects at the upper secondary school level; in the teacher education class of 1987, not a single person chose to specialise in physics or chemistry.

6. Mathematics was not compulsory in teacher education. Very few student teachers chose to specialise in mathematics, and the level of knowledge about mathematics was low amongst student teachers.

7. Although mathematics, social sciences, natural science and English made up 60% of the teaching in elementary school, these subjects comprised only 40% of the subjects taught by

staff in teacher education programmes, and only 20% of the student teachers chose these subjects voluntarily.

8. Too much time was spent on pedagogical knowledge instead of subject knowledge.

In 1992, a new curriculum framework was introduced, in an attempt to re-establish the lost status of teachers and thereby ensure the recruitment of good candidates to teaching (Hansén, et al. 2006, p. 16). As part of this effort, a discussion was carried out about whether to change the general teacher education programme into a 3 + 1 programme, in which the fourth year was designated as further education, at a later point. Telhaug (2001) suggested that the decision to maintain the consecutive 4-year programme was a result of the reluctance of the teachers' professional organisations to reduce the length of the basic teaching education programme, as this might undermine their position in negotiating wages (Telhaug 2001, p. 51). Curriculum changes included decreasing pedagogics to 10 credits (30 European credit transfer system [ECTS] credits) and increasing time spent on the basic subjects. The framework was again revised in 1998. This framework set out 60 mandatory credits (180 ECTS credits) and 20 credits (60 ECTS credits) that could be chosen freely in the fourth year. The 1998 framework and structure are illustrated in Figure 3.

| 4th year | Compulsory additional subjects (10+10 credits or 20 credits) | | | |
|----------|-----------|----------|----------|----------|
| 3rd year | Pedagogy (10 credits) | | Practical subjects (Home Economics or Physical Education) (10 credits) | Science, Society and Environment (10 credits) |
| 2nd year | | Aestethic subjects (Art and Crafts or Music) (5 credits) | Norwegian (10 credits) | Religious Instruction and Ethics (10 credits) |
| 1st year | | | | Mathematics (10 credits) |

*Figure 3.*The structure of the 4-year curriculum framework in the general teacher education programme, which was introduced in 1998

In addition to these subjects, the teacher education programme included 18 weeks of practical training during the first 3 years, and 2 to 4 weeks in the fourth year. The first three semesters (the first 1, 5 years) should also include an interdisciplinary course in drama as a teaching method in connection with the courses in Norwegian, mathematics and religious instruction and ethics.

In 2002, a major revision of the teacher education programme was proposed to the Storting (Stortingsmelding 16[2001-2002]). A new curriculum framework, in which the number of compulsory subjects for teachers was reduced to four (religious instruction and ethics, mathematics, Norwegian

and pedagogics) but the number of compulsory credits was increased, was implemented in 2003. In addition, an interdisciplinary subject, which focused on basic reading, writing and math skills, was introduced (Grunnleggende lese-, skrive- OG matematikkopplæring [GLSM]). It was now possible to use 2 of the 4 years to either specialise in certain subject areas or broaden the scope of subjects taken. The detailed curriculum frameworks presented in 1992 and 1998 were viewed by many as reducing opportunities at the local level to choose how to teach student teachers. The framework of 2003 moved away from this position and provided more room for local adjustments. Reviews of the teacher education programme were carried out in 2001–2002 (Norgesnettrådet 2002) and again in 2004–2006 (Hansén, et al. 2006).

From 2005 onwards, a minimum of 35 school points[23] and average scores of 3 in mathematics and Norwegian were required for admittance to the general teacher education programme. In 2008, the government white paper, "Læreren. Rollen og utdanningen" ["The Teacher:  The Role and the Education"] suggested yet another reorganisation of the general teacher education programme: student teachers were to choose between two different tracks, either primary school or secondary school. The 4-year programme was kept; however, the change to a 3 + 2 (Bachelor's + Master's) programme was also discussed. The curriculum frameworks for this education programme were finished in autumn 2010, and some institutions have already started to teach according to this two-track system.

Discussions on the apprentice model and learning through practice (how much, where, how to organise it) have been carried out since the establishment of the first public teacher seminary in 1826. Practical training has become increasingly important in Norwegian teacher education since the 1980s and 1990s; however, theoretical, school-based training continues to comprise most of the training provided in the 4-year teacher education programmes (Sundli 2003). Compared to other professional groups taught at university colleges in Norway, teachers receive a small amount of practical training in terms of placement periods (20 weeks in total, comprising periods of 2–4 weeks, distributed mostly across the first 3 years of training). These placements are mostly organised with groups of two to four students and one teacher mentor. Some teacher education programmes include what is called "school takeover" in the placement, where student teachers take over the entire school for a short period of time (from 1 day to 1 week). In comparison, nursing students receive 50 weeks of practical training, spread out in several periods of 8 to 10 weeks over 3 years (in

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[23] School points: ranking points awarded to school leavers on the basis of marks and other criteria when applying for admission to higher education institutions (Utdanningsdirektoratet 2010).

a Bachelor's degree in nursing), and most of this training involves mentored participation in different parts of the health service.

The political eagerness to control and continuously reform the content and structure of the general teacher education programme is striking. At the same time, international comparisons (e.g. Eurydice 2008, pp. 47-53) have shown that the systems and incentives for CPD in Norway (i.e., the qualification of teachers *after* initial teacher education) are not regulated to the same extent. Schools and teachers have considerable autonomy in deciding the content and organisation of their CPD activities. However, in light of the discontent about teacher quality mentioned previously, governmental strategies have been implemented so as to increase the quality of teachers through CPD.

## 4.2.    Norwegian general teacher education in a Nordic context

As discussed, the Norwegian general teacher education programme has a history of politically driven reforms. However, to a large extent, changes in the Norwegian educational system, including teacher education, have come about as a result of following international political trends and research trends and changes, particularly in recent years. Thus, these reform initiatives can be viewed as responses to challenges that many, perhaps all, national teacher education programmes have faced. The most recent changes took place against a background where international comparisons, such as the Programme for International Student Assessment (PISA) and Trends in International Mathematics and Science Study (TIMMS), were crucial, and contributed to their development (Elstad & Sivesind 2010). The general sense of there being a crisis in teacher education is international in scope and has been developing for a long time (Adams & Tulasiewicz 1995); however, in response to this, attention has tended to focus on the recruitment and retention of teachers (OECD 2005).

The same pattern can be seen across the Nordic countries. The Norwegian programme for general teacher education is similar to the other Nordic teacher education programs in some regards, but also differs in in important aspects. A thematic report by Petersen (2010) reviewed the differences and similarities between teacher education programs in Norway, Sweden, Finland, Denmark and Iceland, in a current and historic perspective. As the Nordic model of education is often thought to describe a single educational system, it is interesting to highlight both differences and similarities between Nordic approaches to teacher education, and this is the background for Petersen's report (2010). The starting point for the analyses is the struggle in all Nordic countries, except Finland, to recruit the desired teacher candidates, and then to retain them.

First of all, the report shows that all the Nordic countries except Finland have undergone quite frequent reforms of their teacher education programmes. In Finland, only slight adjustments have been made, in order to adapt teacher education to the Bologna process and accommodate minor changes in the exam system. The report author suggests that the frequency of reform may have had some undesirable effects, leading to an unclear picture about how teacher education is organised in these countries, and even to more fundamental confusion about what teaching actually is (Petersen 2010, p. 49). Moreover, the reforms may have led to apathy and resistance to change among the teacher education staff, as they do not feel involved and included in the changes.

Norway now has a four-year teacher education programme which corresponds to the first cycle in the framework of the Bologna-process, and the European Qualifications Framework (EQF). Iceland and Finland, however, have both BA + MA-degrees, which corresponds to the first and second cycle in the Bologna and EQF-framework. The purpose of these frameworks is to improve "comparability and transparency" within the European higher education area, "facilitating movement of learners within, as well as between, higher education systems", and also help to "develop models and study programs based on learning outcomes" (London Communique 2007, p. 3.). One of the main features of Qualifications Frameworks are clearly defined learning outcomes, identified as "statements of what a learner is expected to know, understand and/or be able to do at the end of a period of learning" (Bologna Working Group on Qualifications Frameworks 2005, p. 29). In higher education, these are referred to as first (BA), second (MA) and third (Ph.D.) cycle, and the higher cycles have a more complex set of described learning outcomes. Finnish teacher education has been at a level similar to a Master's degree since 1974, and, thus, has a long tradition as an academic degree.

The seminar tradition has been another common feature of teacher education in all Nordic countries (except Finland) up until modern times. In Finland, the emphasis has been on a more traditional academic approach, where teacher educators have professional autonomy and the programs are research based and the students are expected to be independent and have a high degree of self-discipline. In contrast, the seminar tradition has been oriented towards the practical tasks of teaching, the teacher educators are seen as the keepers of professional knowledge, the degree of obligatory classes is high, and students are included in the teaching in an active way (Kvalbein 1999). In terms of these issues, Finnish and Icelandic teacher education can be described as more strongly oriented towards academic virtues than the other Nordic countries. This is further emphasized by the amount of practical training the different countries require: Finland has 6% of the time devoted to practical training, while Sweden has 12, 5% and Denmark and Norway have about 15% of the time

devoted to practical training. Petersen (2010) argues that the seminar tradition may be quite different from what candidates today associate with a higher academic degree, and therefore the continued retention of this tradition may lead to teacher education being out of line with prospective candidates' expectations.

Although the reforms in Nordic teacher educations have been many, except from in Finland, relatively small efforts have been made to adapt to international trends in teacher education, such as found in e.g. the Teach First- programme and Teach for America[24]. Although different teacher education programmes exist, and Teach First is initiated in schools in Oslo and students from the first three classes in this programme have graduated, they are generally speaking part of the official teacher education, collaborating with the *Lektor*-programme (Master-program/high-school teacher program). The little variation in the programmes is also due to the weak tradition of private schooling in Norway. More variation can be found abroad. Zeichner (2008, pp. 263–268) has described how teacher education in America varies greatly, ranging from a Master of Arts degree in teaching, taught at universities and emphasizing liberal arts and content preparation, and with little emphasis on formal class work preparation, to community-based teacher education programmes that emphasize work-based experience and which aim to develop the cultural competence of teachers. In Great Britain, a movement toward increased on-the-job training has taken place, to counteract the traditional orientation toward academic knowledge (Korthagen & Kessels 1999; Sundli 2001). Such parallel tracks into the teaching profession are found in many countries, providing teachers with very different professional backgrounds internationally. The Nordic countries are perhaps an interesting exception to this trend, with its strong emphasis on public education also in higher education programmes.

An interesting difference between the Nordic countries in terms of recruitment to teacher education programs can be found in the admission systems and admission requirements. As presented in the previous section, the admittance requirements for the Norwegian teacher education programme were changed in 2005, when a minimum of 35 school points[25] and average scores of 3 in mathematics and Norwegian were required for admittance to the general teacher education programme. The intention was to signal academic strength and high standards, but it actually led to a

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[24] Teach First, and its predecessor Teach for America, are programs where the goal is to recruit academically able new college graduates and provide them with teacher training while working in schools. This means an emphasis on subject matter knowledge, or disciplinary knowledge, as an academic degree is taken before practical training and work is introduced (Darling-Hammond et.al, 2005).

[25] School points: ranking points awarded to school leavers on the basis of marks and other criteria when applying for admission to higher education institutions (Utdanningsdirektoratet 2010).

decrease in the number of qualified applicants (Petersen 2010, p. 26). Finland is again the odd one out here, as the only country where interviews are used for screening applicants.

All in all, the Norwegian general teacher education programme shares a lot of characteristics with the other Nordic teacher education programs, with the exception of Finland. Whether the different teacher education programs in the different Nordic countries have a significant impact on novice teacher is an interesting question, which has been little examined. Afdal & Nerland (2012) provide an interesting comparison between the Finnish teacher education programme and the Norwegian teacher education programme. In line with the previous cited research, they describe the Finnish programme as more oriented towards specialized discourses of academic disciplines and inquiry-oriented activities, which was reflected in the teaching of developmental psychology, theories of learning, curriculum theory, and research methods, while the Norwegian curricula reflected what they saw as a weaker disciplinary foundation and a more fragmented organisation of knowledge. The authors argued that the differences may lead to a stronger academic identity among the Finnish teachers, and a stronger orientation towards social and practical issues in the Norwegian Case. In their interviews with six novice teachers from each country, in their first year of teaching, they found that the Norwegian teachers used everyday language to express their concerns, while the Finnish teachers were more oriented towards disciplinary concepts. When Norwegian novice teachers discussed specialized knowledge, it was in terms of subject specific knowledge taught in class, rather than what can be called profession-specific knowledge teachers can use as tools in their pedagogical actions. Afdal & Nerland relate these differences to the differences in teacher education programs.

Finland has also attracted international attention as a success story in terms of students' results in the PISA-assessment of school children, led by the OECD (2001, 2003) which found Finnish students to be among the best in the world in reading, mathematical and scientific literacy. In public debates about education, this success is often related to the high quality of Finnish teachers, based on the argument that the teacher is the single most important factor for predicting student outcomes (Hattie, 2009, p. 108), although this only means that teacher quality is the most important variable among a range of other variables. However, based on the characteristics of Finnish teacher education described above, many have argued that it is not necessarily what happens inside the Finnish teacher education programme that is most important for Finnish PISA-results. Simola, for instance claims that socio-historical explanations for this success are often neglected in favour of emphasising "the excellent Finnish teachers and high-quality Finnish teacher education" (Simola 2005, p. 456). Simola

is careful not to underrate the explanatory power of pedagogical explanations, but he also points out there are many socio-historical factors that also can help to explain "the miracle".

First of all, Finland has a very different contemporary history to its Nordic neighbours. As the closest neighbour to the Russian Empire during the nineteenth century, Finland has been a border country between eastern and western Europe. Finland has also been affected by war, including a bloody civil war. Finland also only relatively recently rose out of an agrarian society and lifestyle, and this traditional way of living co-exists with the modern, Western society. To Simola (2005), these three characteristics lay the foundation for describing Finnish society as being characterised by an authoritarian, obedient and collectivist mentality, a tendency with important implications for educational practices. Furthermore, Simola points to the high status of teachers, and the fact that teachers' work seems to be respected across both the higher and lower ends of the social spectrum. This has also acted to draw in highly competent candidates to teacher education, and teachers are seen as part of the upper social strata. The Finns are described as having trust in the Finnish teachers' competence and quality (Simola 2005, p. 459). On the other hand, Finnish teachers are also described as pedagogically conservative and resisting change for the sake of change. As they are trusted and seen as competent by the public, they have the power as a profession to withstand the pressures from new trends in education. Finally, Finnish teachers also appear to be relatively satisfied with their work, based on international surveys.

## 4.3.    Summary

Simola (2005) points out some distinctive features of teaching and schooling in Finland that are not necessarily pedagogical or that closely related to teacher education. Similar arguments can be found in Sahlberg (2011), who also emphasises the academic orientation of the Finnish teacher education. Another important point to highlight, is that Simola's attention to issues of trust, status, knowledge and autonomy, means he actually offers a discussion of how the central features of this profession have developed in a specific society (although this is not his explicit aim). The emphasis on such profession-specific, socio-cultural factors in explaining the Finnish success of schooling can be used to argue the importance of including similar socio-historical factors in research into other groups of teachers in other countries, such as Norway. In this way, the understanding of the Finnish system can serve as a mirror for developments in the Norwegian teaching profession. Afdal & Nerland (2012) point out some interesting differences between the Norwegian and Finnish teacher education programme that can provide the basis for future comparative research.

With the exception of Finland, the Norwegian general teacher education programme seems fairly typical of a common model of teacher education found in the Nordic countries. Although this cannot be used to test any hypotheses concerning the outcome of different teacher education programs, as the data only concern the Norwegian general teacher education program, it supports an argument that these findings may be valid beyond the specific Norwegian context. Moreover, since many of the challenges novice teachers face seem to be almost global, the opportunity to study them in one specific, well described, context makes the result interesting in an international context as well. Brouwer and Korthagen (2005, p. 154) argue that there are great cross-national similarities in teachers' reports about their transition from education to work. It is also striking that school work has been similarly organised almost everywhere. It is only in the past three or four decades that real changes have come about in the way that work is organised and coordinated in school. International surveys of teachers' work, such as the Teaching and Learning International Survey (TALIS) (OECD 2009a), showed that international differences do, of course, exist. However, the implementation of these kinds of international surveys is yet another indication of the overall comparability of work in schools. When drawing conclusions from analyses of Norwegian teacher education programmes and work in schools, one must recognise aspects of teaching and learning that are distinctive and country specific. However, this does not mean that the findings are not valid internationally. In fact, because of the importance of teacher education in the Nordic educational system, it makes an interesting international case as well, and the experiences and findings from the analyses might provide the background for future international comparisons.

