

ANNE OKAS

Novice and experienced teachers' practical
knowledge in planning, delivery and
reflection phases of teaching



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Institute of Education, Faculty of Social Sciences, University of Tartu, Estonia
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LIST OF ORIGINAL PUBLICATIONS

The dissertation is based on the following original publications:

- I** Okas, A., Van der Schaaf, M., & Krull, E. (2013a). Novice and experienced teachers' personal practical knowledge in planning lessons. In J. Mikk; M. Veisson; P. Luik (Eds.), *Change in Teaching and Learning, Estonian Studies in Education* (pp. 27–43). Frankfurt am Main: Peter Lang Verlag.
- II** Okas, A., Van der Schaaf, M., & Krull, E. (2013b). Algajate ja kogunud õpetajate praktilise teadmise avaldumise tunnisündmuse kommenteerimisel stimuleeritud meenutuse meetodil [Novice and experienced teachers' practical knowledge in comments on lesson events using stimulated recall interview method]. *Eesti Haridusteaduste Ajakiri [Estonian Journal of Education]*, 1, 25–45. doi: 10.12697/eha.2013.1.03
- III** Okas, A., Van der Schaaf, M., Krull, E. (2014). Novice and Experienced Teachers' Views on Professionalism. *Trames: Journal of the Humanities and Social Sciences*, 18(68/63), 327–344. doi: 10.3176/tr.2014.4.02
- IV** Okas, A., Van der Schaaf, M., Krull, E. (2016). Õpetaja tegevus tunnis: õpilaste hinnangud ja nende kooskõla õpetajate arusaamadega. [Students' perception of their teachers' behaviour in the classroom and its coherence with teachers' own understandings], *Eesti Haridusteaduste Ajakiri [Estonian Journal of Education]*, 4(1), 195–225. doi:10.12697/eha.2016.4.1.07

The contribution of the author of this dissertation to the completion of the articles was as follows:

Article I: designing the study, formulating the research questions and conducting the study, including putting together the questionnaire, interviewing the teachers, transcribing the recordings and analysing their content, drawing conclusions from the findings and writing the article as the main author.

Article II: designing the study, formulating the research questions and conducting the study, including recording the teachers' lessons, interviewing the teachers using the stimulated recall method, transcribing the recordings, analysing the results, drawing conclusions and writing the article as the main author.

Article III: designing the study, formulating the research questions and conducting the study, gathering data (essays and reflective writings), analysing corresponding texts and writing the article as the main author.

Article IV: designing the study, formulating the research questions and conducting the study, analysing data, drawing conclusions and writing the article as the main author. Marieke van der Schaaf and Edgar Krull assisted in performing the statistical analysis.

1. INTRODUCTION

This chapter will provide a short overview of the study, introducing the aim and research questions and discussing the relevance of the study.

1.1. Short overview of the study and dissertation

Identifying teachers' professional competences has always been relevant for researchers and teacher educators (Hilton, Flores, & Niklasson, 2013). Different approaches have been used to do this (e.g. Toh, Diong, Boo, & Chia, 1996; Turner-Bisset, 2012). This study will pursue a comparative investigation of the professional knowledge and thinking of novice and experienced teachers in the planning, delivery and reflection phases of teaching in order to find more effective ways to promote professional competences in beginning teachers.

The definitions of the competences necessary for effective teaching date from almost a hundred years ago, when researchers started to compile lists of teaching skills on the basis of teacher inquiries into what makes up good teaching (Good, 1996). Since the 1960s, more specific approaches to defining attributes of good teaching appeared (Krull & Leijen, 2015). However, there is still no common understanding in comprehensively defining what professional competence means in teaching. One of the recent and promising solutions to this issue uses the concept of a teachers' practical knowledge to describe manifestations of professional competences in teachers. This study uses a widely recognized version of teachers' practical knowledge introduced by Dutch researchers Meijer (1999) and Meijer, Verloop and Beijaard (2002). According to this concept teachers' practical knowledge is characterized as consisting of teachers' professional knowledge and beliefs, and the cognitive interactions taking place in the delivery phase of teaching.

To increase the reliability of this study, a mixed-method research design was adopted. The findings and conclusions on the qualitative differences in the practical knowledge of novice and experienced teachers drawn from their interviews and reflective writings were compared with students' perceptions on their teaching behaviour. Therefore, different instruments such as interviews, stimulated recall interviews, and reflective writings were used to collect data on novice and experienced teachers' explicated thoughts about their professionalism. The questionnaire (Van der Schaaf, 2005) was used to collect data on students' perceptions of novice and experienced teachers' behaviour in the classroom. On the basis of the revealed differences between these two groups of teachers in terms of practical knowledge conclusions and suggestions for teacher education and professional development were made.

This thesis consists of five chapters. Chapter 1 introduces the nature, structure, aims, research questions, and relevance of the study. Chapter 2 describes the theoretical background of the study by introducing the different notions of professionalism and observations about manifestations of professionalism in

teaching. Furthermore, several models of teacher professional development are introduced. Finally, different approaches to defining the notion of teachers' practical knowledge are explored from the point of view of using them as key concepts for describing teacher professionalism. Chapter 3 describes the research design, sampling of teachers and students in the study, the methodology used for documenting manifestations of practical knowledge and the data analysis. The ethics of the study are also discussed. Chapter 4 introduces the main results of the empirical investigations published in four original articles: Article I, Article II, Article III and Article IV. Chapter 5 discusses the research findings in the light of previous research as well as the limitations of previous studies. Finally, it outlines the implications of this study for further research and teacher education.

1.2. Thematic studies in Estonia

The early studies of teacher professionalism and professional development in Estonia were carried out at the beginning of the 1970s. A longitudinal comparative study of teachers' professional adaptation was carried out by Pedajas (1973). The main focus of this study was the changes in characteristics that reflected job satisfaction among teachers. Pedajas concluded that the dynamics of job satisfaction generally points to the existence of a positive trend in the professional development of Soviet Estonian teachers (Pedajas, 1973; see also Krull, 2001).