# 5.0. Methodological considerations and approaches

Several different approaches were used to answer the four research questions. The main approach was the use of quantitative survey data, which provided the opportunity to find out how novice teachers differ from other groups, whilst allowing more control over random processes than many other research designs would allow (through the benefits of probability theory and testing). One of the surveys used (in papers 1 and 2) was also longitudinal. This made it possible to combine data from prospective teachers at the end of their education with data from their first encounters with actual teaching work, in a prospective analysis. Two strengths of the analyses performed in these papers were the comparison of novice teachers with other groups and the use of questions asked in different career stages. As discussed earlier, previous research in this area has rarely been comparative, either in terms of comparisons with other professional groups or with other groups of teachers in different career stages. Here, comparisons were made in several directions— longitudinally and across professions—thereby ensuring the opportunity to determine what is special about teachers more precisely than has been possible in previous research. Figure 4 summarises the different data sources, the stage in participants' professional careers when they were administered and the comparisons made in the four papers.

| Paper | Data sources | Stage in professional career | Comparisons |
|:---:|---|---|---|
| 1 | Survey data (StudData panel 2, phases 2 and 3) | Third year of study; 3 years after graduation | Teaching students – nursing students; novice teachers – novice nurses |
| 2 | Survey data (StudData panels 1 and 2, phases 2 and 3) | Third year of study; 3 years after graduation | Teaching students – medical students; novice teachers – novice physicians |
| 3 | Survey data (TEData), interviews and observations | Within 3 years after graduation; after 7–10 years as teachers | Novice teachers – experienced teachers |
| 4 | Survey data (TEData) | Novice teachers; experienced teachers | Teacher educators – novice teachers – experienced teachers |

*Figure 4. **Summary of the data sources and comparisons in the four papers in this project***

In addition to the survey material, a brief series of interviews and observations of novice and experienced teachers in their work is included in paper 3, allowing for more in-depth analyses and alternative explanations of novice teachers' qualifications and coping mechanisms.

## 5.1. Participants, respondents and response rates

The samples in papers 1 and 2 were taken from a longitudinal survey called StudData (Figure 5). This is an on-going, three-panel survey administered to students from 20 different professions and 11

different institutions, at four points in their careers: in the first year of their professional training, the third year of training, 2 to 3 years after graduation and 5 to 6 years after graduation. The StudData survey is organised by the Centre for the Study of Professions (CSP) at Oslo and Akershus University College of Applied Sciences and has been administered by senior researchers at the CSP.[26]

| | Phase 1 Start of education | Phase 2 Third year of education | Phase 3 3 years after graduation | Phase 4 6 years after graduation |
|---|---|---|---|---|
| Panel 1: StudData-1 | Fall 2000 | Spring 2003 | Spring 2006 | Spring 2009 |
| Panel 2: StudData-2 | | Spring 2001 | Spring 2004 | Spring 2008 |
| Panel 3: StudData-3 | Spring 2005 | Spring 2007 | Spring 2010 | Spring 2013 |

Paper 2          Paper 1

*Figure 5.* **Structure of the StudData panels and phases**

StudData began as collaboration amongst researchers from different institutions who contributed their questions and research plans to a group organised by the CSP. Differences in interests and topics initially led to large questionnaires with a wide range of questions. As the project has evolved, considerable work has been put into producing shorter questionnaires with uniform design and content. This evolution also means that the first phases of the project had less emphasis on using standardised and well-tested measurements than did later phases. Thus, some of the measures used in this particular project are well-established and tested, whereas others are of a less well-known origin.

For most groups in the total panel survey, the third year of education was the final year of studies. General teacher education is 4 years long, and students have the opportunity to choose freely where to take their final year (some might even be approved to have previous education count as their fourth year of studies). Thus, it was decided that the end of the third year of studies offered the best trade-off between interests in reaching students at a late stage in their education and the practicalities of administering the survey. Whilst in school, the students filled out questionnaires during organised classes, administered by one of their teachers. After graduation, they received the surveys by mail, with the option to answer an electronic version.

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[26] The specific variables used in this project are presented in appendix 1-4, with links to the questionnaires and official documentation about the data collection.

### 5.1.1. Paper 1

The analyses presented in paper 1 relied solely on material from panel 2, as the material from panel 1; phase 3 was not yet ready for analysis. The paper was based on responses from nursing and teaching students who were in their third year of education in 2001, and were followed up in the spring of 2004. The teachers graduated from three different institutions: Oslo University College, Sør-Trøndelag University College and Volda University College; the nurses graduated from Oslo University College and Ålesund University College. The number of respondents and response rates are presented in Table 1.

*Table 1. **Respondents and Response Rates in Paper 1***

|  |  | Teachers | | Nurses | |
|---|---|---|---|---|---|
| **University College** | Panel-phase | Respondents | Response rate, % | Respondents | Response rate, % |
| **Oslo** | 2-2 | 163 | 82,0 | 350 | 79,0 |
|  | 2-3 | 100 | 51,2 | 191 | 57,0 |
| **Sør Trøndelag** | 2-2 | 186 | 90,3 |  |  |
|  | 2-3 | 79 | 69,9 |  |  |
| **Volda** | 2-2 | 92 | 83,3 |  |  |
|  | 2-3 | 55 | 58,5 |  |  |
| **Ålesund** | 2-2 |  |  | 77 | 79,4 |
|  | 2-3 |  |  | 42 | 44,7 |
| **Total** | Phase 2 | 441 | 85,2 | 427 | 79,2 |
|  | Phase 3 | 234 | 59,9 | 233 | 50,9 |

In survey research, the response rate is important. The response rates for surveys distributed during education (phase 2) were 85% amongst teachers and 79% amongst nurses; these rates are acceptable for most purposes and can be considered as relatively good. Ringdal (2007, p. 277) stated that a response rate of over 60% is acceptable in most survey designs. However, he also noted that if the response rate drops below 50%, it is questionable whether the sample can be considered representative of the population. Results from an analysis of dropout, using official statistics, are presented in section 5.2 (Storøy, 2010). Ålesund University College had the lowest response rate (44, 7%) at 3 years after graduation. In general, the response rates after graduation were in the lower bounds of what is acceptable, although the response rates were better for teachers than for nurses. Initial phase 3 response rates were low, but various measures were taken to ensure an acceptable response rate, including calling respondents and sending e-mail surveys to their registered student addresses. These measures helped to achieve acceptable response rates after graduation, but the response rates remained lower than those for surveys given during education.

### 5.1.2. Paper 2

The analyses presented in paper 2 were based on combined data from phases 2 and 3, of panels 1 and 2. The student teachers were from Oslo University College, Sør-Trøndelag University College, Volda University College and Bergen University College. The medical students were from the University of Oslo and University of Bergen. The numbers of respondents and response rates are presented in Table 2. Overall, the response rates were better in this paper, but some were still in the lower bounds of acceptability in phase 3. Oslo University College had the lowest response rate for teachers (51, 2%) while the lowest response rate for physicians were 59, 3%. Again, overall response rates were better for teachers.

*Table 2. **Respondents and Response Rates in Paper 2***

| University College | Panel-phase | Teachers | | Physicians | |
|---|---|---|---|---|---|
| | Panel – phase | Respondents | Response rate, % | Respondents | Response rate, % |
| **Oslo** | 1-2 | 133 | 67,0 | | |
| | 1-3 | 97 | 56,1 | | |
| | 2-2 | 163 | 82,0 | | |
| | 2-3 | 100 | 51,2 | | |
| **Sør-Trøndelag** | 1-2 | 190 | 96,0 | | |
| | 1-3 | 95 | 62,1 | | |
| | 2-2 | 186 | 90,3 | | |
| | 2-3 | 79 | 69,9 | | |
| **Volda** | 1-2 | 57 | 800, | | |
| | 1-3 | 31 | 56,4 | | |
| | 2-2 | 92 | 83,3 | | |
| | 2-3 | 55 | 58,5 | | |
| **Bergen** | 1-2 | 138 | 72,0 | | |
| | 1-3 | 87 | 54,7 | | |
| | 2-2 | - | - | | |
| | 2-3 | - | - | | |
| **University of Oslo** | 1-2 | | | 137 | 79,7 |
| | 1-3 | | | 81 | 61,8 |
| | 2-2 | | | 141 | 76,2 |
| | 2-3 | | | 166 | 59,1 |
| **University of Bergen** | 1-2 | | | 102 | 71,3 |
| | 1-3 | | | 78 | 68,4 |
| | 2-2 | | | - | - |
| | 2-3 | | | - | - |
| **Total** | Phase 2 | 959 | 81,6 | 380 | 75,7 |
| | Phase 3 | 544 | 68,3 | 325 | 63,1 |

### 5.1.3. Paper 3

Paper 3 used different survey material than papers 1 and 2: Teacher Educator Data 1 (TEData1) was collected as part of the project, "Novice Teachers and How They Cope," funded by the Research

Council of Norway.[27] TEData1 was a cross-sectional survey of 111 Norwegian schools with contracts connecting them to teacher education as practice schools (i.e., the sites for practical training in general teacher education programmes). The 111 schools were connected to the same six university colleges with teacher education programmes included in the StudData project. Because these schools are formal sites for teacher education, all teachers in these schools are considered teacher educators—hence, the name "Teacher Educator Data." The survey was distributed by e-mail during the summer of 2008, and was completed by 2205 respondents, giving an overall response rate of 62%. Of these, 218 had 3 years of experience or less and, thus, were defined as novices in the analyses.[28] Because the schools have a particular role in teacher education, there may be a bias in the material towards a stronger teacher educator identity than would be found amongst staff in regular schools. Munthe and Ohnstad (2008) examined this material and concluded that, compared with other employees in the schools, employees with a special responsibility for teachers in a placement period have different views on teacher education, seem more dedicated to being professional teachers and seem more dedicated to teaching. These extra-dedicated teachers make up 17% of the respondents, spread amongst the different schools.

In addition to the surveys, paper 3 also used qualitative interview and observational materials gathered from two lower secondary schools (8th–10th grades) and two elementary schools (1st–7th grades). These grades constitute the entire compulsory educational system in Norway. Two of the schools are located in eastern Norway and two in western Norway; two are located in urban environments and two in rural areas. The schools each have 30 to 40 teachers and 300 to 500 pupils, making them medium-large schools in a Norwegian context. The key informants included 8 novice teachers, in addition to experienced teacher colleagues and the school leadership. One important aspect of the qualitative studies involved "shadowing" and documenting novice teachers and all their school activities for an entire week. Their work in the classroom was videotaped and scored using a standardised tool called the Classroom Assessment Scoring System (Pianta, La Paro, & Hamre 2006). However, rather than being analysed according to the system's manual, the recorded observations of novice teachers were then used as a foundation for semi-structured interviews. Novice teachers, their superiors and experienced colleagues were all interviewed to enquire further about classroom

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[27] http://www.hioa.no/Forskning/Hva-forsker-vi-paa/Forskning-og-utvikling-ved-SPS/Kvantitative-databaser-ved-SPS/LU-data (in Norwegian only, accessed 03.12.2012).

[28] As discussed in section 2.2.1, the first 3 years of teaching are often characterised as a distinct period in a teacher's career, and the teacher is often referred to as a novice or an advanced beginner, in contrast to a competent professional (Berliner 1994; Day, et al. 2007).

management, teamwork and the importance of school leadership. Professor Finn Daniel Raaen[29], co-author of paper 3, collected and organised the qualitative material.

This expansive qualitative material was used to discuss and elaborate on the survey material in paper 3. This material was also important in the quantitative analyses and in the theory development and identification of relevant research. Because the main approach in this project has been quantitative, a goal has been to use the qualitative material not only to address the same story as the survey material but also to present supplementary interpretations and elaborate on the quantitative work. This can be seen in the inclusion of different forms of teacher collaboration in the quantitative analyses. Teacher collaboration was originally included in the quantitative analyses via one index, describing the degree of collaboration, but not the form of collaboration. Based on the interviews, it appeared that different forms of involvement and commitment in collaboration might be important. Attention was then directed towards previous research and studies that described different forms of teacher collaboration. Quantitative analyses indicated that models distinguishing different types of collaborative work were superior to models using only the degree of collaboration.

The interviews also presented supplementary explanations of the survey findings. The results in papers 1 and 3 suggested that novice teachers have low participation in various forms of educational follow-up, such as mentoring programmes. To some extent, this was interpreted as part of a structural problem in teaching. However, the interviews suggested that novice teachers do not feel the need to participate in these programmes, and avoid them because they struggle to articulate their needs (although their more experienced colleagues noted shortcomings in the novice teachers' work). The interviews thus provided supplementary in-depth interpretations that would not have been available from the survey material alone.

### 5.1.4. Paper 4

In the winter of 2008 a second survey oriented towards teacher educators (TEData2) was distributed by e-mail during to 19 teacher education institutions in Norway, again as a part of the project "Novice Teachers and How They Cope." It was distributed to all employees who taught student teachers, regardless of their position description. This means that a teacher educator was defined as someone who, knowingly or unknowingly, teaches student teachers in general Norwegian teacher education. A total of 545 teacher educators responded, an overall response rate of 49% (Table 3). Bias might have been introduced into the material in the self-selection of respondents and in the

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[29] Center for the Study of Professions, Oslo and Akershus University College of Applied Sciences.

definition of teacher education used in the survey. Feedback from selected respondents, whose addresses had been provided by the administration at the 19 university colleges and universities, indicated that many of those who teach without knowing whether they teach student teachers, or other students, did not consider themselves to be teacher educators and so did not intend to participate in the survey. This was especially true at Volda University College and the University of Agder, which have a so-called matrix model for organising their teacher education; teacher education is spread amongst different departments and is coordinated by a central office (Hansén, et al., 2006 p. 66-67).

Feedback from the respondents in TEData2 also indicated that the many of non-responses to the survey may have been because those approached did not see themselves as teacher educators. Part of the low response rate was probably because of this confusion about roles, and if so, this may have introduced a bias in the material towards an overrepresentation of those with a clear responsibility for teaching student teachers. Moreover, the response rate was also affected by the fact that the institutions included respondents who did not belong in the survey at all. This could mean that the actual response rate (from the relevant population) was somewhat higher, probably between 55% and 60%, and is thus probably less biased than it might initially seem.[30] In TEData1 and 2, the respondents matched the population in terms of age, work experience and gender.

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[30] A later survey organised in the same way as TEData2 covered nursing educators, preschool teacher educators, physiotherapy educators and social work educators, and included the question "I do not teach any … students" (Yes/No). This led to a deletion of about 5% of the respondents, increasing the response rate correspondingly (Hatlevik, Caspersen, Nesje, & Vindegg 2011). The question was included on the basis of the experiences with TEData2.

*Table 3.* **Respondents and Response Rates in TEData2**

| University College | Respondents | Response rate, % |
|---|---|---|
| University of Agder | 18 | 30 |
| Bergen University College | 53 | 52 |
| Bodø University College | 20 | 47 |
| Buskerud University College | 10 | 59 |
| Finnmark University College | 12 | 38 |
| Hedmark University College | 39 | 52 |
| Nesna University College | 18 | 45 |
| Nord-Trøndelag University College | 26 | 57 |
| Oslo University College | 64 | 59 |
| Sogn and Fjordane University College | 14 | 74 |
| University of Stavanger | 39 | 32 |
| Stord/Haugesund University College | 36 | 55 |
| Sør-Trøndelag University College | 40 | 47 |
| Telemark University College | 12 | 52 |
| Tromsø University College | 15 | 48 |
| Vestfold University College | 24 | 39 |
| Volda University College | 50 | 59 |
| Østfold University College | 29 | 46 |
| NLA University College | 26 | 76 |
| Total | 545 | 49 |

A number of questions were similar in TEData1 and TEData2, making it possible to compare the answers of teacher educators employed in university colleges and universities, with those employed in practice schools. This was done in paper 4.

## 5.2. Attrition and validity

In survey research, a low response rate affects the validity of the data by increasing the probability that the sample is biased in some way. Such bias presents a challenge: it is not straightforward to assess or guess in what ways the sample is biased because of a low response rate or what the impact of bias will be; people have diverse reasons for participating or not participating in surveys. Some non-responses to the surveys given during education will simply have resulted from students being absent from class when the surveys were distributed. Other may have simply refused to participate, without giving any further explanation (which is perfectly acceptable as participation was voluntary), and respondents could also withdraw from the survey at any time. In the follow-up survey, during the final year of education, only 1 student teacher explicitly decided not to participate. In phase 3 (after graduation), 24 teachers, 17 doctors and 45 nurses withdrew from the survey. An often-used method for assessing potential sample effects or sample bias is to compare respondents with demographic population data. In StudData, the overall composition of the groups matched the

population in age, gender and previous work experience. However, given that some subsamples in StudData had a response rate near to 50%, the question is not whether the data are biased, but whether they are biased in any important way.