Since the second half of the 1990s, after the restoration of Estonian national independence in 1991, many surveys have been carried out researching Estonian teachers (e.g. Eisenschmidt, 2006; Eisenschmidt, Oder, & Meristo, 2010; Karm, 2007; Krull, 1999; Leppik, 1997; Löfström & Eisenschmidt, 2009; Meristo, 2016; Poom-Valickis, 2007, 2014; Remmik, 2013; Talts, 1997, Uring, 1997) including two large-scale surveys regarding professional development among teachers by Krull (2002) and Sarv (2008). The topic of teachers' professional development is still receiving a great deal of attention in Estonia (European Commission, 2013). Conclusions and generalisations about the main findings of the joint research project *Teachers' professional development and its supporting* from two local universities dealing with teacher education (University of Tartu and Tallinn University) have been made public. The overall goal of this project was to raise the efficiency of initial teacher training, the induction year and further education in order to find new ways of supporting teachers' professional development (Krull, Leijen, Lepik, Mikk, Talts, & Õun, 2013). In recent studies the focus has been on the development of student teachers or novice teachers (Eisenschmidt, Reiska, & Oder, 2015; Löfström, Poom-Valickis, Hannula, & Mathews, 2010; Poom-Valickis & Löfström, 2014; Poom-Valickis & Mathews, 2013; Remmik, Lepp & Koni, 2015; Timoštšuk & Ugaste, 2010, 2012) and also teachers' practical knowledge (Allas, Leijen, & Toom, 2016; Leijen, et al., 2014; Leijen, et al., 2015). Today, teacher education

research has accepted the concept of teachers' practical knowledge as an important characteristic of teachers' professionalism. The concept is acknowledged as a component of the theoretical foundation in preparing student teachers for their professional career (Meijer, 2010, 2013).

1.3. Aim and research questions of the study

This study aims at investigating novice and experienced teachers' professionalism in terms of teachers' practical knowledge in three main phases of teaching – planning, delivery and reflection, and comparing teachers' explicated thoughts with their students' perceptions.

Investigating and analysing novice and experienced teachers' professionalism comparatively provides input in promoting initial teacher education and professional development.

Based on the aim of the study, the following research questions were proposed:

1. What are the characteristics of novice and experienced teachers' professionalism in terms of practical knowledge when planning lessons?
2. What are the characteristics of novice and experienced teachers' professionalism in terms of practical knowledge when commenting on the delivery of lessons using the stimulated recall method?
3. What are teachers' views on professionalism and how do novice and experienced teachers reflect their strengths and weaknesses as a teacher?
4. How do basic education students (aged 12 to 16) perceive their teachers' behaviour during the delivery of lessons and how do they perceive the difference between the behaviour of novice and experienced teachers?
5. How are students' perceptions and teachers' own views of the delivery of their lessons related?

1.4. Relevance of the study

The focus of this study is to analyse the professionalism of novice and experienced teachers in the light of the concept of teachers' practical knowledge. In recent decades, teacher professionalism has been the object of many studies world-wide (e.g. Berliner, 1988; Evans, 2008; Hargreaves, 2000; Huberman, 1989; Kennedy, 2016; Mausethagen & Granlund, 2012; Sorensen, 2016; Tsui, 2003). Insight into the content of teachers' professionalism can lead to a better understanding of its nature and of perspectives for its development; this can be useful for the education of novice teachers (Desimone & Garet, 2015; Meijer, 2010). Many researchers have introduced various interpretations of the concept of teachers' practical knowledge (e.g. Beijaard & Verloop, 1996; Grossmann, 1990; Ingram, 2014; Meijer, 1999; Meijer, Zanting, & Verloop, 2002; Shulman, 1986; Van Driel, Verloop, & Vos, 1998; Van Tartwijk, Den Brok, Veldman, & Wubbels, 2009; Wyatt, 2015).

This study combines the findings of general research on teachers' professional development, and more specifically, research on teachers' practical knowledge by examining how teachers' professionalism, as expressed in categories of practical knowledge, is manifested in three basic phases of teaching, thereby creating a more thorough understanding of teachers' professional development. Analysing professionalism of novice and experienced teachers (i.e. teachers with different work experience) in categories of practical knowledge is of utmost importance in order to understand and to be able to stimulate teachers' professional development.

Information regarding the professional development of teachers is needed to better adjust pedagogical courses and pedagogical practice (e.g. internships) in teacher education to the developmental needs of the students participating in teacher education and as well as organising in-service training for practising teachers (Krull, 2002). Often perceptions of beginning teachers do not match the reality of classroom practice (Blomberg & Knight, 2016; Darling-Hammond, 2010; Gravett, Henning, & Eiselen, 2011; K rkk , Kyr -Amm l , Turunen, 2016; Meijer, 2010). Although novice teachers acquire theoretical knowledge in teacher education, applying that knowledge in practice is often a major problem in learning to teach (Meijer, 2010). The findings of this study are relevant for novice teachers as well as teacher educators.

Identifying characteristics in the professionalism of novice and experienced teachers in categories of practical knowledge makes it possible to promote initial teacher education courses in terms of focusing on specific gaps in the competences of novice teachers.

The novelty of this thesis lies in its combination of methods for researching the teachers' practical knowledge and students' perceptions of their teachers' professionalism.

More specifically, the novelty of this study appears in:

- Identifying manifestations of teachers' professionalism in categories of teachers' practical knowledge in three basic phases of teaching;
- Corroborating the uncovered differences in the practical knowledge of novice and experienced teachers using the findings of their students' inquiry.

Highlighting the characteristics of teachers' professionalism in novice and experienced teachers in categories of practical knowledge allows us to identify differences in the professional thinking of these two groups of teachers, and therefore, provides input for making teacher education more effective (i.e. allows us to pay attention to the developmental needs of novice teachers and student teachers).

Finding coherence between teachers' self-reported manifestations of (reflections on) professionalism and student perceptions is a step towards increasing the reliability of student questionnaires as a way of evaluating teachers' professionalism among other tools.

2. THEORETICAL BACKGROUND

The theoretical basis of the present dissertation relies on three interrelated concepts: (1) the notion of professionalism in teaching; (2) teachers' professional development; and (3) the concept of teachers' practical knowledge.

Professionalism is often seen as the result of intense practice (Csikszentmihalyi, 1990; Ericsson, 2004; Gladwell, 2008). Even for the most talented and successful individuals, mastery requires approximately ten years of essentially full-time preparation, which corresponds to several thousands of hours of practice (Ericsson, 1996; Ericsson & Charness, 1994).