In panel surveys, response rates are not the only important issue. Panel attrition must also be considered. The analyses in Figure 2 in paper 1 and Table 2 in paper 2 are based only on respondents who answered the surveys in both phases. The numbers of respondents were thus lower than those reported in Tables 1 and 2 because of panel attrition and the fact that post-graduation surveys were sent out whether or not respondents had answered in the previous phase.

There are many possible reasons for attrition, including dropout from the profession. To delve deeper into these questions, additional employment statistics have been used to compare the individuals who participated in the panel 2 survey with those who dropped out (Storøy 2010). The findings indicated that dropout from the survey was significantly related to dropout from the profession in the case of teaching, but not in the cases of nursing and medicine.

In general, research has shown that young people and male respondents have larger survey attrition rates than the rest of the population (Brehm 1993). However, because this survey's participants were primarily in the younger age groups this general principle may be less relevant (although there were relatively few men). The dropout analysis (Storøy 2010) indicated that the opposite pattern was actually true in this survey sample: in phase 2 (the third year of education), the younger students had higher participation rates than the older students. In phase 3, there were no significant differences by age. However, male students did drop out significantly more often than female students.

An additional test to check for potential attrition effects is to compare the answers of respondents who answered in only one phase with the answers of those who answered in two phases. This was done as the analyses progressed, but this approach (analyses of means and crosstabs) yielded no indications of systematic attrition effects. In paper 2, the same analyses were done for potential differences between the panels, and, again, no differences were found.

As Bryman (2004, p. 88) explained, it is almost impossible to determine whether differences exist between the population and the sample in terms of "deeper" factors, such as attitudes or patterns of behaviour, when there is a substantial number of non-responses. Speculations about the direction of bias effects are difficult and more or less futile. However, there was some identified selection—and thus probably bias—in the results, and this calls for some caution. The identified dropout is related to dropout from the profession; because the analyses were aimed at people actually joining the profession, this was not particularly alarming. Nor was the correlation of dropout with gender

because gender was not a specific research topic in this project. The attrition analyses therefore did not show a clear pattern that would make it possible to, for example, introduce weights in the statistical analyses, and the different methods used did not show a systematic pattern.

## 5.3. Variation between institutions and panels

Variations between institutions and panels have not been addressed in all papers (only in paper four). It is important to distinguish between two types of differences and variations: systematic and unsystematic. Unsystematic differences are not a great problem, as due to their random nature, they can be expected to even out across institutions and panels. Systematic variations, however, would mean that institutions and panels could not be treated as equal, or as offering insights into the same population. It could be hypothesised that different institutions have different traditions and ways of organising their teacher education, and that this creates systematic differences between institutions. It could also be that the different institutions attract different groups of students, and that this creates systematic variations. If so, collapsing the material across institutions would be incorrect, as the respondents would come from different populations. The same kind of argument could be made about collapsing data across panels: different types of students could be recruited at different times, and changes in curricula and the organisation of the education could lead to systematic differences between panels.

In order to examine whether systematic variations across institutions and panels could constitute a problem in these papers, intraclass correlation coefficients (ICC) have been calculated for the different dependent variables used in the papers. ICC is often used as a first step in multi-level analysis, to describe how much of the variation in a variable can be accounted for by the level-2 variables included. For instance, as shown in paper four, where teacher educators and teachers in schools are compared, ICC explains how much of the variance is accounted for at the level of teacher education or schools. If a large amount of the variation is explained at the level of the institution (a rule of thumb is often more than 10%), this implies that the observations cannot be treated as independent. This is a basic assumption in all common regression techniques used in the thesis.

*Table 4. **Intraclass coefficient (ICC) for all main variables used, for panel and institution***

| StudData | | | TEData | |
|---|---|---|---|---|
| **Paper 1.** | *ICC-Panel* | *ICC-Institution* | **Paper 3** | *ICC-Institution* |
| **My work demands that I work fast** | 0,00 % | | Self-efficacy expectations - student learning | 5,70 % |
| **In my work I have very little freedom to decide** | 0,20 % | | Self- efficacy expectations - student motivation | 1,40 % |
| **In my work there are many repetitions** | 0,70 % | | Teacher certainty | 5,10 % |
| **I have a lot to say regarding my work** | 0,50 % | | Relational support - school leadership | 17,60 % |
| **My work demands that I am creative** | 1,00 % | | Professional support - school leadership | 7,80 % |
| **I have a lot of variation in my work** | 0,10 % | | Collegial Support | 0,00 % |
| **Helping others – value** | 0,00 % | 0,00 % | Joint planning | 22,40 % |
| **Helping others – reward** | 1,60 % | | Deliberation on consequences | 6,70 % |
| **A job that is useful to society - value** | 0,00 % | 0,40 % | **Paper 4** | |
| **A job that is useful to society - reward** | 0,00 % | | Inclusion is a nice principle, but hard to implement practically | 5,70 % |
| **Contact with other people - value** | 0,00 % | 0,20 % | Some students demand so much, they are better off being taught outside the classroom | 4,00 % |
| **Contact with other people-reward** | 0,00 % | | When the teacher organises in favour of the weak students, it affects the teaching of the other students negatively | 7,00 % |
| **Paper 2** | | | Children with great learning disabilities are having trouble in ordinary groups of students | 5,10 % |
| **Systematic guidance from superior or colleague** | 0,00 % | | Children with great behaviour problems are having trouble in ordinary groups of students | 4,60 % |
| **Specific induction programs** | 0,00 % | | Weak students learn best outside of the classroom | 4,50 % |
| **In-house courses** | 0,20 % | | To have good content knowledge in the subjects | 1,80 % |
| **Participation in external courses** | 0,70 % | | To have good knowledge on children's development | 2,20 % |
| **No systematic training** | 0,20 % | | To have good knowledge on learning | 0,80 % |
| **Total outcome of education** | 2,00 % | 3,60 % | To have good knowledge on curriculum analyses | 4,30 % |
| **Study strategy** | 1,80 % | 5,00 % | To have good knowledge on group processes and social relations | 3,20 % |
| | | | To be able to give reason for choices and priorities | 1,60 % |
| | | | To be able to motivate | 0,40 % |
| | | | To master many modes of teaching | 3,10 % |
| | | | To be able to keep discipline in the class | 3,20 % |
| | | | To be able to keep control in the class | 1,10 % |

In table 5.4 the ICC is calculated for each variable included in the material, for either panel (in StudData), or institutional belonging (or both). The ICC varies between 0 and 22, 4 %, but only in two instances does it exceed 10 %. Moreover, for the variables used in TEData (the surveys in schools) the amount of either novice teachers or experienced teachers in each school varies between 1 and 7. This means that systematic variation between schools is more precisely described as variation between teachers, and that the number of level 1 units (teachers) is too low to use multi-level techniques to correct for interdependence between observations (see e.g. Rabe-Hesketh & Skrondahl 2008; Strabac 2007). The seemingly systematic variation between schools is exaggerated due to the low number of novice and experienced teachers in each school.

The analyses in table 5.4 provide empirical support for the conclusion that the systematic variation between schools, teacher education institutions and panels is very small. This is unsurprising, and actually contributes to a general argument made in this thesis, that teaching (still) is an individual enterprise, and that variation can be found between teachers, irrespective of where they work. It is perhaps more surprising that the analyses show that teacher educators do not vary systematically between institutions, and that students that study or graduate from the same institution are not particularly similar. However, as discussed in section 4.1., Norwegian teacher education has been subject to many reforms and attempts to make teacher education more unified and standardised. The Norwegian general teacher education is also regulated through national curriculum regulations. The teacher education institutions must interpret and specify how the national curriculum should be implemented in teacher education, and specify objectives and structure of the education program. Thus, teacher education programs and institutions vary within set boundaries, and the outcomes should be similar irrespective of the institution.

The systematic variation between respondents accounted for by which panel they were in is close to zero. This implies that no bias can be identified due to panels, and this is also supported by the previously mentioned check (section 5.2.) of whether the answers from respondents who only replied in one phase differ from those who replied in two phases, and whether differences could be found across panels. No differences were found. With reference to the national curriculum framework, differences due to panel would also be somewhat surprising, as no major changes happened in the time-frame included in this study, in terms of reforms or recruitment initiatives.

## 5.4.  Methods and techniques

Different quantitative methods were used in the various papers, because different questions demand different approaches. Because the focus in paper 1 was on simple group comparisons, paper 1 used *t*-tests of means (independent samples between groups, dependent samples within groups across phases) to look for potential differences between teachers and nurses. In paper 2, an independent samples *t*-test was used to compare teachers' and physicians' understanding and evaluation of their workplaces. To predict the likelihood of using different knowledge sources when controlling for different independent variables, logistic regression—more precisely, ordinal logistic regression—was used because the ordinal test level of the variables made linear regression inappropriate (Long 1997; Long & Freese 2006). An ordinal test level means that the categories can be ordered, but the distances between them are unknown.[31]

Paper 3 used a structural equation modelling (SEM) approach (Kline 2005, p. 11). This type of approach is used to test the plausibility of a causal structure with both manifest (observed) and latent (factor) variables. The postulated structure should be derived from theory and/or previous research, as done in paper 3. A causal model for coping with work as a teacher was developed for novice teachers and experienced teachers. Confirmatory factor analysis was used to establish the latent variables in the model, on the basis of previous research. The various items and indexes are presented in Appendix 3 and their origin is discussed in paper 3, and in section 5.4. with subsections. The theoretical discussion and previous research were then used to construct a postulated model. This model was tested and modified to find a good fit with the data, with assessment of fit determined from multiple criteria that reflected statistical, theoretical and practical considerations. As Tabachnik and Fidell suggested (2001, p. 721-723), the first step was to include causal paths and correlations using the Lagrange multiplier test, checking which variables would contribute to a better model. After the best-fitting model was determined, non-significant parameters were removed one at a time, to obtain parsimony whilst making sure that the model as a whole retained a good fit. This is what Tabachnick and Fidell referred to as a Wald test (pp. 723–728). The goal is to develop a model that is theoretically sound and has reasonably good statistical correspondence with the data (Kline

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[31] Strictly speaking, this applies to most survey questions measuring attitudes or opinions on a scale. However, when there are many categories (customarily five or more), it is normal to use this with techniques that require a higher level of measurement. This requires the scale to be assumed to provide theoretical meaning, and for the measured opinion/attitude (Y) to be normally distributed (Gaussian) in the population and that the measure of Y corresponds quite well to the theoretical Y. The distribution in the sample must also not be too skewed in any direction but must remain close to the normal distribution (Ringdal 2007, p. 286).

2005, p. 11). The SEM approach can be seen as offering a balance between explorative and confirmatory approaches.

In paper 4, comparisons amongst teacher educators, novice teachers and experienced teachers were made with one-way Analysis of Variance (ANOVA), followed by the Scheffé post-hoc test. This made it possible to compare group means on different statements. To analyse relationships between three different indexes in the paper, Pearson's r values were calculated. Linear regression with clustered robust standard errors was used for multivariate analyses between the three indexes and different independent variables. Clustered robust standard errors were used in order to correct for the correlation of data within schools and teacher education. There are both statistical and practical reasons for using this approach (Strabac, 2007). Statistically, the hierarchical structure of the data (teachers within schools, in this case) violates the requirement in ordinary regression analyses that the observations are statistically independent; thus, the coefficients would be estimated imprecisely, and the standard errors might be underestimated. As the 2205 teachers included in the analyses are from 111 different schools, it is possible that the answers of teachers' within one school are correlated. To examine this, or how much of the variance can be accounted for at the school level, intraclass coefficients were calculated. These coefficients indicate that only small portions of the variance could be accounted for at the school level (from 0 % to 8 %). Nevertheless, in order to correct for this, clustered robust standard errors were used. Clustered robust standard errors may be considered as a "weaker" technique than using multilevel modelling techniques, but can be argued to be more easily interpreted, as this does not change the analysis itself, only the estimation of standard errors[32]. Multilevel models were also computed, and the results compared, but no significant differences in results were found. Thus, the most easily interpretable technique was preferred.

## 5.5.  Indexes and items – reliability and validity

Measurement in social sciences can be defined as the "process of linking abstract concepts to empirical indicants" (Carmines & Zeller 1979, p. 10). The focus is on the observable response (whether marks on a survey or responses in an interview), but the interest is in the underlying, not directly measurable concept that is represented by the response. However, the translation from

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[32] Stata Library. Analyzing Correlated (Clustered) Data. UCLA: Academic Technology Services, Statistical Consulting Group. http://128.97.141.26/stat/Stata/Library/cpsu.htm. (05.01.2012)

abstract concept to measured observation is a vulnerable process: how sure can one be that the relationship between concept and measure is sufficiently strong?

In this project, the various measures used in the papers are taken from different sources, and as far as these sources are identifiable, they are presented in the papers with references. However, because StudData—from which the material used in papers 1 and 2 was taken—is a large, on-going project, it was not always easy to uncover the origin of every question. A relevant question, then, is whether the intended concept is actually being measured.

Reliability refers to the issue of consistency of measures used (Bryman 2004, p. 70-72, 543). It includes a measure's stability (whether one can be confident that results do not change or fluctuate), internal reliability (whether the indicators that make up the scale are consistent, with scores on one indicator tending to be related to scores on other indicators) and inter-observer consistency (whether multiple observers of the same phenomenon report the same scores). With survey questionnaires of the type used in this project, tests of stability and inter-observer consistency should, ideally, be done before the surveys are distributed. If this is not possible, one approach is to use measures that other researchers have developed and tested.

Internal reliability can be tested in many ways. The most common is Cronbach's alpha, which is essentially a calculation of the average of all possible split-half reliability coefficients (Bryman 2004, p. 72). As Ringdal (2007) stated, the alpha value is a function of the correlation between the indicators and the number of indicators. Reliability increases as the number of indicators and the strength of the correlation between the indicators increase. Thus, a theoretical concept is better measured with many indicators than only a few (but the theoretical concept is also more broadly defined).

Validity refers to the extent to which a measuring instrument measures the intended subject (Carmines & Zeller 1979, p. 17), and different aspects of validity can be addressed. Criterion-related validity, or predictive validity, refers to the degree of correspondence between a test and the criterion it is intended to measure. The testing of criterion-related validity involves actually checking this correspondence. However, in practical research, this is often impossible because "for many, if not most, measures in the social sciences, there simply do not exist any relevant criterion variables" (p. 19).

Content validity refers to the degree to which an empirical measurement reflects a specific domain of content. To achieve 100% content validity, there must be agreement regarding the theoretical concept. However, most theoretical concepts in social science have not been precisely described and

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probably cannot be described accurately in a complete, uncontroversial manner. For instance, what could be the agreed upon, theoretical definition and description of coping (analysed in paper 3), and what would the dimensions to be covered include? The measure included in the paper uses teachers' self-efficacy and certainty as indications of coping, but other measures can also be imagined, e.g. burnout or stress-level. Furthermore, there is no consensus about a criterion for assessing the degree of content validity in the manner that Cronbach's alpha is used to assess internal reliability.

Criterion validity and content validity have limited usefulness in many (or even most) cases, as discussed previously. Therefore, many researchers have argued that particular attention should be paid to construct validity. Such validity, which is investigated when there is no agreed upon criterion or general acceptance of a universe of content, "is concerned with the extent to which a particular measure relates to other measures consistent with theoretically derived hypotheses concerning the concepts (or constructs) that are being measured" (Carmines & Zeller 1979, p. 23). The general idea is to take theoretical considerations as the point of departure and find other variables with which they should have a relationship. For instance, an operational definition of social class should be able to demonstrate differences in material rewards, as well as differences in culture and lifestyle. If these differences cannot be found, doubt can be cast on the way we have measured social class. However, the misspecification could equally well be found with the measures of material rewards, culture and lifestyle used in the validation (Ringdal 2007, p. 170). As is evident from this example, the assessment of criterion validity comes close to the theoretical and substantial analyses themselves.

A final validity concept—mentioned in some, but not all, textbooks on social science research (e.g., Bryman 2004, p. 73)—is face validity. This refers to how well the content reflects the concept in question, at a first glance. Experienced researchers might act as judges to establish whether a measure seems to reflect the concept concerned. The surveys used here (StudData and TEData) were constructed collaboratively by senior researchers with long-running experience, who provided their opinions and views on the different questions. In that way, the surveys are "peer reviewed projects" with experienced researchers, which should ensure their validity. In the following sections the operationalizations and indexes used in the papers are discussed. Descriptive statistics for single items and measures not presented in the paper because of restricted space are presented in appendices 1 - 4 (only for teachers). Url-links to all of the questionnaires are also presented.

### 5.5.1. Professional knowledge and competence

To some extent, the idea that several items can measure a concept better than a smaller number of items can be transferred to apply to the project as a whole. The key concepts are approached with

different measures in the different papers (and also within each paper), covering a wide range of aspects. Professional knowledge is addressed by examining novice teachers' participation in different types of follow-up and guidance systems, their way of acquiring knowledge during studies and work, the content and goal of collaboration between teachers and the understanding of what is important about teacher competence. The overall picture that emerges suggests that these measures are related and that they are an expression of a professional knowledge culture in teaching; it also suggests that the use of a variety of measures strengthens the reliability of these analyses.