Professionalism in teaching is developed only over long periods of time, demanding hundreds or even thousands of hours of learning and experience (Berliner, 1986, 2001). Teaching requires an extraordinarily good knowledge of the human psyche and a sense of social context, which is why professionalism in this field is achieved after years of professional work (Krull, 2002). To better understand the professionalism of a teacher everyone must keep in mind that a teacher's development to become an expert in the field is a long process characterized by qualitative changes in teaching skills (Darling-Hammond & Bransford, 2005). A teachers' practical knowledge is considered a key aspect opening the nature of teachers' professionalism (Fenstermacher, 1994; Schepens, Aelterman, & Van Keer, 2007).

The theoretical overview starts with introducing the main ideas connected to the topic. First, a definition is given of what is meant by professionalism. This concerns asking related questions like what is a profession, who is a professional, and how different researchers have conceived teachers' professionalism. To answer these questions, the following subchapters will present an overview of definitions of professionalism, models of teachers' professional development and of the concept of practical knowledge as an indicator of a teachers' professionalism.

2.1. The notion of professionalism in teaching

Evans (2008) defines professionalism as a person's ideology, beliefs and attitudes within the profession, which are influenced by work context and which in return will affect his/her professional activities. Professionalism calls people to acquire domain-specific knowledge and often long and intensive academic studies.

The term 'professionalism' relates to 'professions' and 'professionals'. A professional is a person who meets the technical and ethical standards of a profession, a person who engages in a pursuit or activity professionally – he is competent in a job (Hanks, 1989; Hawkins, 1992; Mish, 1991).

Characteristics of a professional include specialized knowledge, a shared technical culture, a strong service ethic and self-regulation (Bourke, Lidstone, & Ryan, 2013; Carr, 2000; Etzioni, 1969; Gore & Morrison, 2001).

Professions are mostly defined as domains of work where members have a specific body of knowledge, conform to standards of quality and belong to professional associations (Simons & Ruijters, 2003, 2004).

The three interrelated features – knowledge base, autonomy and responsibility are central to a traditional notion of professionalism (Furlong, Barton, Miles, Whiting, & Whitty, 2000; Hoyle & John, 1995). First, representatives of a profession possess a complex of knowledge, beliefs and skills that is recognised and accepted by representatives of their own and other fields. Secondly, professionalism calls for autonomy. Third, the autonomy holds a central position in the concept of professionalism, and it is closely linked to ethical responsibility – the ability to make responsible choices (Niemi & Kohonen, 1995; Šteh & Požarnik, 2005). “The ideal teacher” as defined by Kansanen, “is an independent professional who plans his work from the very beginning, and who is also responsible for the results of his students. He organises his daily activities independently and, in principle, he can give pedagogical reasons for his actions” (Kansanen, 1991, p. 252).

Becoming a professional teacher, one who can work with students of different ages, greatly depends on how well someone is able to adapt to student perceptions and behave according to their ideas of a good teacher (Krull, 2000). A modern definition of the learning-teaching process is described as creating an attractive learning environment for students (Byman & Kansanen, 2008). If a teacher wants to have authority in the eyes of the students, the students must like the teacher. As such, a teacher must have certain personal character traits: cheerfulness, friendliness, sincerity, an ability to control their emotions and other characteristics indicative of good mental health and personal intelligence. Students often have quite a clear idea of what makes a good teacher and their expectations depend on their experiences at school (Krull, 2000). Many researchers advise paying more attention to studying teacher behaviour and recommend using student perceptions in addition to other assessment methods (Den Brok, Wubbels, Veldman, & Van Tartwijk, 2009; Duffield, Allan, Turner, & Morris, 2000; Onwuegbuzie, Witcher, Collins, Filer, Wiedmaier, & Moore, 2007). Receiving this kind of feedback and constructive reflection would also allow teachers to discover new viewpoints in their teaching (Pham, Koch, Helmke, Schrader, Helmke, & Eid, 2012). In this study, information about students’ perceptions was collected using a questionnaire consisting statements about their teachers’ behaviour in the classroom.

Teaching is a complex activity and not something that individuals will naturally develop on their own (Grossman, Hammerness, & McDonald, 2009). The notion of teachers’ professionalism and the notion of a professional are both multidimensional and they share precisely the same basic dimensions – behavioural, attitudinal and intellectual (Evans, 2015a, 2015b). Professionals mostly do learn at work; therefore, teaching practice is the main source of a teachers’ professional development (Eraut, 2008).

Studies comparing groups of novice and expert teachers have shown professional development in teaching following a path similar to other professions.

Like experts in other fields (e.g. chess, medicine, physics, etc.), expert teachers have amassed a large quantity of knowledge and possess elaborate cognitive schemata for meaningful interpretation and effective decision-making that achieves exemplary performance (Tan, Fincher, Manross, Harrington, & Schempp, 1994; Schempp, Manross, Tan, & Fincher, 1998). Experts are better able to anticipate situations that were more likely to be encountered in classroom situations and were able to generate contingency plans based those opportunities. They have established procedures, rules, routines, and strategies for classroom management, guiding student learning, and solving instructional problems with maximum efficiency and minimal error (Tan et al., 1994; Schempp et al., 1998). The purpose of the study by Tan and colleagues (1994) was to investigate the knowledge differences between experienced and novice physical education teachers by interviewing them. Interviews focused on the knowledge the teachers used in planning and delivering their lessons and the findings were analysed in the light of Berliner's (1988) model of expertise acquisition. Specific differences were found between novice and experienced (competent) teachers in assessing student learning difficulties, conceptions of knowledge and reflective practice.

Borko and Livingston (1989) brought out differences in mathematics instruction in novice and expert teachers. Novices showed more time-consuming and less efficient planning than expert teachers. The planning by expert teachers is described as quick and efficient because of well-developed and easily accessible schemata for teaching. The expert teachers' thoughts about the instruction were fairly concise and focused on student understanding of the material (Borko & Livingston, 1989). The findings by Borko and Livingston are similar to patterns presented by Berliner (1986).

According to Good and Brophy (1995) there are two things which separate a novice and a professional. A professional can classify problem situations and events more effectively and more swiftly by moving smoothly from one level of generalisation to another, and they quickly find pedagogic solutions. Professional teachers know plenty of standard practical solutions, often honed to perfection, which they apply with skill and success.

This topic is still relevant today. Bocala (2015) presented a case study, comparing novice and experienced maths teachers who participated in a school-based learning programme. Novice teachers tended to focus on learning how to teach through problem solving, watching other teachers get ideas for their own activities or strategies. More experienced teachers saw their role as developing problems that elicit student thinking. Also, they observed classrooms to see the effects that pedagogy has directly on the students the lesson is for. They used their complete understanding about their students. Caspersen (2013) investigated teacher educators', novice and experienced teachers' beliefs and knowledge about the teaching profession. Novice and experienced teachers as well as teacher educators recognized the importance of possessing both practical and theoretical (academic) knowledge in achieving success in teaching. For teacher educators and experienced teachers, a more positive rate of academic

knowledge also correlated with positive attitudes toward inclusive classrooms. The author pointed out that this finding could indicate the novice teachers' difficulties in adapting their teaching to the complicated demands that inclusive practice raises (Caspersen, 2013).

Berliner (2005) briefly summarizes the differences between novices and experts:

- Experts have fast and accurate pattern recognition capabilities. Novices cannot always make sense of what they experience;
- Experts bring richer and more personal sources of information to bear on the problem that they are trying to solve;
- Experts are more sensitive to the task demands and social situation when solving problems of instruction;
- Experts are more opportunistic and flexible in their teaching than are novices.

In general, expert knowledge is more extended and better organized in the memory than that of a novice; in doing tasks, an expert needs less cognitive exertion; an expert is better able to retrieve relevant information from their memory in order to solve problems, to combine information needed for solving the problem, and to use this information in other contexts (Beijaard, Verloop, & Vermunt, 2000).

Definitions of professionalism or descriptions of people who are considered professionals point explicitly or less explicitly to three dimensions: (1) possessing a complex of knowledge, beliefs and skills that is recognized and accepted by representatives of their own and other fields; (2) being autonomous decision-makers, and (3) observing principles of professional ethics. In this study the focus is mainly on the first dimension of professionalism and the remaining two are considered inevitable contextual factors of successful teaching.

2.2. Models of teachers' professional development

The OECD report defines teachers' professional development as "activities that develop an individual's skills, knowledge, expertise, and other characteristics as a teacher" (OECD, 2009, p. 49). Professional development has been one of the most frequently discussed topics in recent years among teacher educators (Ingersoll & Merrill, 2011).

Theories of professional development traditionally discriminate between three to five stages in this process, such as: (1) novice stage, wherein behaviour is context-free and numerous mistakes occur in professional activities; (2) transitional stage, wherein performances improve and some routine is developed; and (3) expert stage (or proficiency stage), wherein high levels of performance arise (Dreyfus & Dreyfus, 1986; Kagan, 1992). One of the earliest studies of the developmental stages in professional thinking is the research of chess experts by De Groot (1965). The study was aimed at revealing differences in chess players'

thinking depending on their expertise. De Groot was interested in understanding how world-class chess masters are able to out-think their opponents. Chess masters and their less experienced colleagues were shown examples of chess game situations and asked to think aloud about the move they would make if they were one of the players. The main difference identified between grandmasters and players of average strength was the speed with which they recognized the central issue in game positions. Where less competent players tended to spend considerable time weighing unimportant options, the master players almost immediately apprehended what the real problem was. That was their professionalism, acquired from long years of experience through training and competitions (De Groot, 1965).

Dreyfus and Dreyfus (1986) proposed a five-stage model for describing the development of professional abilities from the novice to expert level. According to Dreyfus and Dreyfus novices tend to act just like a computer following a program and an understanding of the context in which the information makes sense is missing. The experts, by contrast, see what needs to be achieved and thanks to their vast repertoire of situational discriminations, they also see immediately how to achieve this objective. Glaser (1987, 1996) suggested considering professional development as changes in problem solving skills. Glaser and his colleagues found that the mental representation of a teaching problem by experts is qualitatively different from that of novices. Novices tend to focus on specific features of problems and try to link them to specific or very general concepts in their memory; experts tend to get the “big picture” in professional terms by identifying problems as particular instances of the application of general principles and then solve the problems by activating associated schemas (Chi & Glaser, 1985; Glaser & Chi, 1988).

Research on teachers’ professional development has yielded numerous specific models describing the progression of their professionalism in stages from different points of view and in relation to different aspects. Two types of internationally acknowledged theoretical models of professional development in teachers – as changes in teachers’ concerns and in professional decision-making – are presented in the remainder of this subsection.

Professional development as reflected in changes in teachers’ concerns

According to Fuller (1969) and Fuller and Bown (1975), one of the characteristic features of professional development in teachers is their problem-awareness. Using data obtained directly from 50 student teachers and indirectly from other databases and reports of similar surveys, Fuller inferred a four-stage model of teacher development that focused on teachers’ concerns. In the early phase of teaching novice teachers focus on classroom management as awareness of the need to control a class of students. The next phase is characterised by concerns for survival: class control, mastery of content to be taught, and the teachers’ own adequacy in fulfilling his/her role. In the third phase, concerns turn to teaching performance and the limitations and frustrations of teaching

situations (Fuller, 1969; Kagan, 1992). As a teacher becomes more competent and self-confidence grows, the emphasis shifts to more serious concerns related to teaching and learning. In the final, fourth stage, the teachers' concerns turn to the students (Fuller & Bown, 1975).

After Fuller's well-known studies, numerous newer studies have been conducted aimed at elaborating models of teachers' professional concerns. For instance, Pigge and Marso (1997) carried out a longitudinal study to assess the concerns of beginning teachers over a seven-year period from the commencement of teacher preparation through five years of teaching. The aim was to determine what, if any, personal and academic attributes in teachers might be associated with changes in their concerns about teaching as postulated by Fuller. Pigge and Marso identified significant decreases in the teachers' concerns about survival as a teacher (self-concerns) and increases in concerns about implementing teaching tasks, as hypothesized by Fuller (Pigge & Marso, 1997). Katz (1972) specified Fuller's model by identifying four developmental stages of regarding the training needs of teachers: survival, consolidation, renewal, and maturity. Mature teachers have come to terms with themselves as professionals.

Burden (1980, 1982) provided another model of professional development in terms of teachers' concerns. He asked teachers to characterise the stages of their professional development and highlighted survival, adjustment and maturity stages in their descriptions. Only in the third stage did teachers feel they had a good command of teaching activities and the environment, they were more student-centred, felt confident and secure, and were willing to try new teaching methods. In this (mature) stage, they finally found they had gained professional insight (Burden, 1982).