Professional knowledge is an abstract and illusive concept, and the different ways that have been used to measure it point to the different levels of understanding the teaching profession. In paper 1, the professional knowledge culture of teaching was operationalized through the follow-up novice teachers report, as compared with the follow-up nurses report. The novices were asked whether: they had received systematic guidance from superiors or colleagues; participated in specific induction programmes, in-house courses or external courses; or, had received no systematic training at all. If these different forms of follow-up were examined at the level of the individual school, they could indicate an attitude about professional development which is part of that school's culture. However, when teachers' participation in various kinds of follow-up and training is compared with that of other professionals, light is shed on the systems of professional development and follow-up in teaching as a profession.

In paper 2, the dependent variables were the various actions that professionals can take to obtain knowledge in situations where they feel they need more knowledge. The question is how often (daily, weekly, occasionally or seldom) they seek information, when they need additional knowledge in demanding situations, from various sources: superiors or work colleagues; colleagues outside the workplace; books and other print sources; or, from the internet. This question addresses one's individual strategy for obtaining knowledge, which, of course, is regulated or structured by the opportunities in the work situation. Two independent variables related to professional knowledge were also included in paper 2. The first was study strategy during education. This is measured via an index based on seven items that was constructed especially for the StudData survey, and describes the range from an exam-oriented "minimum student" to an "extra-effort student" who seeks out relevant literature and approaches lecturers for more information. The second variable was total outcome of education, measured as an additive index of 17 items. The students were asked to what extent they feel that their education provided them with knowledge and skills across different areas, on a five-point scale ranging from 1 (not at all) to 5 (very much so). The measure is a Norwegian

adaptation of the NSSE (National Survey of Student Engagement) at Indiana University; measuring generic outcomes of education (see e.g. Zhao and Kuh, 2004, p.10).

Paper 3 examined how teachers cope with the demands of teaching, in terms of self-efficacy and certainty, and compared the approaches of more and less experienced teachers. In that paper, professional knowledge was included at the level of school culture, in terms of collaboration for professional development. This makes it possible to explore how collaborative knowledge culture in schools affects the way in which individual teachers cope with their work.

In paper 4, professional knowledge was included in the dependent variables in two ways. The main purpose of the article was to examine whether teacher educators, novice teachers and experienced teachers have the same understanding of what constitutes important knowledge for novice teachers. Novice teachers, teacher educators and experienced teachers were asked what it takes to succeed as a teacher in an elementary school today. In addition, the three groups were asked their views on a core concept in schools today: the inclusion of special needs students who face challenges in normal classes. Again, it was the potential for comparison, not the questions themselves, which shed light on the professional knowledge base. Potential contrasts between what teachers and teacher educators view as important indicate differences in what is considered significant, and a potential disagreement about the role of education. In this way, the discussion is related to classic dimensions in research on teachers' professional knowledge: practical and theoretical knowledge, and normative judgments.

### 5.5.2. Autonomy

In chapter 3 of this thesis (section 3.2.), the idea of autonomy at different levels was discussed, including differences between individual autonomy (technical) and autonomy at the level of the profession (socio-economic). Because the empirical material in this project consisted of individual survey responses, it was the individual, technical autonomy that could be measured (although the discussion reflected on the connections between technical and socio-economic autonomy). Technical autonomy was most directly measured in paper 1, but the tensions existing between autonomy, individualism and collective professional work were also discussed in papers 2 and 3. In paper 1, six items were used to compare teachers' and nurses' technical autonomy. Three items measured demand in a "negative" way (i.e., negative demands from work), and three items described this work in a more positive way. Demands that limit individual teachers' freedom to make decisions can be said to reduce their technical autonomy, whereas creativity, influence and variation are positive descriptions which imply of a high degree of technical autonomy.

In paper 2, autonomy was addressed through the use of the Job Demand Control Support variables (Karasek & Theorell 1990). Control and decision latitude are used as synonyms in Karasek and Theorell's work. Control and demands can be combined in different ways to describe different types of work situations (high demands + high control = active jobs; high demands + low control = high strain jobs; low demands + low control = passive jobs; low demands + high control = low strain jobs). Social support can be a moderator of the effects of demands and control. Karasek and Theorell included the classic professions, such as the surgeon, in their description of active jobs.

The items used to measure autonomy in paper 1 and 2 were taken from the core Job Content Questionnaire and the Quality of Employment Surveys (Karasek, Brisson, Kawakami, Houtman, Bongers, & Amick 1998). However, a few questions from these sources were not used, including one item in the measure of skill discretion ("my job requires that I develop new abilities"), two items in the measure of social support from supervisor ("my supervisor pays attention" and "my supervisor is a good organiser"), two items in the measure of social support from colleagues ("my co-workers are competent" and "my co-workers are helpful") and the single item "education required by job" in the measure of skill utilisation. The exclusion of these items reduced the number of items from 27 to 21 and might be argued to affect the reliability and validity of the measures when comparing the results to previous research. However, many researchers have pointed out that the questionnaire put forth by Karasek et al. was more suited to describing types of work common in industry and industrialised production than the type of knowledge-intensive work typical of professions (Mikkelsen, Øgaard, & Landsbergis 2005). Several attempts have been made to reformulate the Job Content Questionnaire (see Hokerberg et al., (2010) for an overview). As discussed in paper 2, a factor analysis on both groups (Kim & Mueller 1978)[33] supports a five-factor solution. One item, repetitive work, which is used (inverted) in the original model as a measure of skills discretion, also loads together with hard work and fast work, items in the measure of psychological job demands. When repetitive work is excluded from the factor analyses, Karasek's initial model is reproduced, except that support from colleagues and support from supervisors are combined in one factor and skills discretion is divided into two factors. However, this remains very close to Karasek's initial model; thus, the initial structure was maintained to aid in comparison with previous research.

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[33] Principal components with oblimin rotation (as it is assumed that the factors are correlated), minimum factor loading 0.32 (10% of factor variance), Kaiser's criterion used for extraction (eigenvalue >1). Total explained variance: 60.5% (see Kim & Mueller (1978), for an overview of criteria and discussion).

In the discussion of autonomy in chapter 3, it was argued that autonomy is also related to collegial support, collaboration and the way in which work is organised. Teaching work has been described as individualistic, despite efforts to increase teacher collaboration and joint work, and it can perhaps be argued that the flip side of the autonomous teacher is the individualistic teacher. Thus, the variables measuring support from colleagues and superiors (in paper 2) and collaboration with colleagues of different kinds (in paper 3) are relevant for discussions about autonomy as well as about professional knowledge and expertise.

### 5.5.3. Service orientation

Service orientation was analysed in paper 1 through a simple value-reward model. Comparing values with perceived rewards is an established way of analysing job values (see e.g. Dæhlen 2007, 2008). Students were asked what aspects they consider important when choosing a job. Rewards were measured by asking the respondents at a later time whether different reward aspects could be fulfilled in their work. Based on a comparison of their values with their rewards, a value-reward model was constructed, which could be used to determine whether the students find they have opportunities to realise their values.

The job value measures used here have been employed in previous studies, and can be considered established measures (e.g., Johnson, (2001), Mortimer & Lorence, (1979) or Rosenberg, Suchman, & Goldsen, (1957)). Job values are often divided into extrinsic and intrinsic values; for example, a professional's service orientation could be considered to be an extrinsic reward because helping others is focused on something outside oneself, but also as an intrinsic reward, as it relates to the classic inner calling of the professions (Dæhlen 2008). The values and rewards measured in paper 1 are based on three items from the larger set of job value questions. A previous exploratory factor analysis (Caspersen 2006, p. 148) has suggested that these three variables constitute a single factor (with an eigenvalue of 2, 48 and an explained variance of 20, 5%), together with the items "interesting work" and "creative work." Because these last two values seemed little oriented towards other people, they were dropped in these analyses. The other two factors found in the analyses were flexibility (four items) and career orientation (three items); these factors were not included in paper 1.

Service orientation was also included in paper 4, through the measure looking at the views of teacher educators, novice teachers and experienced teachers when it came to the normative dilemma of inclusion. Attitudes towards inclusion are measured with six items, and a high score on these six items indicates a positive attitude towards inclusion. The questions were presented in Munthe and

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Thuen (2009, p. 569), and were developed at the Centre for Behavioural Research, the University of Stavanger. However, attitudes towards inclusion as a measure of service orientation do not provide clear-cut answers to whether service orientation exists or not, or which groups have the strongest service orientation. As discussed in the paper, it is impossible to distinguish between the "right" and "wrong" attitude towards inclusion. It is a true dilemma between emphasising the whole group of students, and emphasising the single student. Thus, it is not a direct measure of service orientation, but the comparison between teacher educators, novice teachers and experienced teachers makes it possible to address questions about varying value orientation, within different groups in the teaching profession, which are relevant for the qualification of teachers.

### 5.5.4. School culture and climate

School culture and climate were described by several measures and techniques, and used as independent variables in paper 2 and 3. The Job Demand Control Support variables, described in section 5.4.2. also describe various aspects of social support, in addition to the demand and control-variables. Supervisor social support was measured using two items. Co-worker social support was also measured using two items.

In paper 3 school culture and climate were measured with three different indexes: relational support from superiors, professional support from superiors and collegial support. The items were derived from school environment surveys conducted by the Centre for Behavioural Research at the University of Stavanger. [34]

### 5.5.5. Coping

In paper 3, teachers' coping was used as a dependent variable. Novice and experienced teachers were compared, to determine whether the experiences of novice teachers differed significantly from those of experienced teachers. Collaboration and support from superiors and colleagues were used as independent variables. Coping with being a teacher was measured along three dimensions: teacher certainty, self-efficacy beliefs about student learning and self-efficacy beliefs about student motivation.

The two self-efficacy dimensions were based on six items, which were partially derived from the National Institute of Child Health and Human Development (NICHD) Study of Early Child Care and

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[34] http://saf.uis.no/forskning/laeringsmiljoe (accessed 13.01.2012).

Youth Development.[35] Both of these dimensions referred to classroom practice and work with students. One dimension concerned the degree of influence that the teacher has on student learning (e.g., "how much can you influence students' remembering and making use of what they have previously learned?"). The response alternatives ranged from 0 (no influence) to 5 (very large degree of influence). The other dimension concerned the degree of influence the teacher has on student motivation (e.g., "how much can you influence how students engage themselves in the classroom?") (cf. Munthe & Thuen 2009).

Four items were used to measure teacher certainty (example item: "I am certain that my knowledge of teaching is sufficient for teaching well"). The response alternatives ranged from 0 (totally disagree) to 5 (totally agree). The items represented an abbreviated set of questions derived from a larger set of previously published questions on teacher certainty (Munthe 2001). The structure of the dependent (and independent) latent variables was established using confirmatory factor analysis (statistics for this are provided in the paper).

## 5.5.6. Bias in the measures

Bias owing to selection and sampling has been previously addressed, but another type of bias might be relevant when discussing the actual measurements used. Systematic errors can be introduced through the measurements, creating problems with the validity of the research. The observed score—the individual response to a single question in a survey—is often said to have two components: the true score and measurement error. However, this is a simplified picture of reality because bias in terms of systematic error must also be included. Ringdal (2007, pp. 358-359) and Spector (1992, pp. 11-12) referred to the two most general sources of systematic errors: response set and social desirability. Response set error can produce bias because respondents have a tendency to respond to items systematically, rather than in isolation from one another. Acquiescence response set describes the tendency for individuals to agree with all items without regard to their content; these individuals will score highly on all items in a scale. This effect can be reduced by reversing some of the items, making the error random (less threatening to validity) instead of systematic. This has been done in some of the indexes in the papers (see appendix 1 to 4). Social desirability describes the tendency of some respondents to answer items by indicating what they believe to be the socially desirable or acceptable response. Bias owing to socially desirable responses is most effectively reduced beforehand by carefully choosing the item wording. Several of the measures used in this

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[35] http://www.nichd.nih.gov/research/supported/seccyd/overview.cfm (accessed 13.01.2012).

project—such as coping in paper 3 or job values in paper 1—could potentially be biased owing to social desirability. However, the use of established measures is again a way of reducing the risk of systematic bias in the measures.

## 5.6. Ethical considerations

Quantitative analyses with sufficiently large numbers of respondents provide few, if any, opportunities to identify respondents. This has been ensured in the analyses in the four papers presented here. Both the StudData project and the TEData project have been approved by the Ombudsman for Privacy in Research (project numbers 18023 and 17830, respectively). Efforts were also made to maintain anonymity for the respondents included in the qualitative material in paper 3 and for the schools where they work.

# 6.0.  Results and discussion

The previous chapters have presented the research background, theoretical background, Norwegian context, research questions and methodological and analytical approaches for the project. To reiterate the main empirical research question, stated in the introduction was: *How do novice teachers think, act, cope and perceive knowledge?* The theoretical aim was to examine how the concepts found in the theories of the professions and the theories of learning can contribute to understanding the qualification of novice teachers. To address these issues, four more specific research questions were explored in four different papers:

1. How do novice teachers report on their self-assessed levels of autonomy, service orientation and professional knowledge, and what can this tell us about characteristics of the teaching profession?
2. What characterises novice teachers' professional development strategies?
3. How do novice teachers assess their own coping, and how is coping related to collaboration and support?
4. What do novice teachers perceive as important knowledge and how do they value the normative aspects of teachers' work?

As discussed previously, the analyses focus on differences between novice teachers and novice nurses and physicians, and differences within teaching, i.e. between novice teachers, experienced teachers and teacher educators.

The papers all approach these issues in different ways. As they are independent publications, they take up differing approaches and varied ways of framing the research questions. Linking these papers and approaches is the aim of the next section (6.1), which provides a summary of the four papers to focus on the findings and contributions important to the overall theme of this thesis. After this summary, the project's overall contribution to research on novice teachers is discussed (6.2), before the findings are discussed in light of the theoretical perspectives used, and in terms of their empirical relevance (section 6.3 - 6.7). Finally, the limitations of the project are discussed, providing directions for future research alongside the findings and discussions about the overall thesis (6.8). A few concluding remarks are presented in section 6.9.

## 6.1.  Summary of the four papers

*Paper 1: Aspects of professionalism. Collective nursing—personalised teaching?*

The first paper addresses how novice teachers report on their self-assessed levels of autonomy, service orientation and professional knowledge, and what this can tell about the characteristics of the teaching profession. Novice teachers are compared to novice nurses, and their experiences were also compared with graduates' attitudes at the end of their education, 3 years earlier. This approach helps to identify to what extent the expectations of work held by novice teachers and nurses are accommodated in the teaching profession (and in nursing).

Both teaching and nursing have been subject to major reforms that affect daily work. Increased control and auditing—often part of so-called New Public Management reforms—are sometimes referred to as involving the deprofessionalisation or even proletarianisation of professions. This is argued to reduce positive opportunities to act as a professional, by decreasing professional autonomy, and replacing professional ethics and service-orientation with accountability and auditing. The results showed that both teachers and nurses can be described as service-oriented or other-oriented during their studies, and both groups find opportunities to realise these other-oriented values in their work. The results also showed that teachers generally have more control over their own work (i.e., technical autonomy in the terminology of Freidson, [1970]) than do nurses. It is argued that these differences could be explained in part by the differences in work organisations (typically hospitals in contrast to schools) and in the development of teaching and nursing as independent professions. The high levels of technical autonomy found in teaching could also be interpreted as reflecting the individualism that was seen by Lortie (1975) as one of the defining sentiments of the teaching profession.

Teachers beginning their education have been found to place a low value on formal knowledge, and the percentage of students who value formal knowledge actually decreases during the course of their education (Heggen, 2005). By contrast, nursing students placed a high value on theoretical knowledge at the start of their studies, and even more nurses deemed this important at the end of their studies. The paper suggested that this disparity reflects a general difference in the understanding of professional knowledge in teaching and nursing. This difference was also manifest in a systemic lack of follow-up and professional training programmes for novice teachers identified in the analyses: more than 50% of the teachers reported having received no systematic training during their first three years of practice, whereas only 25% of the nurses did so. Unlike nursing, teaching has no statutory provision for CPD and, as discussed in section 2.3, the ways of meeting the needs of novices are traditionally different in the two professions, where nursing has a longer history of organising well-functioning learning models than teaching. Moreover, the professional association of teachers has chosen a professional development strategy that emphasises practice-based and

personal knowledge, as well as individual autonomy and individual decision making, and a restorative strategy that focuses on reinstating lost power and influence. This can be said to reinforce the orientation towards individualism and autonomy already inherent in school culture.