Huberman (1989) identified five stages of concerns in professional development. First, career entry (1 to 3 years in the profession) – a stage of both 'discovery and survival', where beginning teachers experience their first years of teaching as a struggle for survival (see also Sammons, Day, Kington, Gu, Stobart, & Smees, 2007), typically feeling discipline problems with students, overwhelmed, and reporting a sense of exhaustion, and the continuous use of trial and error. At the same time, fulfilling the responsibilities of a classroom beginning teacher brings a sense of accomplishment and discovery. After that, according to Huberman, there will come a stabilization period (4–6 years) when teachers usually make a commitment to teaching as a career and achieve a sense of instructional mastery. The divergent period (7–18 years) is described as a time of experimentation and activism as they develop their own courses, try out new approaches to teaching, and confront institutional barriers. The second divergent period (19–30 years) is a time of self-assessment, relaxation and a new awareness of a 'greater relational distance' from their students. Finally, disengagement period, which according to Huberman, begins after approximately 30 years of teaching experience: gradual separation from the profession (for details see: Huberman, 1989; Richter, Kunter, Klusmann, Lüdtke, & Baumert, 2011; Villegas-Reimers, 2003).

Bullough's (1989) case study is about the transition from a novice to an advanced beginning teacher. According for Bullough, the beginning teacher will go through four stages of development: fantasy, survival, mastery, and impact. In between the first and second stage there will be a period of shock where the classroom realities cause many young teachers to panic. The same phenomenon is described in many subsequent -studies: during teacher education, teachers receive insufficient preparation and as a result of the inevitable shock that occurs from entering practice, many novice teachers leave the profession (Ballantyne, 2007; Boz, 2008; Correa, Martinez-Arbelaiz, & Aberasturi-Apr aiz, 2015; Reupert & Woodcock, 2010; Stokking, Leenders, De Jong, Van Tartwijk, 2003). In the survival stage, the beginning teacher struggles with management and discipline issues, and in the impact stage, he or she begins to concentrate on improving instruction. Bullough argues not all beginning teachers go through the transition stages because they vary individually (Bullough, 1989).

Conway and Clark (2003) expanded Fuller's approach, claiming that teachers' work is not only directed by their concerns but also by their hopes and aspirations. They described the domains of teachers' hopes and fears regarding self-as-teacher, students, curriculum and instruction, university expectations, and classroom management. Conway and Clark (2003) identified that the most prominent hopes and fears held by teachers changed from hopes and fears about management to development of self as a professional teacher. Models of professional development as reflected in changes of teachers' concerns vary in their focus. A major area of concern for pre-service teachers is classroom management (Alvarez, 2007; Swennen, Jörg, & Korthagen, 2004). Beginning teachers' concerns are related to their performance as a teacher; that is, the ability to cope with real classroom situations (Anspal, Eisenschmidt, & Löfström, 2012; Caspersen & Raaen, 2014; Forlin & Chambers, 2011; Hettiarachchi & Das, 2014; Sandholtz, 2011; Sokal & Sharma, 2014).

Professional development as reflected in the quality of teachers' decision making

Berliner (1988, 2004) proposed a five-stage model of teachers' professional thinking and decision-making. He built the model upon the Dreyfus and Dreyfus (1986) model of professional development and pointed out that teachers' professional decision-making evolves typically through five stages:

- (1) *Novice teacher*, whose behaviour is usually rational, relatively inflexible, and tends to conform to whatever rules and procedures they were told to follow. This is a stage for learning the objective facts and features of situations (Barone, Berliner, Blanchard, Casanova, & McGowan, 1996; Berliner, 2004).
- (2) *Advanced beginner* – at this level experience starts to be melded with formal knowledge, and episodic and case knowledge are built up and complement the theoretical knowledge learned in the teacher education programmes. Advanced beginners learn to label and describe events, follow rules, recognize and classify contexts (Barone et al., 1996; Berliner, 2004).

- (3) *Competent teacher*, who makes conscious choices about what he/she is going to do, sets priorities and decides on plans. At this stage teachers reach the ability to avoid timing errors in delivering lessons. This is also when teachers learn to make sensible curriculum and instruction decisions, such as when to stay with a topic and when to move on, based on particular teaching contexts and the particular characteristics of the students (Barone et al., 1996; Berliner, 2004).
- (4) *Proficient teacher* – at this stage intuition becomes prominent in teacher decision-making. Compared to novices their experienced colleagues can predict when a student might start to act out, when the class begins to get bored, or when their students are confused or excited. Their rich case knowledge can be brought to bear on the problems they encounter or predict. The proficient teacher, however, while intuitive in pattern recognition and in ways of knowing, is likely still to be analytical and deliberative in deciding what to do (Barone et al., 1996; Berliner, 2004).
- (5) *Expert teacher* – high performance enabled by two factors: their rich supply of specific knowledge and skill ready for immediate application, and their ability to identify situations operatively where the application of these skills is appropriate. Experts act effortlessly, fluidly, and in a sense non-rationally because their performance is not often describable as deductive or analytical behaviour. The ability of expert teachers to deal with a classroom’s basic routines in a non-reflective or automatic way allows them to take more time for a deeper analysis of atypical problems (Barone et al., 1996; Berliner, 2004).

Another concept called the model of differential teacher evaluation tasks by Good (1996) describes teacher development as a set of expanding responsibilities they should gradually be able to cope with during their first three years of work. Typical expectations for the work responsibilities of teachers year by year are summarised in Table 1. The model presents a cumulative approach to the development of professional competence; that is, lower-level skills are seen as prerequisites for and integral parts of achieving the next competence level.

Table 1. Cumulatively defined expectations for the professional competences of beginning teachers (Good, 1996, p. 643)

<i>Year 1</i>	<i>Year 2</i>	<i>Year 3</i>
Teacher as... ...classroom manager; ...presenter; ...discussion leader; ...grader.	Teacher as... ...designer of small group tasks; ...designer/stimulator of independent study options; ...communicator with parents; ...facilitator of students affective and social growth.	Teacher as... ...colleague; ...co-constructor of knowledge; ...leader; ...stimulator of student capacity for self-reflection.

According to Good (1996), during their first year, novice teachers will be able to cope with creating the necessary atmosphere for studying, presenting study materials to students, guiding class discussions and assessing the works of students. By the second year, young teachers will get used to many of the aspects of working in a school and classroom. More experience in managing and organising learning activities allows them to better concentrate on both individual students' problems and the need to differentiate learning activities for different groups. During their second year of work, teachers should also gain the ability to delve deeper into problems concerning student emotional adaptation and the development of their social skills. Good (1996) declared that young teachers should reach the peak of their professional skills and knowledge by their third year of teaching. Full professionalism presumes the ability to understand how students think and shape student learning skills. Berliner (2004) and most other researchers perceive teachers' professional development as a significantly longer process than does Good (1996).