In line with early research on teaching, such as Lortie (1975), the conclusion in the paper is that teachers may have great autonomy in their own work and find opportunities to realise their service-orientation, but at the same time, they are left alone in terms of the development of their professional knowledge, even as novices. Professional knowledge in teaching is considered an individual issue, not the collective task that it is seen as in nursing. This is interpreted as a weakness in what can be called the professional knowledge culture of teaching, most prominently at the school level. The findings also bring to attention how the professional strategies of teaching can be interpreted as being imposed from above, to use Evetts' (2003) terminology, and how the organisation of teaching as a task may leave it open to more negative aspects of autonomy; as Eraut (1994) suggested, professional autonomy for teachers is juxtaposed with isolation from colleagues—they are autonomous but miss out on the benefits of collegiality.

*Paper 2: Teachers' learning activities in the workplace: How does education matter?*

Paper 2 addressed the question of what characterises teachers' professional learning strategies. In the paper, a comparison with other professional groups was made by including novice physicians. The longitudinal aspects of professional development among teachers were informed by including information on learning outcome and study strategies from education. The main question in focus was how variables describing autonomy and collegiality (support) are related to what were referred to as knowledge strategies, i.e. what novices do when in need of additional knowledge to handle situations at work. Previous research, based on the framework described in section 3.3.2 (Karasek's learning hypothesis, Eraut's context and learning factors), has been ambiguous in describing what promotes professional learning in the workplace for teachers. This paper argued that this ambiguity may have been because individual characteristics, such as educational outcomes and study strategies during education, have not been sufficiently included in analyses. These are important insights supported by the self-regulated learning tradition, discussed in section 3.3.3.

The influences of demands at work, control over one's own work and support from colleagues and superiors were compared with educational outcomes and study strategies during education. The analyses used survey data collected during professional education and survey data from the same participants 2 to 3 years after graduation. Ordinal logistic regression was used to assess the influence of the independent variables.

Novice teachers were shown to be less active than novice physicians in seeking out new knowledge. Again, supported by existing literature, it was suggested that these differences between teachers and physicians could be interpreted as differences in the two professional knowledge cultures. The inclusion of study strategies in the analyses of workplace learning substantially improved the explanatory power of workplace learning behaviour, but the inclusion of educational outcomes did not seem to have the same effect. This points out a role for teacher education in terms of preparing teachers as knowledge seekers, and furthermore sheds light on how education and work are linked together in a more intrinsic way than a straight-forward connection, by promoting and developing a knowledge orientation in students. It also brings attention to the ways in which individual knowledge orientation can have effects that go beyond professional boundaries, as the effect was quite similar among the two groups of novices. The results therefore illustrate how combining contributions from different learning theories, together with sociological research on professionalism, can contribute substantially to explaining teachers' learning behaviour at work.

*Paper 3: Novice teachers and how they cope*

The third paper directly addresses the fact that novice teacher's first encounters with teaching working are often referred to as a shock or a particularly troublesome experience. In this paper, novice teachers' ability to cope with their work was compared with that of more experienced teachers, using both quantitative methods (structure equation modelling [SEM]) and qualitative methods (observations and interviews). A theoretical model for coping was developed, with teaching measured as perceived self-efficacy and teacher certainty. The analyses investigated the role played by variables such as the support variables found in Karasek's work-place learning model (discussed in paper 2). Support and collaboration with colleagues was hypothesized to have an effect on teachers' coping. Coping was measured by a latent variable consisting of self-efficacy, following the tradition of Bandura (see section 3.3.2), and teacher certainty (a concept developed in previous teacher research, especially by Munthe, 2001). The most striking finding, contrary to common reports of a shock among novices, is that novice teachers do not differ much from their experienced colleagues in self-efficacy, and only have slightly lower certainty. These small differences do not support an interpretation that novice teachers have extremely low coping, which is assumed to be implicit in descriptions of starting teaching as a shock.

Collegial support was found to be important for coping among experienced teachers, but even more so for novice teachers. Collaboration with colleagues was found to decrease coping in novices, but had a more positive effect amongst experienced teachers. The observations and interviews

suggested that this might be because of the novices' lack of ability to express their own professional voice, making interaction with colleagues stressful. Superiors at school seemed to become more important for coping as teachers gained experience. Lower commitment forms of teacher collaboration were also found to be more common than forms demanding more involvement (such as deliberation on the consequences of teaching, in contrast to simply organising and sharing the workload).

In the final parts of the paper, the assumption of a straight-forward relationship between education and work was discussed as partly explaining the expectation that novice professionals should be able to perform their work as well as their more experienced colleagues. However, as argued in section 3.3.3., newer theoretical contributions in learning theory (e.g. Engeström 2001; Guile & Young 2003; Van Oers 1998) have discussed and analysed the potential difficulties involved when individuals cross the boundary between the contexts of education and work. It may very well be that novice teachers experience the transition from education to work as initially stressful, but this effect seems to vanish fairly fast. Furthermore, the metaphor of a shock seems to neglect the fact that these kinds of troubles are an inherent part of any transition from education to work, while suggesting that these problems are due to teacher education that has failed to prepare novices sufficiently. The responsibility of schools for introducing novices to professional practice in an appropriate way should not be neglected, and the findings indicate that colleagues are an important factor in these processes. Again, as supported by the findings in paper 1, novice teachers seem to receive less attention than novices in other professions.

*Paper 4: The valuation of knowledge and normative reflection in teacher qualification. A comparison of teacher educators, novice and experienced teachers*

In paper 4, the questions of what novice teachers perceive as important knowledge and how they value the normative aspects of teachers' work are examined, and compared with experienced teachers' and teacher educators' understanding of the same issues. Beliefs about knowledge and research in teacher education have been described as the source of "clashing epistemologies" among aspiring teachers, practicing teachers and professors (Joram 2007). It is several decades since Lortie (1975) stated that the ideals of teacher education were at odds with school demands and with student teachers' understanding of what teaching is. A division between practical and theoretical knowledge and skills has long been argued to exist in teaching: teachers in schools argue that practical skills are the most important for teachers to acquire, and teacher educators are criticised for emphasising esoteric, abstract knowledge that is not relevant to the task of teaching. However,

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whether teacher educators and teachers should have similar values and attitudes is a matter open to debate. This debate is not new in teaching, as the relationship between theory and practice is perhaps as old as the idea of education itself. Recent developments in the international field of higher education, such as the introduction of Qualifications Frameworks, also affect also the goals and purposes of teacher education, although without much reference to these ongoing debates about teacher education. This presents new challenges for the development of teaching as a profession.

Comparing group measures (mean scores), individual relations (correlations) and multivariate relations made it possible to identify and address differences between and within the teaching profession, and so to shed light on any differences in attitudes and values relevant to teaching. The views of teacher educators and teachers on one of the important normative dilemmas in teaching— the inclusion or exclusion of students with learning challenges in classes —were also compared. Attitudes towards inclusion are not only a matter that reflects an understanding of the professional role of teachers: this dilemma also relates to an important normative question in teaching, and can be argued to be related to the service-orientation within the teaching profession, although there are no clear cut rights and wrongs in views on the issue.

Surprisingly, and again contrary to common reports and beliefs, the differences between the groups' understandings of what constitutes important knowledge in teaching were very small. Furthermore, the often-discussed tension between an academic discipline orientation and a practical occupational orientation was examined at an individual level, and the findings indicated that both teacher educators and teachers in schools saw both these parts of the professional knowledge base as important. The clearest difference found was that teacher educators generally had a more positive view of inclusion than novice teachers and experienced teachers.

The findings indicated differences between teacher educators and teachers but fewer differences between experienced and novice teachers. This could indicate either the effective socialisation of new teachers into the school culture, as some have suggested, or a teacher educator culture that is distant from the students, and hence from novice teachers work in schools. School teachers were practically oriented and more concerned with keeping control in the classroom than teacher educators were, whereas teacher educators emphasised being able to give reasons for choices, actions and curriculum analyses. The findings suggested that novices' opinions quickly came to resemble the opinions of their experienced colleagues and were not "out of step" with the real world of teaching.

Who should decide the goal for teacher education? The introduction of National Qualifications Frameworks is part of the European Union's Bologna process (see Bologna working group on qualifications framework 2005). The kinds of curriculum changes involved in these processes could change the orientation of teacher education. The introduction of a joint European framework, focusing on learning outcomes in education, is typically justified with reference to the increased compatibility, coherence, measurability and transparency this could introduce across Europe. Critics have suggested this could also mark a much more fundamental shift in the goals and purpose of higher education (Karseth 2006; 2008), towards an instrumental curriculum approach where the mastery of discipline content is seen as the only important goal.

The vision of teaching implied by this renewed focus on qualification frameworks and learning outcomes is at odds with perspectives that see the role of teacher education as not simply being to produce new teachers with the skills and competencies that are in demand in schools, but to provide these students with a professional knowledge base that integrates normative, theoretical and practical skills and knowledge. Approaches to professional education that combine academic study with professional practice have been argued to be the best way to integrate theoretical skills, practical skills and knowledge (Sullivan 2005; Sullivan & Rosin 2008). It has been argued that such integration should be a central goal in planning teacher education s, instead of focusing exclusively on goals of transferability, compatibility, measurability and transparency primarily. Thus, the paper highlights an area of potential conflict between modes of professionalism from within and professionalism from above, by pointing out the importance of setting the right goals for teacher education.

## 6.2.  The findings and contributions of the project

One of the main contributions of the project has been providing an opportunity to look more specifically at novice teachers' situation in contrast to other professional groups and those in other stages of a teaching career; in this way it contrasts to and compliments previous non-comparative and non-longitudinal approaches. First of all, it has been possible to point out that novice teachers' coping, measured as self-efficacy and teacher certainty, is not very different from that of experienced teachers (paper 3). In fact, novices only have slightly lower teacher certainty than experienced teachers. However, it is also found that different independent variables contribute to novice and experienced teachers' coping. For novices, colleagues play a more important role than superiors, and collegial support has a strong relationship with teacher certainty. For experienced teachers,

deliberation on teaching and its consequences has a stronger positive impact on teacher certainty, while it actually has a negative impact on novices' certainty.

The qualitative data in paper 3 indicates that novice teachers do not actively seek out the arrangements for support and development provided for them (scheduled mentor appointments), and the findings in paper 1 showed that more than 50% of novice teachers reported having received no systematic training during their first three years as teachers. Paper 2 examined how work-place factors such as support, collaboration and autonomy contribute to novice teachers' learning strategies in the workplace, and models used in previous research were expanded by adding the total outcome from education and study strategies during education. Doing this made it possible to add significant predictive power to established models, and also to illustrate how education and the period as a novice are linked together empirically. This contributes substantially to knowledge about the relationship between education and work in teaching and in professions in general, an under-research field in the analyses of professions and professionalism.

The analyses in paper 4, compared novice teachers' valuations of important knowledge for teaching, and on the important normative issue of inclusion in schools, to the views of experienced teachers and teacher educators, and again points out that the differences between groups are not as large as might be expected after delving into previous research. There are only small differences between the groups in terms of the importance given to different kinds of knowledge, where teacher educators seem to give a little less importance to keeping control and discipline and control in class than the two other groups. Larger differences are found between teacher educators and the two other groups in their attitudes towards inclusion.

All in all, the comparative and longitudinal approach in this thesis sheds light on and adds nuance to some well-established "facts" about teachers and teaching, namely those about the large differences between teacher education and the realities of schools, and about the particularly troublesome experiences of novice teachers. In the following sections, these findings will be discussed in more detail, and related to the theoretical and empirical research presented in section 1, 2 and 3.

## 6.3. Novice teachers' coping and the "shock" of teaching

The literature review showed that novices' difficult initial encounters with work are widely discussed regarding many professions. However, teaching has traits that potentially make this transition more difficult than for other professional groups. The findings in the four papers indicate that novice teachers receive less systematic follow-up than novice nurses (paper 1), receive less professional

support from the school leadership than experienced colleagues and participate less in the co-planning of teaching with colleagues than experienced teachers (paper 3). There are also indications that teacher educators and employees in schools have somewhat different understandings of what it takes to be a competent teacher (paper 4): schoolteachers are more concerned with the practical demands of teaching in the classroom, whereas teacher educators are more concerned with being able to give reasons for choices, actions and curriculum analyses. These differences are nevertheless relatively small. However, much of the research on teachers seem to assume that novice teachers find this tension between what their teacher educators have emphasised, and what their new colleagues emphasise, to be troublesome and experience a sharp mismatch between their education and the demands of their work. The descriptions of how novice teachers adapt to this situation, by being rigid and relying on rule-governed practices (e.g., Bergmann et al. 1976; Flores 2002; Huberman 1989) which again toad to their uncertainty in their role as teachers (Merry 1995; Munthe 2001a, 2001b, 2003), was expected to be reflected in novice teachers' coping. The analyses in paper 3 showed that novice teachers' coping was, however, not very different from their experienced colleagues. No significant differences were found concerning self-efficacy, although novice teachers' certainty was lower than experienced teachers. Such small, albeit significant, differences can hardly be interpreted as indications of a shock. Granted, the teaching profession seems to have a way to go in terms of organizing how newcomers are introduced into the ranks of the teaching profession after graduation. The high rate of novice teachers saying that they have not received any kind of systematic follow up or training as newcomers (more than 50 %), compared to the much lower rate of nurses (25 %) indicates systematic differences between the two professions in how newcomers are seen and supported.

When confronted with challenges in their work, novice teachers also seem less likely than novice physicians to seek knowledge from various sources (paper 2). This difference in knowledge orientation is already evident during education, where student teachers have a more passive study strategy than medicine students (paper 2). The findings from the qualitative material in paper 3, describing how novice teachers are given various opportunities to receive mentoring, but often do not take advantage of them as they see no use in it, are also interesting. On one hand this could indicate that novice teachers feel little need for the opportunities offered to them, which again would undermine any idea of a shock being commonly experienced among new teachers. On the other hand, it also supports the findings from the quantitative analyses in paper 3, indicating that collaborating with colleagues in a binding way is more important for increasing novice teachers' coping than scheduled mentor appointments. It is continuous profession collaboration and

participation in a professional community that promotes teacher professionalism, for newcomers as well as experienced teachers. In this respect it is worrying that very few novice teachers (just over 20%) report that they receive systematic guidance from superiors or colleagues (paper 1), and only 32% seek advice from superiors or colleagues daily when in need of additional knowledge in demanding situations (compared to 68% of novice physicians) (paper 2). This is interpreted as indicative of a professional knowledge culture emphasising individualism and autonomy, which is strengthened through the traditional organisation of teachers' work in school.

The whole concept of a practice shock, reality shock or any kind of shock can be interpreted as a way of thinking about newcomers in a professional organisation that does not truly acknowledge them as newcomers, or as legitimate peripheral participants, as Wenger (1998) and Lave & Wenger (1991) have put it (see section 3.3. and 3.3.1). It is argued that this concept rests on the assumption that teachers should be fully-fledged professionals from day one, performing the same work as their experienced colleagues. The transition from education to work can of course be troublesome for all those who leave the more care-free student environment to enter into the realities of work. Ryan's (1970) description of all the status changes novice teachers experience (see section 1.3) can simply be seen as a description of growing up. It is a natural process to experience some kind of uncertainty in new environments. This interpretation is supported by the fact that a similar shock-metaphor is found in many other professions. However, while it seems exaggerated to describe natural transitions in life as a shock, it is also clear that the teaching profession is organised in such a way that newcomers may not easily find their place in the organisation.

## 6.4.   Novice teachers' learning at work

What can be done to improve novice teachers' opportunities to learn and develop as professionals at work? The findings suggest that the structure and organisation of teaching has a weak knowledge orientation in many ways, which challenges teachers to perform their work in an autonomous and professional way. This argument has been made by others before, but the comparative perspective in this project helps to pinpoint the special features of teaching as a profession that are relevant for this issue. The relatively limited use of colleagues in an involving and binding way amongst novice teachers has been pointed out as a trait of teaching in many countries (OECD 2009b, p. 102). This tendency indicates that there is room for improvement in the use of colleagues in the development of novice teachers through collaboration. The negative effect of collaboration on novice teachers' certainty, identified in paper 3, is an interesting finding. Again, it raises a question over whether novices are prepared for the work they actually have to do, and again, it should be asked whether

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expectations regarding novices are too high. It is possible that the general lack of participation in the types of follow-up available, and the stress of involvement with colleagues, indicates that more attention should be paid to the day-to-day involvement of novices in the school community and daily work, rather than providing them with special solutions. However, this requires a shift from a private and personalised teaching culture to a collegial and collaborative culture. Even though this is perhaps desirable and is sought in schools, it requires time and resources, both of which are scarce. A change of direction within schools will not be sufficient if the structures and demanding conditions are unchanged. Further research should try to clarify the role of the more structural inhibitors of teacher collaboration, as these are not empirically addressed within this project.