Stage-models have been criticized for the ordered and linear progress of teacher growth they assume (Bullough, 1997; Fessler & Christensen, 1992; Flavell, 1977; Grossman, 1992; Maskit, 2011). It is important to emphasize that these models are useful only to a certain extent, as each individual teacher new to the profession enters with different characteristics and may be presented with different opportunities within the first few years of working (Eraut, 2008; Richter et al., 2011). Although, stage model theories have been criticized, these theories are widely referred to even today. In summary, the research-based stage-theories of teacher professional development will open potential changes in the behaviour and thinking of teachers depending on their teaching experience. Knowledge regarding the stages in the professional development of teachers could make it possible to analyse and give meaning to their actions.

Fuller's four-stage model (Fuller & Bown, 1975) and Berliner's (1988) five-stage model are relevant for understanding the regularities and patterns in the professional development of teachers, including what novice and experienced teachers' competences consist of in terms of categories of practical knowledge in the current study. In this study, these two models mainly serve as theoretical frameworks for predicting and interpreting potential differences (as developmental changes) in the professionalism of novice and experienced teachers.

2.3. Teachers' practical knowledge as an indicator of professionalism

The concept of teachers' practical knowledge is considered a promising approach to opening the nature of teacher professionalism (Fenstermacher, 1994; Schepens et al., 2007). However, there is still no agreement between practitioners and researchers in defining this concept in a detailed or measurable way (Bereiter, 2014, 2015; Janssen, Westbroek, & Doyle, 2015).

The concept of teachers' practical knowledge as an approach to revealing the real knowledge and skills teachers are using to make professional decisions has been an object of study for several decades before it became one of the key conceptual frameworks explaining the nature of teacher professionalism (e.g. Calderhead, 1996; Fenstermacher, 1994; Grossman, 1990; Kansanen, 1991; Putnam & Borko, 2000; Schön, 1983, 1987; Shulman, 1986, 1987). One of the first educators to use the term 'practical knowledge' as an academic term and concept was Elbaz (1981, 1983), who introduced it as a five dimension or component construct: knowledge of self; knowledge of the milieu of teaching; knowledge of subject matter; knowledge of curriculum development; and knowledge of instruction. Elbaz' (1981) conceptualization of teachers' practical knowledge relies on Schön's (1983) ideas of the reflective practitioner. According to Schön's theory, a teacher's knowledge is seen as an expression of personal reflection. He pointed out that a professional makes decisions on the basis of various unique aspects of the situation, and introduced the concepts of *reflection-in-action* and *reflection-on-action*. Schön suggested that the work of professionals is often messy and problematic: neither applied science nor rationality, but nevertheless coping with problems that professionals face in their practice. He argued that understanding the practice of professionals requires understanding their *knowing-in-action* (Schön, 1983, 1987).

Another well-known conceptualisation of what teachers as professionals know is proposed by Shulman (1986, 1987), who pointed out the complex nature of expertise in teaching and introduced the concept of pedagogical content knowledge. According to Shulman, pedagogical content knowledge contains the teacher's comprehension of subject matter, teaching strategies and students' ways of learning. In all, Shulman (1987) conceives teachers' professional knowledge as consisting of content knowledge, general pedagogic knowledge, curriculum knowledge, pedagogical content knowledge, knowledge of learners and their characteristics, knowledge of educational contexts, and knowledge of educational ends, purposes, and values (Shulman, 1987). In the current study, the main focus is on pedagogical content knowledge.

Grossman (1990), relying on Shulman's concept of pedagogical content knowledge, defined it as consisting of the knowledge of students' conceptions of the content, curriculum, teaching strategies, and purpose of teaching. Yet, Fenstermacher (1994) investigated teachers' argumentation of teaching and examined practical knowledge as the knowledge that teachers themselves generated as a result of their experiences and reflections on these experiences. Research has revealed that teachers' beliefs play an important role in building practical knowledge (Sickel & Friedrichsen, 2015). Beliefs act as a filter through which new knowledge is interpreted, and subsequently, integrated into conceptual frameworks (Pajares, 1992). Beliefs may refer to pedagogical values as well as to teaching a specific subject. Such beliefs are influenced by, among other things, teachers' biographies, for instance, experiences with their own teachers, experience raising their own children or by their disciplinary background (Van Driel, Beijaard, & Verloop, 2001). The other characteristic

features of teachers' practical knowledge are that it is person-bound (Johnston, 1992), tacit (Polanyi, 1967), situated (Hiebert, Gallimore, & Stigler, 2002; Hulshof & Verloop, 2002), and action-oriented – one reason why it is sometimes called “the wisdom of practice” (Berliner, 2004; Johnston, 1992; Van Driel et al., 2001).

Following Shulman (1986), Grossman (1990), and Fenstermacher (1994), Dutch researchers Meijer (1999), Meijer, Verloop, and Beijaard (1999), and Van Driel et al. (2001) developed and specified the concept of teachers' practical knowledge as cognitions that underlie teachers' actions. According to Meijer (1999), teachers' practical knowledge as a concept can be conceived as consisting of knowledge and beliefs, on the one hand, and interactive cognitions, on the other hand. Both major categories are broken into several subcategories (Table 2). In the current study, this internationally acknowledged and well specified concept of teachers' practical knowledge (Meijer, 1999; Meijer et al., 1999; Van Driel et al., 1998, Van Driel et al., 2001) was chosen as a guiding framework. According to Dutch educators, teachers' practical knowledge is defined as a combination of professional knowledge, skills and attitudes, which form the basis for the pedagogical decisions they make in their everyday work, i.e. teaching (Meijer, 1999).

Table 2. Overview of the categories identified in teachers' practical knowledge (Meijer, 1999, p. 69)

Categories in teachers' interactive cognitions	Categories in teachers' knowledge and beliefs
Thoughts about the particular class	a
Thoughts about individual students	a
Thoughts about students in general	Student knowledge
Thoughts about student learning and understanding	Knowledge of student learning and understanding
Thoughts about subject matter	Subject matter knowledge
Thoughts about the curriculum	Curriculum knowledge
Thoughts about goals	Knowledge of purposes
Thoughts about instructional techniques	Knowledge of instructional techniques
Thoughts about teacher – student interaction	a
Thoughts about process regulation	a

a – absent

Each subcategory of teachers' practical knowledge as presented in Table 2 can be further specified into three types – practical knowledge with a focus on the subject matter; practical knowledge with a focus on student(s); and practical

knowledge with a focus on the students' learning and their understanding of the material to be learned. According to Meijer (1999), the 3rd type of practical knowledge is inclusive of all ten categories in teachers' interactive cognitions. The 1st and 2nd types of practical knowledge are more restricted in this sense.

Teachers differ in what they know and what they think works in practice. That is especially the case in the current study when novice and experienced teachers' characteristics of professionalism in categories of practical knowledge are analysed. In learning to teach, the accumulating teaching experience plays a central role. "The influence of experience on teachers' practical knowledge" as pointed out by Beijaard, Verloop, and Vermunt, "can be determined by comparing experienced with non-experienced or novice teachers" (2000, p. 753). The empirical part of this study, in order to pursue the research aim and find answers to the research questions, relies on the above adopted concept of professionalism, teachers' professional development conceived as developmental changes in teachers' concerns and decision-making capabilities, and the characterization of professionalism in novice and experienced teachers via categories of teachers' practical knowledge as introduced by Meijer et al. (1999). In addition, student perceptions of teaching activities and teachers' own views of their professionalism are compared.

3. METHODOLOGY

This chapter focuses on explaining how the study was designed, indicating sampling, data collection and data analysis.

3.1. Design

Adopting the concept of teachers' practical knowledge by Meijer et al. (1999) along with its categories as an instrument for classifying manifestations of teachers' professionalism, and following the research questions for this study, forms the basis for collecting data on the explicated thoughts of teachers in three main phases of teaching.

The research design of this study represents a mixed methods approach, which calls for combining quantitative and qualitative data collection methods (Creswell, 2003; Miles & Huberman, 1994). One mixed method approach to data gathering – the teacher's portfolio model – developed and validated by Dutch researchers was taken as a prototype for creating instruments for collecting data on teachers' practical knowledge. This set of instruments involved:

1. Teachers' self-description;
2. Two interviews;
3. Video recordings of the lessons in which the teacher instructs and coaches students doing tasks;
4. Teacher's reflections on his/her strengths and weaknesses;
5. Student ratings of the teacher (Van der Schaaf, 2005, p. 93; Van der Schaaf, Stokking, & Verloop, 2008, p. 1696).

In general, the adopted research design represents triangulation aimed at enhancing the internal validity in a qualitative studies (Meijer, Verloop, & Beijaard, 2002), Triangulation means that two or more methods for gathering data are used for the research (Denzin, 1978; Denzin & Lincoln, 1994; Miles & Huberman, 1994). In this study triangulation is conceived as the combining and synthesizing of data from a student questionnaire, teachers' reflective writings and interviews. The design of the study is graphically presented in Figure 1 (p. 24).

The study relies on former research in which qualitative research methodology has yielded important findings (Bourke et al., 2013; Conway & Clark, 2003; Meijer, 1999; Schempp et al., 1998; Vaino, 2013; Wyatt, 2015). The empirical research took place over the course of two academic years (2010/2011 and 2011/2012).

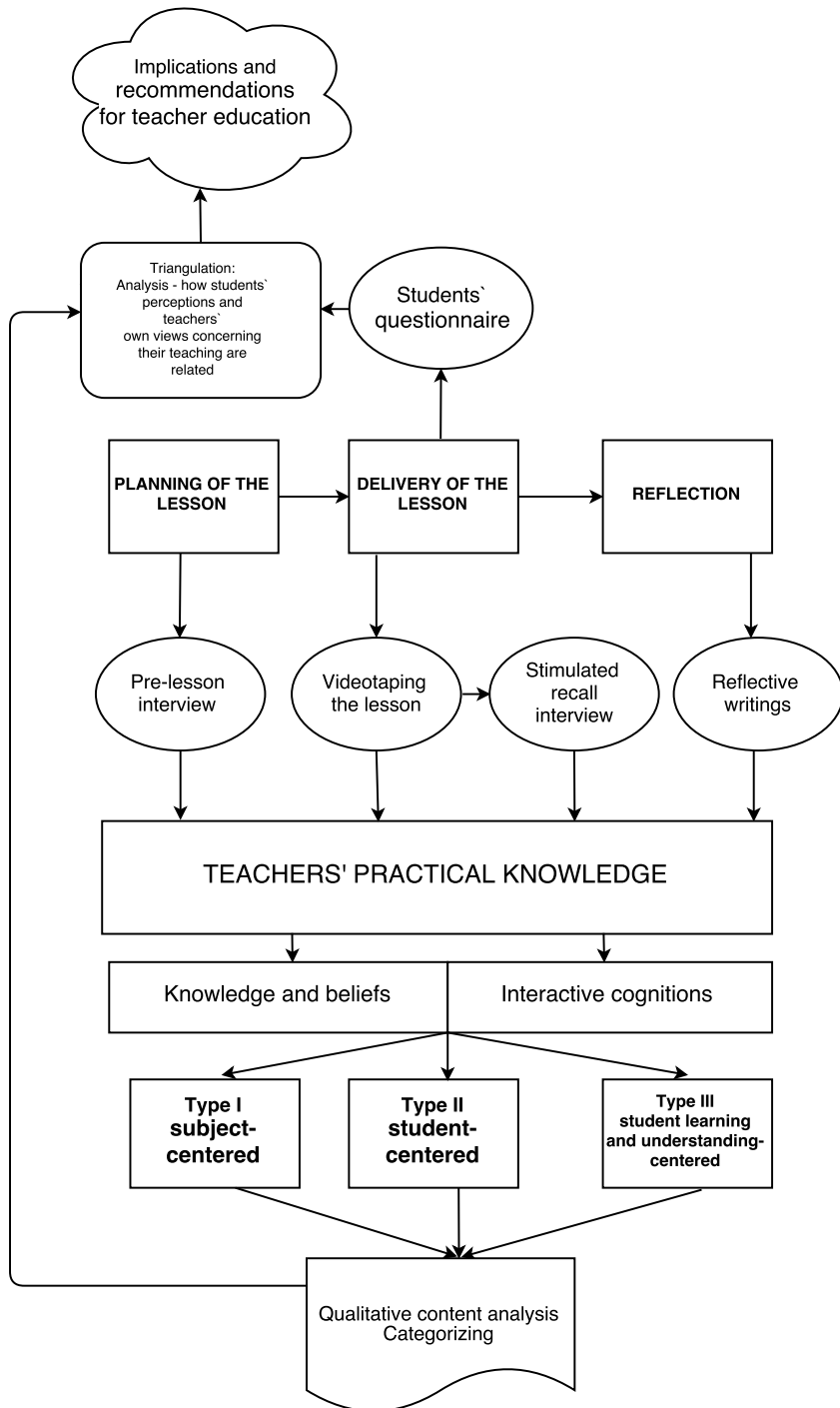


Figure 1. Design of the study – an investigation of teachers’ professionalism in terms of teachers’ practical knowledge in three main phases of teaching – planning the lesson, delivery of the lesson, and reflection along with comparing these findings with students’ perceptions