The analyses in paper 3 indicate that novice teachers do not take active roles in collaboration and interaction with colleagues. They seem to have trouble articulating their own needs and do not interact closely with others. This could, on the one hand, be seen as a shortcoming of teacher education, which has not prepared the students properly, in line with the argument above. On the other hand, one could also expect novice teachers to be more active in taking advantage of the available opportunities, to establish binding collaborations with colleagues and to make use of the offered support structures in the best possible way. An experienced teacher quoted in paper 3 said that all novice teachers at his school have the opportunity to seek guidance from experienced colleagues but that they do not do so because they find they have no need to. He also indicated that there is room for improvement amongst individual teachers.

In paper 2, the questions of how learning at work is accommodated in teaching and how teacher education can help develop an interest towards knowledge-seeking and professional development, are discussed and empirically tested. The findings illustrate that the contribution from teacher education (in terms of students' learning strategies and outcome of education) provide additional explanatory power to models previously used for examining formal and informal learning in teaching. Thus, not only are insights from the situated learning tradition generated (e.g. Wenger 1998), but these findings also relate to the tradition of self-regulated learning (Bandura 1986; 1997) as they seem to help explain how professional development can be accommodated in teaching.

The lack of use of the established channels for following up novice teachers could also indicate that the mechanisms on offer are not of the sort that novices want. This could also be the reason for the lack of participation in the programmes discussed in paper 1. If so, schools should make an effort to map out the needs of novice teachers, so as to provide them with an appropriate type of follow-up.

In Norway, all novice teachers are entitled to mentoring[36]. This arrangement was introduced after this study was carried out. However, the findings in this project indicate that this may be less effective than other forms of follow-up, such as including novices in binding collaboration in the workplace whilst still acknowledging their limitations and needs as newcomers.

Paper 3 shows that novice teachers receive less professional support from the school leadership than experienced teachers. All in all, school leaders are seen by their staff as being better at the relational aspects of school leadership than the professional aspects. It seems important that the professional parts of school leadership be given more attention, partly because professional leadership becomes more important for teachers' coping throughout their careers. The analyses in this project are focused on novice teachers, and it is therefore not appropriate to delve deeper into these aspects of school leadership and qualification of teachers throughout their careers. However, these should be important topics for further research, and much is currently being done in this field; see e.g. Lysø, Stensaker, Aamodt & Mjøen (2011).

## 6.5.    The role and purpose of teacher education

It has been argued throughout the thesis that there is an implicit understanding of the role of education in the teaching profession, where education provides the knowledge foundation for professionals, and professional knowledge is later put to use. By pointing this out, the purpose is not to undermine the importance of teacher education, or any professional training program, but rather to address some particular characteristics of teaching. As is evident, the role of teacher education in the qualification of teachers and in the transition from education to work is explicitly addressed in paper 2, with the finding that study strategies contribute significantly to novice teachers' (and physicians') workplace learning strategies. If active and independent study strategies during education are indicative of active knowledge seeking after graduation, then teacher education should seek to promote such study strategies. Of course, this assumes that study strategies are something that can be learned or changed. This relates to an important insight from the social cognitive theories

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[36] An agreement was made between KS (The Norwegian Association of Local and Regional Authorities) and the Ministry of Education and Research in 2010, that all novice teachers should be offered mentoring. This happened after the data used in paper 1 was collected (but not as a consequence) and it will be interesting to find out whether this means that more novice teachers will receive mentoring or guidance. Data that can shed light on this seem hard to find, but the TALIS2013-survey (www.talis.no/udir, accessed 26.09.2012) may provide some answers.

of learning: study strategies can be viewed as an important part of teacher education outcomes and a reflection of how teacher education promotes and encourages students. This finding is a good example of what is contributed by the longitudinal, comparative perspective of this project, and what is gained by combining theories of the professions and theories of learning.

In paper 4 it is also argued that teacher education serves an important purpose as a potential corrective to demands and influences bringing the attention away from the most important goal: prepare the best possible teachers for schools. The analyses in paper 4 focus on inclusion as an explicitly stated ideal in schools, both in Norway and internationally. The results indicate that teacher educators are more positive towards inclusion than teachers in school (both experienced and novice teachers). Taking up a classic line of discussion about teacher education, this could be seen as a basis to argue that teacher education is out of step with life in schools, and conveys unrealistic ideals to the teaching students. In this thesis, it is instead argued that these kinds of differences identified are necessary, and offer a starting point for finding the balance between the different goals of teacher education.

It seems reasonable to assume that closeness to the experience of school and classroom life, with its interruptions, diversity, sudden shifts of attention between individuals and the group and unpredictable events, affects the understanding of what is achievable in terms of inclusion, as well as teachers' valuation of practical and theoretical knowledge and skills. Solbrekke (2008) argued that the normative aspects in higher education are under pressure from new changes and reforms in higher education (e.g., the Bologna Process and the introduction of the Qualifications Frameworks). Teaching is in many regards a moral enterprise, and moral decisions have to be made continuously. The question is how and where such skills and values should be developed. Sullivan (2005) and Sullivan and Rosin (2008) stated that what they called the third apprenticeship, where ethical ideals and comportment are developed, is linked to the apprenticeship of practice, i.e. situations that provide an experience similar to professional practice, but within a more highly supervised and controlled environment.. In an American study, Grossman, Compton, Igra, Ronfeldt, Shahan and Williamson (2009) argue that teaching students had less access than students of clergy and psychology to what they call approximations of practice. In Norway, Ohnstad & Munthe (2010) argue that we know little about how this plays out in teacher education, and Skagen (2010) supports this point, arguing that the practical components of teacher education programs seems loosely coupled to the academic/theoretical parts of education. If the ability to take a stand on ethical considerations is left to be developed ad-hoc, via the field of practice, with its high pressure and plethora of competing voices and its loose coupling with teacher education programs, practical demands might

well trump ethical ideals; such a gap in professional development could work against the integration of ethical, practical and theoretical skills and development. Teacher education can serve as an important correction to this development, by providing an alternative focus, as indicated by the different attitude towards the difficult dilemma of inclusion.

What is demanded from teacher education in order to fulfill this task? As discussed in section 2.2.4, the complexity of the task of preparing teachers for life in schools has been acknowledged during the past few decades by researchers who have challenged the traditional, university-based model of teacher education. These arguments naturally draw attention to the question of what competencies teachers need to perform their work, and where teachers should be taught (see e.g., Ben-Peretz 2011; Labaree 2008; Zeichner & Conklin 2008). This issue further stresses questions about how curricula can be organised in such a way that teacher education, and higher education in general, provides as good a preparation as possible for teachers. It has been pointed out on several occasions that teacher education lacks the scientific rigor and the professional knowledge base needed to fulfill this role (e.g. Parsons and Platt 1973; Hargreaves 2007). The research done in this thesis does not provide answers to how teacher education should be organised, but rather tries to raise some new perspectives on these concerns, and argue that new questions should be brought to the table when planning the aims and approach used in teacher education.

Teaching and teacher education are constantly brought up as pivotal topics in political debates, and as long as the national framework for teacher education and the school curriculum are decided via political processes, discussions regarding the expectations placed on teachers and the role of education in preparing individuals to be teachers, will remain highly political in nature. The results and arguments presented here indicate that the starting point for political and scientific discussions should not be based on the claim that teacher education is out of step with the realities of teaching, as there is limited empirical evidence that this is the case. What is needed are curriculum approaches that focus on the integration of practical, normative and theoretical skills and knowledge, in order to prepare students for the kinds of ongoing, practical reasoning involved in teaching. This would mean putting long-standing discussions about differences and tensions between theoretical and practical knowledge aside to focus on which differences should be accepted, which should not, and which should actually be embraced. This is a more fruitful, albeit more demanding, discussion; it can also provide a counterweight to policy initiatives based on narrow labour market goals, which seem to suggest profound changes to the curriculum of teacher education, and higher education in general.

## 6.6. Autonomy, reforms and teachers in a pinch

The emphasis on shifting goals for teacher education points to a greater challenge in schooling in Norway: the impact of repeated and shifting reforms, both to teacher education and compulsory school. Chapter 4 discussed how this is not only a characteristic of Norwegian teacher education, but also of the other Nordic countries, except Finland. Alignment with international reforms such as the qualification framework (discussed in paper 4) presents new challenges for the teaching profession.

The introduction of new reforms is not the only way in which work in schools (and teacher education) changes. There is also an increasing tendency towards documenting work done, and a general focus on accountability that is emerging across the entire public sector. Teachers experience this as putting pressure on their ability to perform their job adequately (Jordfald, Nyen & Seip 2009). Interestingly, the analyses in paper 1 indicate that teachers find that their values and reasons for choosing teaching, which are broadly in line with service-ideals of the teaching professions, are still possible to realise despite the increasing pressures for accountability. The ability to work around these pressures might on the one hand indicate that reforms are not always implemented the way they are intended, an established insight from both international and Norwegian research on reforms in schools (e.g. Cuban 1998; Klette 2003). Reform changes can also be used as tools by teachers, such as the curriculum changes discussed in paper 1.

The important question in considering such policy shifts is not only how reforms are implemented, but also why. Teaching seems to be more "vulnerable" than many other professions to being reformed, not only in Norway, but in most other countries. Explaining this tendency to repeated reform is challenging. One possible hypothesis, based on theories of professions and the general argument in this thesis, is that teaching's relatively weak knowledge culture is a contributing factor, as this reduces trust in the teaching profession. The weak knowledge culture is evident in several ways. Teaching has few control mechanisms, through collegial control and work place feedback or through formal certification other than teacher education (as discussed in section 3.2.2). Teachers' unions have traditionally emphasised classic union topics such as wages, instead of professional knowledge and development. Teaching is high on what was referred to as negative autonomy in section 3.2.2, but is low on positive autonomy. Teachers' autonomy has been derived from the organisation of their work, not from their professional knowledge base. All of this means that when the spotlight is put on schools for whatever reason, for instance following weak performance in international tests, the teaching profession has not been able to withstand or resits the pressures for change. Claims for the importance of professional autonomy have not been successful, and the drift

towards more control and more focus on accountability has been the end result. In Finland, teaching has been described as a research and knowledge based profession, and is regarded as such by the public (see section 4.2). Teacher education and teaching schools in Finland are considered to provide a more academic and knowledge-based teacher education, and have also been more successful in resisting reforms from the outside.

If similar arguments about the lack of professional rigour and professional foundation are transferred from schools to teacher education, it will be interesting to see what the future will bring. Teacher educators' competence has already been a topic of interest in public debate and in national research (see e.g. Osdal & Madsen 2010; Fossøy & Sataøen 2010; Tonheim & Torkildsen 2010), and international studies in the same tradition as the PISA-studies are indicating weak knowledge among Norwegian teacher educators, in comparative country analyses (Grønmo & Onstad 2012; Tatto et al. 2012). In the long run, this might open up new discussions about accountability, auditing and documentation of work in teacher education programmes. Of course, teacher educators' competence is important, but as discussed in paper 4, teacher education and teacher educators serve in many roles and this might be jeopardised if reforms and structural changes are implemented without regard to the broader purposes of teacher education.

To use Evetts' (2003; 2008) terminology, professionalism from within should be sought and developed to guard against increasing pressures and reform efforts from external (and increasingly international) sources. To some extent, professionalism in teaching seems to be based on an organisational, not occupational professionalism, meaning that collegial authority has been replaced with rational-legal authority; similarly, discretion and autonomy has been replaced with attempts (or at least calls in public debate) for standardised procedures; and, instead of professional ethics being monitored by institutions, increased accountability and externalized forms of regulation, target setting and performance review are in place (Evetts 2009). As Mausethagen & Granlund (2012) argue, the teachers' union in Norway shows some signs of taking up this agenda, as the now emphasise research-informed professional practice, responsibility for educational quality and professional ethics, in order to develop professionalism from within. Compared to other references cited in this thesis, (e.g. Karseth & Nerland, 2007) this seems to mark a historical shift in the unions' orientation, from mainly focusing on traditional union issues such as wages and work-environment, to a more profession-specific agenda.

Whatever developments actually take place in the future, the argument that the teaching profession has itself played a role in opening up space for reduced trust must be acknowledged, as this

awareness of the teaching profession as an active agent in determining their own professional position and robustness holds the key for how this challenge should be handled. Trust and positive autonomy should be sought by creating (not re-creating) the teaching profession as a knowledge based profession, using professional groups such as nursing as a model.

## 6.7. Disadvantages and advantages of combining different theoretical perspectives

The theoretical starting point in this project, as presented in chapter 3, was the sociological theories of the professions. These theories are first and foremost made for describing and explaining how professions form, organise and develop. The theoretical concepts have been made for use in comparison and historical analyses. As argued in chapter 2, the research on teaching and teachers has rarely made comparisons with other professional groups or with different groups within the teaching profession. This lack of comparison has made it difficult to say whether novices' experiences are unique among teachers, or whether they are common for newcomers in all professions. In this thesis, key concepts from the theories of professions (knowledge and expertise, autonomy and service-orientation) have been used as a starting point for the analyses, for describing differences and similarities between teachers, nurses and physicians, and between teaching, nursing and medicine as professions. The concepts provide an established framework for describing how different professions have different traditions in terms of developing and maintaining a professional knowledge base, and how professional autonomy is sustained and maintained.

The key concepts are also used empirically on an organisational and individual level, to go beyond socio-historical descriptions of professions. This is a challenge, as it requires a translation of these socio-historical concepts to measurable items and indexes. As discussed in chapter 5, the different concepts are measured using a broad range of different items and questions. This in line with the idea that a theoretical concept is better measured with many indicators than only a few. However, using many indicators also means that the theoretical concept is more broadly defined, and there are (almost) always a large range of different operationalizations that could have been used. This inevitably raises questions about whether the "right" measurements have been used. As discussed in reference to Carmines & Zeller (1979, p. 10), this is a general challenge in social research, not one particular to this project. The focus of the study is on the observable response (whether marks on a survey or responses in an interview), but the interest is in the underlying, only indirectly measurable concept that is represented by the response. The translation from abstract concept to measured

observation is a vulnerable process, and the only measure that can be taken to address this challenge is to make an effort to use the best items and techniques available.

The theories of professions are useful for making comparisons, but fall short when the aim is to investigate the relation between education and work. One could argue that they either see this relationship as straight forward, or as non-existent, meaning that whatever knowledge and skills are required for professional practice are learned after graduation, in the work place. It would be fairer to say that the relationship between education and work has not been an area of particular interest in the sociology of professions, although education is a focal point for understanding the role and status of the professions. Within learning theory, which is the second theoretical perspective used in this thesis, dualistic positions between traditions can be found (as described by Sfard 1998) but these have been developed and problematized continuously over the years. Instead of settling into two different strands of research based on these contrasting traditions, the understanding of learning in the professions has (by some, but far from all) been constantly discussed and challenged. Attempts have been made to focus on how professionals' transition from education to work best can be understood. Much of the research in this area is also vulnerable to the same critique as research on teachers, in that it generally lacks comparative approaches and takes a small-group and small-context focus. Learning theory and the sociological theories of the professions should therefore not be seen as approaches where one tradition is better suited to addressing the questions around teachers' training and development than the other, but rather they should be seen as complementary approaches with their own weaknesses and strengths.

The aim of using both theoretical traditions was not to develop a theoretical synthesis, but rather to use concepts from both theoretical traditions together, along with the central concepts in research on novice teachers, in order to provide new insights. Shulman's idea of overcoming insufficiencies in particular research programmes through proper blending with the insufficiencies of other programmes, in what he called the yoking of inadequacies (Shulman, 1986, p. 6-7), is the ideal guiding the approach. However, the hope is also that research on the professions will use the insights from this critique in order to develop a more robust framework for understanding the role of professoinal education in the future.

## 6.8. The way forward – and some limitations

The theoretical discussion in chapter 3 presented the conflicts between the different research positions on how novices are understood, whereas chapter 2 presented the various research perspectives on novice teachers in schools. In summary, much of the research on novice teachers

and teachers' transition from education to work has been, explicitly or implicitly, theoretically myopic (Shulman, 1992in not providing enough room for individual agency, not being sufficiently occupied with what characterises teaching as a profession and not being methodologically varied enough to ensure generalizability and robustness.

As Illeris (2009) argued, a theoretical understanding of learning and knowledge in professions is needed that is not entangled with the shifting perspectives of learning theories and the sociological theories of professions presented earlier. A path forward is needed that builds on insights from both the cognitive, technical rationality model of learning, the sociological theories of the professions and apprenticeship models of learning. Such an approach should be connected to the specific characteristics of individual professions. In teaching, as in all professions, learning and knowledge are situated in specific contexts of practice, but it does not follow from this that one should abandon all hope about teacher preparation. Two key issues in the discussion of the role of professional qualification and in the planning of the qualification of teachers are thus to find out when, and under what conditions, problems occur (Illeris 2009).

Eraut (1994, p. 119) argued that every profession must ask itself the following questions: what is its professional knowledge base; what is best learned in higher education; what is best learned in professional practice; what is best learned through an integrated course involving both contexts; what has to be learned before qualification; and, what is best postponed until after qualification? Qualification for teaching should be seen as an on-going process taking place in different arenas, not as something limited to specific contexts, such as teacher education programmes or schools. Although differences between the arenas where teachers are qualified (mainly teacher education programmes and schools) are not as large as one might expect (as described in paper 4), different emphases can be put on different aspects of professional knowledge, as demonstrated in the case of varied attitudes towards inclusion among teacher educators and novice and experienced teachers.

The main purpose of qualification for teaching should be to prepare students for the best possible professional practice as a teacher. This could imply a division of labour between training programmes and schools in the preparation of teachers for professional work and also a need for increased cooperation between the different arenas. As was discussed in section 4.1, a 3+1 structure, in which the fourth year is designated as further education to be taken at a later point, was discussed as recently as the 90s. Telhaug (2001) suggested that the decision to maintain the 4-year programme (taken in consecutive years) was a result of the reluctance of teachers' professional organisations to reduce the length of the basic teaching education programme because this action would be

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counterproductive to their wage struggle (Telhaug 2001, p. 51). On the one hand, this supports a conclusion that teaching as a profession has not emphasised the building of professional competence for professional practice as much as wage questions and the role of a "traditional" union. On the other, it illustrates how difficult it is to change existing structures. In the latest reform of the Norwegian general teacher education a division between upper primary teacher education programme ($5^{th}$ to $10^{th}$ grade) and lower primary teacher education programme (1 to $7^{th}$ grade) was implemented. The political discussions concerning the length of the programme have been about whether the programme should be expanded to a five year Master's programme, instead of the current four years. However, in future discussions on teacher education in Norway, more attention should be given to the role of different contexts of teacher education and schools, in the qualification of teachers, instead of focusing on the length and scale of content measured in ECTS-credits. Eraut's questions about the appropriate location and pacing of professional development should be taken seriously, and could provide the foundation for future changes. In this process, it is of utmost importance that the different contexts share their understanding and expectations with each other.

In order to point out the way forward for future research it is important to acknowledge the weaknesses in the approach taken in this thesis. Many of these, and perhaps the easiest to spot, are methodological. Limitations in terms of validity and reliability and bias, and in relation to attrition and response rates, were discussed in chapter 5. Another limitation is the small number of phases included in the analyses, which perhaps provided too long a time span to ascertain precisely when, or if, any problems arise for novice teachers. In light of this, studies that takes into account a longer-term process of professional development, but still includes professional education, would be an important development in future research. This development would be supported by using well-established measures in the longitudinal analyses.

Another shortcoming of this project is the exclusion of practical training during teacher education. Practical training during professional education is often seen as the main solution for linking education more closely to practical work after graduation, and a very efficient way of providing teaching students with an opportunity to apply what is being learned and refine it (Darling-Hammond et al 2005) as relating course-work to practical work makes it possible to learn in, and from, practice (Ball & Cohen 1999). In this project's material, there have been few opportunities for linking the practicum element in teacher education with later professional practice. In the parts of SD-data used in this project, there are few, if any, questions regarding practical training that provide the

opportunity to empirically investigate the role of practicum in teacher education, in relation to novice teachers' experience.

In learning theory, and especially in teacher research, Dewey is often seen as a proponent of a practice-oriented, learning-by-doing approach that emphasises apprenticeship. However, Dewey (1904) was critical of the opportunities for implementing apprentice models effectively. Dewey (p. 253) claimed that it is impossible for a student teacher to pay sufficient attention to both the mastery of subject matter and the mastery of class management techniques at the same time. Moreover, the experienced teacher who serves as the master to an apprentice experiences great difficulty in recognising all the problems confronting the average beginner. Dewey maintained that the goal of teacher education—or education in general—is *not* immediate proficiency in a domain but to make the apprentice become a thoughtful and alert student of education. The goal of a teacher of a teacher education programme should not be the immediate mastery of the classroom, but the understanding of the goal of education, and the scientific principles of problem solving: "For immediate skill may be got at the cost of power to go on growing" (p. 256). According to Dewey, such teachers know how to teach, but they are not real students of teaching.

In practical training, there is a risk that a student teacher will simply imitate the actions of the experienced teacher without understanding the principles behind them. Dewey (1904, p. 260) emphasised the importance of gaining psychological understanding before practical understanding. By psychological understanding, Dewey meant the principles guiding learning and growth in the human mind. He saw it as crucial to know these principles, and act in accordance with these principles, so as to reach the desired end in education. However, these principles should not be adhered to as though they were guidelines or rules. Dewey compared these psychological principles with the laws of gravity: we need to know them if we want to reach certain ends, but it is meaningless to tell people to move according to them. In addition to the psychological principles, Dewey stressed the relational aspects of teaching—"the existence and significance of the reaction of mind to mind" (p. 261)—and how students' actions are responses to teachers' stimuli.

From Dewey's (1904) viewpoint, practical training should be used mainly for purposes of observation—not as a means of copying techniques—so as "to get material for psychological observation and reflection, and some conception of the educational movement of the school as a whole" (p. 268). Through such observation, student teachers should attain a more intimate knowledge of the lives of the children and the work of the school. The student teachers can then apply their insights in the classroom and, thus, be of greater assistance to the regular class instructor.

This practical training provides the foundation for the transition from psychological and theoretical insights to the more practical aspects of classroom teaching. As the student teachers gradually become prepared, they could be given actual teaching to do. They should understand that they are not only permitted to act upon their own intellectual initiative but are expected to do so. The role of supervisors in this approach is to help student teachers to reflect critically upon their own work and its successes and flaws. Student teachers who successfully complete all these stages are ready for more traditional apprentice roles of loosely supervised practice.

Lortie (1975, p. 19, 59) has also pointed out the lack of any eased entry into teaching. Decades of research have produced the same finding: novice teachers are more or less left on their own, with little support from colleagues (Little 1990; Vibe, et al. 2009). Dewey (1904, pp. 9-30) saw few opportunities for the apprenticeship model in teacher education in his day. Instead, he suggested a new way of organising the education of teachers (and other professional groups), which he called the *laboratory approach*. The laboratory approach is oriented towards giving student teachers the time to learn the theoretical principles that are necessary to grasp the "social and ethical issues in teaching, how children learn, how curriculum decisions might be guided, and how students' cognitions might influence teaching" (Lanier & Little 1986, p. 551). Again, if one was to follow Dewey's line of reasoning, today's teacher education would have to be reorganised altogether.

Finally, the idea of apprenticeship and legitimate peripheral participation can be criticised from an empirical point of view, at least when it concerns the teaching profession. In apprenticeship models for teacher education, there is insufficient time to emphasise anything other than the practical skills necessary to conduct a smoothly-run class. The objection that practicum models and apprenticeship models are empirically problematic must not be seen as a critique of practicum itself, only of the preconditions that exist for implementing them in a successful way. In Norwegian teacher education programs, students emphasise the periods of practical training as the most important part of their education (Frøseth & Caspersen 2008). Ohnstad & Munthe (2010), argue that too little attention has been given to practicum in teacher education in research, and argue that this could be a result of the low status practicum is given in teacher education (Strømnes 1983). Unfortunately, this thesis has not pushed the research forward regarding this particular matter.

This omission of variables relating to practicum also brings attention to another limitation, or challenge, in this project: the use of survey data not designed only for this project. StudData and TEData have been developed at the Centre for the study of the professions, and are relevant for researchers from a wide range of disciplines. This breadth provides few opportunities for individual

researchers to follow his or her interests in depth. It was partly in response to this situation that the qualitative material was included in paper 3, as it adds to the survey data and complements the findings (this is discussed in greater detail in section 5.1.3), to provide more context and depth.

One aim in this thesis was to develop a comparative approach. Unfortunately, a comparative approach almost inevitably involves a trade-off between depth and comparability; if one aims to compare across professions, it is important to introduce relatively simple and standard concepts and measures that are most comparable; and, if one delves too deeply into the characteristics of one profession, this might make the questions asked too specific and incomparable with other professions. For instance, the teaching of a specific topic to children is specific to the teaching profession, while inserting intravenous catheters is specific to nursing and medicine. Skills and knowledge in these types of tasks are not comparable across all professions. This means that concepts such as professional knowledge are measured not as specific skills, but rather via organisational and profession specific features, such as introduction programmes for novices, and through more abstract concepts such as the total outcome of education, study strategies developed during education, and attitudes towards professional knowledge. It might perhaps have been possible to measure specific skills in an abstract way, by including grades as an outcome of education, but grades were not included as part of the StudData-project initially (they are now available for later panels and phases).The inclusion of grades from teacher education would have strengthened the research on teachers; teachers receive grades in (some of) the same subjects that they later teach, and this would make it possible to relate competence to coping in specific areas, which is still an unexplored area in large-scale studies.

Finally, the role of colleagues in teachers' coping and professional development has been well established and is also included in the analyses in this project. However, the role of school leadership has been less thoroughly investigated, although it was touched upon in paper 3. In recent decades, much effort and substantial resources have been put into the development of school leadership. However, in terms of the kinds of follow-up novice teachers need, these findings (in paper 3) indicate that a different role could be developed for school leaders in working with experienced and novice teachers.

## 6.9. Concluding remarks

Through empirically examining and analysing novice teachers in a comparative context, the aim of this project has been to provide knowledge on the recurring theme of how novice teachers think, do,

cope and perceive knowledge, and to bring these research areas forward. Through comparing novice teachers with their experienced colleagues, it has been shown that they do not differ in terms of feelings of self-efficacy, but that they have somewhat lower certainty about their role as a teacher than their experienced colleagues. It is questionable that these variations are enough to support descriptions of a "shock" when novices first meet school life. Perhaps these shock-metaphors are based on understandings of, or assumptions about, the relationship between education and work that should have been left behind. The comparative approach also helps to pinpoint more specific features of novice teachers and their experiences. The literature on other novice professionals reveals that the experiences of new professionals are described in similar ways in many, if not all, professions. This supports the conclusion that the idea of teaching involving a particularly troublesome transition from education to work is perhaps not a well-founded description.

Nevertheless, teaching does seem to involve some particular challenges: novice teachers receive less follow up than novice nurses; novice teachers are less active (than novice physicians) in seeking out new knowledge when they need it to handle difficult situations at work; and, novice teachers also seem reluctant to take advantage of the opportunities for support and feedback provided to them. This might mean that there is something special about the teaching profession, a conclusion that would be supported by the research literature describing teaching as a profession with a relatively weak knowledge base, and where efforts have been focused on restoring an idealised, former status of teachers, instead of building a professional status for the future. Of course, such a description is categorical and crude and it should be noted that describing the overall tendency in the teaching profession does not imply that this description fits individual teachers. However, as teaching is clearly a key profession in any society where the development of knowledge and skills are seen as essential elements in moving forward, it is important to point out some of the causes that draw attention to teachers' performance, and the teaching profession. By doing so, and by shedding new light on this debate, it should be possible to move beyond narrow discussions about how many ECTS-credits should be spent on which subject during teacher training, and instead start to discuss the broader organisation of teacher education. The way forward, when understood in terms of developing the overall teaching profession, is perhaps not neatly aligned to on-going efforts regarding international frameworks, but it does offer an approach with a focus on quality issues within an integrated framework, which might allow the profession to move beyond the current frames and long-standing debates.

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**Appendix 1. Additional descriptive statistics for teachers in paper 1. Indexes, items, scale, reliability (Chronbach's alpha), mean, standard deviation.**

| Index | Items | Scale | Chronbachs alpha | Mean | Standard deviation |
|---|---|---|---|---|---|
| **Individual autonomy** | | 1 (totally disagree) - 4 (totally agree) | 0,53 (not used as index) | | |
| | My work demands that I work fast | | | 2,77 | 0,89 |
| | In my work I have very little freedom to decide | | | 1,78 | 0,66 |
| | In my work there are many repetitions | | | 2,33 | 0,62 |
| | I have a lot to say concerning my work | | | 2,66 | 0,70 |
| | My work demands that I am creative | | | 3,52 | 0,80 |
| | I have a lot of variation in my work | | | 3,41 | 0,55 |
| **Service orientation- value** | | 1 (totally disagree) - 5 (totally agree) | 0,74 (not used as index) | | |
| | My work should provide the opportunity to help others | | | 4,33 | 0,58 |
| | I want a job that is useful to society | | | 4,14 | 0,77 |
| | My job should provide the opportunity to have contact with other people | | | 4,2 | 0,59 |
| **Service orientation- reward** | | | | | |
| | My job provides the opportunity to help others | | 0,75 (not used as index) | 4,78 | 0,72 |
| | I have a job that is useful to society | | | 4,76 | 0,60 |
| | My job provides the opportunity to have contact with other people | | | 4,56 | 0,58 |
| **Expertise** | | Yes-no | | | |
| | Systematic guidance from superiors or colleagues | | | 23,74 | Percent yes |
| | Specific induction programmes | | | 5,02 | |
| | In-house courses | | | 25,11 | |
| | Participation in external courses | | | 31,96 | |
| | No systematic training | | | 53,37 | |

Questionnaires for the paper can be retrieved from http://kurl.no/7HGQ (SD2-2) and http://kurl.no/GCOz (SD2-3). Documentation can be retrieved from

http://kurl.no/qzIj (SD2-2), and http://kurl.no/l7rj (SD2-3). All sites accessed 12.01.2012.

**Appendix 2. Additional descriptive statistics for teachers in paper 2. Indexes, items, scale, reliability (Chronbach's alpha), mean, standard deviation**

| Index | Items | Scale | Chronbachs alpha | Mean | Standard deviation |
|---|---|---|---|---|---|
| **Control: Decision authority** | | 1 (totally disagree) – 4 (totally agree) | 0,67 | 5,90 | 1,44 |
| | I have freedom to make my own decisions at work | | | 3,11 | 0,61 |
| | In my work I have very little freedom to decide (reverse) | | | 1,79 | 0,57 |
| | I have a lot of say on the job | | | 2,61 | 0,81 |
| **Control: Skill discretion** | | 1 (totally disagree) – 4 (totally agree) | 0,65 | 11,10 | 2,02 |
| | My work demands that I learn new things | | | 3,41 | 0,55 |
| | My work is repetitious (reverse coding) | | | 2,43 | 0,72 |
| | My work requires creativity | | | 3,49 | 0,58 |
| | My work demands a high level of skills | | | 3,27 | 0,55 |
| | My job has great variety | | | 3,41 | 0,56 |
| **Psychological demands** | | 1 (totally disagree) – 4 (totally agree) | 0,71 | 8,32 | 2,39 |
| | I am not asked to perform excessive work (reverse coding) | | | 2,57 | 0,66 |
| | I do not experience conflicting demands at work (reverse coding) | | | 2,63 | 0,71 |
| | I have enough time to do my work (reverse coding) | | | 2,34 | 0,77 |
| | My work demands that I work very hard | | | 2,82 | 0,69 |
| | My work demands that I work very fast | | | 3,04 | 0,61 |
| **Supervisor social support** | | 1 (totally disagree) – 4 (totally agree) | 0,88 | 4,18 | 1,32 |
| | My supervisor shows concern | | | 3,11 | 0,70 |
| | My supervisor is very helpful | | | 3,12 | 0,65 |
| **Co-worker social support** | | 1(totally disagree) - 4(totally agree) | 0,68 | 4,46 | 1,13 |
| | I have friendly co-workers | | | 3,36 | 0,60 |
| | My co-workers are personally interested in me | | | 3,10 | 0,67 |
| **Study strategy** | | 1(totally disagree) - 7(totally agree) | 0,60 | 21,95 | 7,01 |
| | I try to have a critical attitude towards the curriculum | | | 4,82 | 1,51 |
| | I prepare well for the instruction and classes | | | 3,22 | 1,52 |
| | I develop from discussing the subjects with my co-students | | | 5,57 | 1,41 |
| | I contact teachers in order to clarify issues | | | 4,01 | 1,80 |

| (continued) | Items | Scale | Chronbachs alpha | Mean | Standard deviation |
|---|---|---|---|---|---|
| | My work mainly consists of performing compulsory assignments (reverse coding) | | | 4,91 | 1,80 |
| | The exams are my main focus (reverse coding) | | | 5,10 | 1,76 |
| | I have participated a lot in student organised group work | | | 3,61 | 1,95 |
| | I often read in addition to the curriculum | | | 2,76 | 1,78 |
| **Total outcome of education** | | 1 (totally disagree) – 5 (totally agree) | 0,88 | 41,32 | 8,42 |
| | Broad, general knowledge | | | 2,42 | 0,76 |
| | Specific knowledge for my kind of work | | | 2,53 | 0,79 |
| | Knowledge of rules and regulations | | | 3,13 | 0,84 |
| | Ability to critically reflect upon and evaluate my own work | | | 2,32 | 0,86 |
| | Creativity | | | 2,92 | 0,92 |
| | Ability to work under pressure | | | 2,29 | 0,93 |
| | Practical skills | | | 2,80 | 0,90 |
| | Independence | | | 2,60 | 0,96 |
| | Ability to cooperate | | | 1,86 | 0,77 |
| | Ability to take initiative | | | 2,44 | 0,88 |
| | Ability to become personally engaged | | | 2,57 | 0,94 |
| | Verbal communication skills | | | 2,26 | 0,90 |
| | Written communication skills | | | 2,50 | 0,82 |
| | Tolerance, the ability to value others point of view | | | 2,20 | 0,84 |
| | Be able to take responsibility and make decisions | | | 2,38 | 0,82 |
| | Ethical skills | | | 2,48 | 0,86 |
| | Understand other people's situation | | | 2,30 | 0,91 |

Questionnaires for the paper can be retrieved from http://kurl.no/dzph (SD1-2), http://kurl.no/AKvF (SD1-3), http://kurl.no/7HGQ (SD2-2) and http://kurl.no/GCOz

(SD2-3). Documentation can be retrieved from http://kurl.no/m8M5 (SD1-2), http://kurl.no/y2Lh (SD1-3), http://kurl.no/qzIj (SD2-2) and http://kurl.no/l7rj (SD2-3).

All sites accessed 12.01.2012.

**Appendix 3. Additional descriptive statistics for teachers in paper 3. Indexes, items, scale, reliability (Chronbach's alpha), mean, standard deviation**

| Index | Items | Scale | Cronbachs alpha | Novice mean | Std. Dev. | Experienced mean | Std. Dev. |
|---|---|---|---|---|---|---|---|
| *Coping* | | | | | | | |
| *Self-efficacy expectations - student learning* | | 0 (no influence) -5 (very large degree of influence) | 0,83 | 3,94 | 0,74 | 3,96 | 0,73 |
| | *How much can you influence students' learning?* | | | 3,95 | 0,73 | 4,12 | 0,79 |
| | *How much can you influence students' motivation when working with difficult tasks?* | | | 4,09 | 0,74 | 4,19 | 0,75 |
| | *How much can you influence students' remembering and making use of what they have learned?* | | | 2,97 | 0,78 | 2,99 | 0,79 |
| *Self efficacy expectations - student motivation* | | 0 (no influence) -5 (very large degree of influence) | 0,84 | 3,68 | 0,65 | 3,77 | 0,71 |
| | *How much can you influence students' behaviour in the class?* | | | 4,09 | 0,86 | 4,12 | 0,80 |
| | *How much can you influence how students engage themselves in the classroom?* | | | 4,03 | 0,80 | 4,04 | 0,79 |
| | *How much can you influence how students engage themselves when working in groups?* | | | 3,73 | 0,85 | 3,73 | 0,86 |
| *Teacher certainty* | | 0 (totally disagree) -5 (totally agree) | 0,83 | 3,85 | 0,76 | 4,10 | 0,71 |
| | *I am certain that my knowledge is sufficient for the subjects I teach* | | | 3,56 | 1,08 | 3,74 | 1,06 |
| | *I am certain the students will learn in my class* | | | 4,16 | 0,83 | 4,31 | 0,66 |
| | *I am certain I have the sufficient pedagogical skills for teaching well* | | | 3,91 | 0,92 | 4,14 | 0,84 |
| | *I am certain that my knowledge of teaching is sufficient for teaching well* | | | 3,80 | 0,94 | 4,17 | 0,77 |
| *Relational support - superiors* | | 0 (totally disagree) -5 (totally agree) | 0,88 | 4,45 | 1,18 | 4,43 | 1,23 |

| | | | | Novice mean | Std. Dev. | Experienced mean | Std. Dev. |
|---|---|---|---|---|---|---|---|
| | *My leader(s) make an effort to make life easier for me* | | | 4,04 | 1,34 | 3,99 | 1,42 |
| | *It is easy to talk to my closest superior* | | | 4,79 | 1,23 | 4,74 | 1,29 |

(continues)

| *(continued)* | *Items* | *Scale* | *Cronbachs alpha* | *Novice mean* | *Std. Dev.* | *Experienced mean* | *Std. Dev.* |
|---|---|---|---|---|---|---|---|
| | *My leader(s) can be trusted when the going gets tough* | | | 4,54 | 1,41 | 4,56 | 1,41 |
| ***Professional support - superiors*** | | *0 (totally disagree) -5 (totally agree)* | *0,79* | 3,22 | 1,28 | 3,44 | 1,27 |
| | *My superior gives me feedback on my work with students* | | | 3,31 | 1,55 | 3,41 | 1,54 |
| | *My leader(s) provide feedback on my work with developmental projects at work* | | | 2,94 | 1,43 | 3,18 | 1,49 |
| | *My superior demand learning outcomes in my students* | | | 3,41 | 1,59 | 3,73 | 1,52 |
| | | | | | | | |
| ***Collegial support*** | | *0 (totally disagree) -5 (totally agree)* | *0,83* | 4,44 | 0,72 | 4,44 | 0,71 |
| | *I collaborate well and intimately with many of my colleagues* | | | 4,27 | 0,97 | 4,35 | 0,89 |
| | *I frequently ask colleagues for advice* | | | 4,53 | 0,78 | 4,40 | 0,81 |
| | *I am certain that my colleagues will help me if called upon* | | | 4,54 | 0,79 | 4,57 | 0,73 |
| ***Joint planning*** | | *0 (never)- 5 (very often)* | *0,83* | 3,64 | 1,29 | 3,84 | 1,15 |
| | *We plan teaching together* | | | 3,85 | 1,32 | 4,09 | 1,14 |
| | *We develop educational material together* | | | 3,43 | 1,38 | 3,56 | 1,30 |
| ***Deliberation on teaching and its consequences*** | | *0 (never)- 5 (very often)* | *0,76* | 2,49 | 1,03 | 2,52 | 1,02 |
| | *We participate in supervising our colleagues* | | | 1,76 | 1,48 | 1,65 | 1,43 |
| | *We cooperate on assessment* | | | 3,27 | 1,26 | 3,36 | 1,20 |
| | *We discuss our own teaching and pedagogical practices* | | | 3,06 | 1,36 | 3,17 | 1,28 |
| | *We discuss literature concerning pedagogical practice and teaching* | | | 1,90 | 1,31 | 1,91 | 1,32 |

Questionnaires can be retrieved from http://kurl.no/PXCD (Teacher educators) and http://kurl.no/QSXH (Teachers in schools). Short documentation can be retrieved from http://kurl.no/2P4B (both surveys). All sites accessed 12.01.2012.

## Appendix 4. Additional descriptive statistics for teachers and teacher educators in paper 4. Groups, variables, relative group size, mean, standard deviation

| | Variable | % | Mean | Standard deviation |
|---|---|---|---|---|
| **Teacher educators** | Men | 50,70 | | |
| | Age/experience | | 49,79 | 10,69 |
| | Natural sciences | 23,70 | | |
| | Humanities | 41,48 | | |
| | Social science | 4,26 | | |
| | Pedagogics | 20,19 | | |
| | Other | 10,37 | | |
| | | | | |
| | Ph.d. | 19,20 | | |
| | Years at university/university college | | 25,99 | 19,23 |
| | Years as elementary school teacher | | 6,67 | 7,97 |
| | Workload (100%-0%) | | 88,72 | 27,56 |
| | Percentage teaching | | 6,46 | 2,55 |
| | Percentage r&d | | 2,91 | 2,16 |
| | | | | |
| **Teachers in schools** | Men | 23,63 | | |
| | Age (proxy for experience) | | 45,85 | 8,91 |
| | General teacher education | 59,89 | | |
| | Natural sciences | 64,21 | | |
| | Social sciences | 52,24 | | |
| | Humanities | 82,10 | | |
| | Educational science | 18,90 | | |
| | Leader for teachers in one grade | 1,57 | | |
| | Teamleader within subjects | 3,56 | | |
| | Workload (100%-0%) | | 5,32 | 12,11 |

Questionnaires can be retrieved from http://kurl.no/PXCD (Teacher educators) and

http://kurl.no/QSXH (Teachers in schools). Short documentation can be retrieved from

http://kurl.no/2P4B (both surveys). All sites accessed 12.01.2012.

## Appendix 5. The recruitment and development of number of teachers in Norway

The number of teachers in Norway has steadily increased, at a higher rate than the number of pupils and schools (the number of schools has gradually declined). In 1950, a total of 11 925 teachers (6727 males, 5198 females) were registered in Norway, according to Statistics Norway.[37] In 1991, three times as many teachers were registered (35 416 teachers [16 746 males, 18 670 females]). In 2008, about 66 500 teachers were registered in primary and secondary schools; 85% (about 56 000 teachers) of these teachers had an education that was equivalent to the general teacher education programme, and 75% were females (Raabe, 2009, p. 19-20). In Appendix 5, the ratios of the numbers of schools, classes, teachers and students from 1951 to 1997 are presented (registration after 1997 is different from pre-1997) and compared with corresponding data from 1950. As Figure 2 clearly shows, the number of schools has steadily declined, whereas the number of classes in each school have steadily increased (in accordance with the number of students). When the numbers of teachers in 1992 and 1840 are compared, the ratio is almost 16, whereas the ratio for the number of students is just under 3 (these data are available only until 1992).

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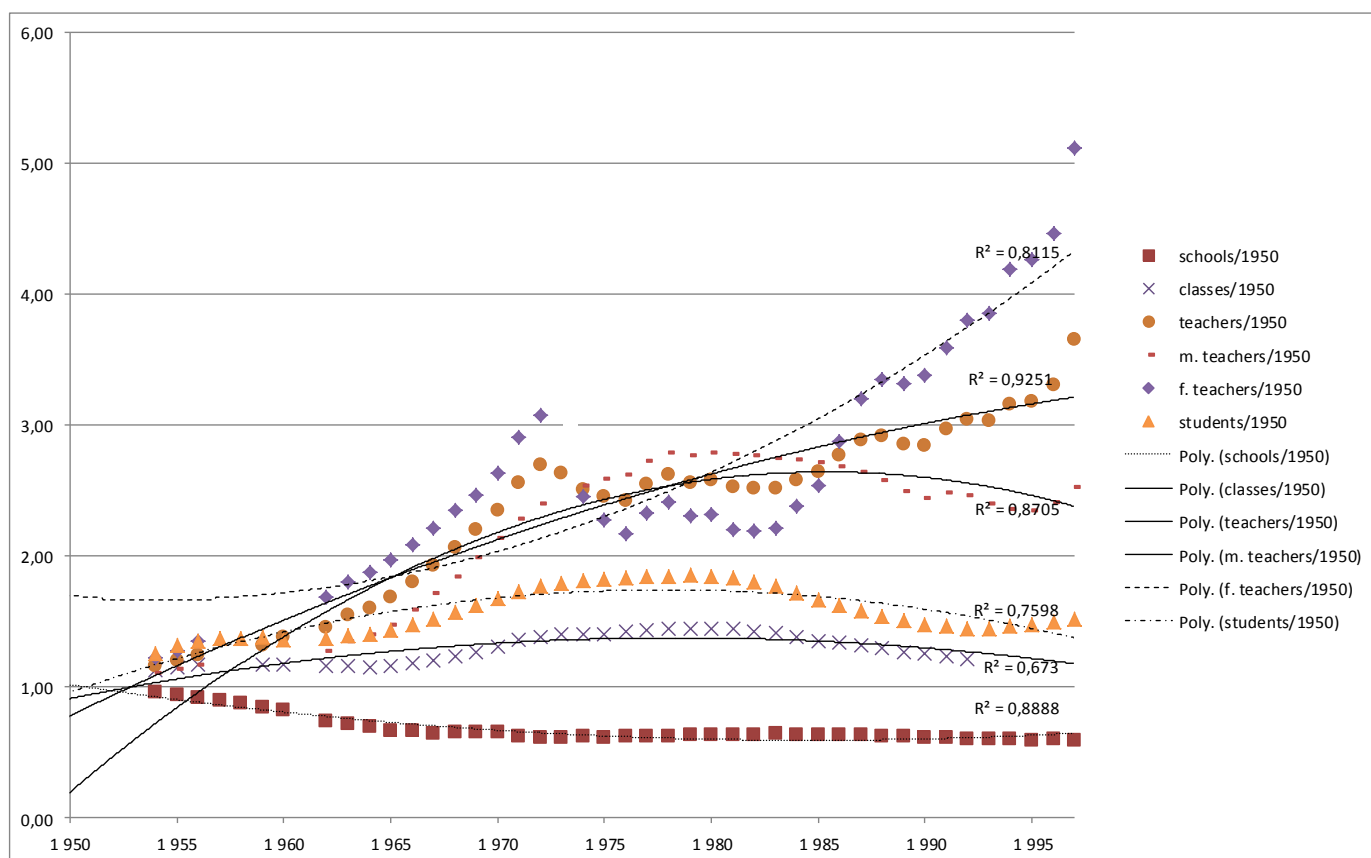[37] http://www.ssb.no/histstat/tabeller/5-5-4t.txt (accessed 13.01.2012)

*Figure V.1. **Relative change in numbers of schools, classes, teachers and students in Norwegian elementary schools from 1951 to 1997; each year compared with 1950. <1 = negative change, 1 = stability, >1 = positive change. Polynomial lines fitted in Excel. Data found from various education statistics sources on Statistics Norway home page (http://www.ssb.no/english/subjects/04/02/20/, mainly from http://www.ssb.no/histstat/tabeller/5-5-4t, accessed 13.01.2012).***

The increases in the number and ratio of teachers could very well indicate a development towards a more efficient relationship between teachers and students. These increases may also indicate an efficient professional politic from the teachers' union. It is easier to reach a maximum limit for the number of students in a society than for the number of teachers because schooling (in Norway) is universal and, thus, encompasses all children, whereas teaching is just one of many possible occupational choices. There are always more individuals who can choose teaching as a career, thus ensuring the possibility of growth. The ratio of teachers to students was 0,04 in 1950, and 0,09 in 1992.

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According to the Database for Statistics on Higher Education (DBH),[38] 6756 students were registered in the general teacher education programme in 1996. This number rose to 9199 students by 2000 and then peaked at 9943 students in 2005. Since then, it has decreased to 6344 registered students in 2010. However, the number of admitted students remained fairly stable during the years of decline or increased somewhat: 2485 students were admitted to the general teacher education programme in 2007; 2317 students in 2008; 2689 students in 2009; and 2726 students in 2010. There are several reasons for the decline in registration. The number of registered students is cumulative (i.e., the number includes students who are registered in any of the 4 years of the teacher education programme). When the admission requirements were increased in 2005, the number of qualified applicants immediately decreased. In the following years, the number of students decreased. Therefore, the decline in registration is a result of policies intended to increase the quality of teachers.

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[38] http://dbh.nsd.uib.no/index.action (accessed 13.01.2012).

# Paper I:

Aspects of professionalism. Collective nursing - personalised teaching?

In C. Aili, L. E. Nilsson, L. Svensson & P. Denicolo (Eds.), *In tension between organization and profession: Professionals in the Nordic public sector*. Lund: Nordic Academic Press.

# Paper II:

Teachers' learning activities in the workplace: how does teacher education matter?

*Unpublished manuscript*

*Abstract:*

The ability of teachers to learn and develop at work is important for the quality of their performance and their well-being. However, research has been ambiguous about what factors can improve it. Two reasons for this ambiguity are discussed in this paper: The links between workplace learning and professional education have often not been included in research studies, and teaching may have special characteristics that make workplace learning difficult. The paper examines new empirical connections between teachers' learning activities at work and the outcome of teacher education, using longitudinal Norwegian survey data.

# Paper III:

# Abstract

Teachers often describe their first teaching job following graduation as a shocking experience. This description raises several questions: Do novice teachers actually have a lower level of coping than experienced teachers? Are there also factors in the work environment that make coping difficult for all teachers at a school? This paper compares the ability of novice and experienced teachers to cope with their work, and how this ability is affected by the level of collegial and superior support and collaboration offered. Although we find few differences between novice and experienced teachers' coping level, these two groups of teachers do differ in terms of the levels of collegial and superior support and collaboration. In addition to receiving a lower level of professional support from their superiors, novice teachers generally lack ways to articulate their own needs to colleagues. The ability of novice teachers to cope with their work should be considered a collective responsibility in schools rather than the fate of the individual teacher. This paper is based on observations, interviews and survey data from Norwegian schools.

**Keywords:** practice shock; novice teachers; professional development; coping

# Paper IV:

*Abstract:*
The transition from teacher education to work in schools has been described as an "epistemic clash". Teacher educators', novice teachers' and experienced teachers' valuation of the academic, practical and normative demands of teaching are compared using survey data from teacher education and schools. All groups value academic knowledge and practical skills highly. Teacher educators take a more positive attitude toward inclusion, and differ in their views of the normative demands of teaching. The role of teacher education as a corrective to the contemporary demands made of schools through political and international policy initiatives is emphasized.