3.2. Participants

This research involved twenty Estonian basic school teachers (18 female and 2 male) and their students as research subjects. Ten teachers had more than ten years of teaching experience in a specific content area (with the most experienced having taught for 44 years) and were defined as experienced teachers (Palmer, Stough, Burdenski, & Gonzales, 2005). Ten teachers had less than three years of experience in the profession and were defined as novice teachers (as expressed by Huberman, 1989). The participating teachers were mostly teaching subject classes in Grades 6–9: Estonian as a first language; English as a second language; Mathematics; Chemistry; Biology; Geography; or History. A total of 314 students taught by these teachers participated in the study (163 in the beginning and 151 in the experienced teachers' classes). The students' ages ranged from 12 to 16.

The procedures leading to selecting participating teachers were manifold. At first the head masters of 40 randomly selected Estonian schools were addressed by e-mail, seeking their approval for teachers to participate in the study. This letter explained the nature of the study and specified the expected role of the teachers included. Eleven headmasters agreed to participate. After prior written consent, the researcher had a meeting with the headmasters to explain the set-up of the study and the need for novice and experienced teachers as participants. The third stage involved meetings in the form of seminars as well as individual meetings with teachers at which the research methodology and the teachers' role was explained. Due to the lack of reimbursement for involvement in the study, many teachers rejected the proposal. Finally, ten novice and ten experienced teachers from seven schools agreed to participate in the study. Further work with teachers was continued on an individual basis.

3.3. Instruments and procedures

Five procedures were used to gather the data: video recordings of lessons; two interviews with teachers, teachers' self-descriptions, including reflections on their strengths and weaknesses, and student questionnaires regarding teacher behaviour (see Figure 1).

First, the interviews were conducted with the teachers on the topic of planning lessons. The second and third step included recording the lessons of the participating teachers and collecting written responses from students about their perceptions of the behaviour of their teachers during the delivery of the lessons. The fourth step involved conducting a second interview with the teachers on the taught lessons using the stimulated recall method. The final step involved collecting the teachers' self-descriptions, reflective writings and essays on the following topics: "My strengths and weaknesses as a teacher" and "What makes a teacher professional".

3.3.1. Videotaping the lessons, teacher interviews and reflective writings

Pre-lesson interview

The practical knowledge of the novice and experienced teachers when planning lessons was partly revealed by interviewing the teachers. The first interviews were conducted before videotaping the lesson. Prior to the lesson, the teachers answered five basic questions related to the planning process of that particular lesson:

- (1) *What is the topic of your lesson?*
- (2) *What is the objective of your lesson?*
- (3) *How long did it take to plan the lesson? Did it take more or less time than usual?*
- (4) *What do you usually think about when planning lessons?*
- (5) *What difficulties did you encounter while planning the lesson?*

These questions were taken from the questionnaires used in the NBPTS *Construct and Consequential Validity Study* (Bond, Smith, Baker & Hattie, 2000; Ingvarson & Hattie, 2008). The questions are closely connected to individual teaching experience and teachers' practical knowledge (Article I).

Videotaping the lessons

One lesson was recorded for each of the teachers who participated in the study. The duration of the lesson was 45-minutes, as is common in Estonian schools. The teacher could select the lesson to be recorded himself/herself. In total 20 lessons were recorded. The recording equipment was set up at the back of the classroom, from where the teacher's activity during the lesson could be clearly seen. The position of the equipment remained unchanged throughout the lesson. The video recordings were used in a stimulated recall interview to capture the teachers' interactive thoughts during the lesson (e.g. Calderhead, 1981; Clark & Peterson, 1981).

Stimulated Recall Interview

Stimulated recall interviews were conducted after the lessons that were videotaped. In stimulated recall, teachers explain their interactive thinking in teaching while watching a videotape of a lesson they have just taught. The videotape was stopped every time the teachers recalled what they were thinking or what was in their mind at a particular moment of teaching and encouraged to say everything they could remember thinking at the time.

According to the methodology proposed by Meijer (1999), the stimulated recall interview was conducted right after the lesson. In some cases this was not possible because, for example, the teacher was scheduled to teach other lessons. All teachers were instructed on how to proceed in the stimulated recall

interview. When the researcher was sure the teacher understood what was expected, he/she started to watch the videotape. While watching, the researcher stopped the tape whenever the teacher started to comment. If the teacher became too involved in watching the videotape of his/her lesson and did not give a single comment for a minute, the researcher stopped the videotape and asked whether the teacher could remember his or her thoughts at that moment.

There was a difference between the duration of the interviews for different teachers.

Teachers' reflective writing and essays

Reflective writings are valid instruments to explicate teachers' knowledge and beliefs (Poldner, Van der Schaaf, Simons, Van Tartwijk, & Wijngaards, 2014). Participating teachers were asked to write reflections on the subject "My strengths and weaknesses as a teacher" and an essay on the topic "What makes a teacher professional?" The teachers wrote the essays and reflective writings individually and, in most cases, submitted them within a couple of weeks. All teachers presented their essays in the Estonian language.

3.3.2. Student questionnaire

A questionnaire (Van der Schaaf, 2005, p. 151) of 15 statements was used to measure students' perceptions of teachers' behaviour in the classroom (Table 4). Students from the classes of the participating teachers (n=314) were asked to evaluate their teachers' behaviour in a specific lesson on a 4-point Likert-type scale (after the videotaped lesson). Completion of the questionnaire took the students approximately 5–7 minutes.

3.4. Data analysis

Pre-lesson interview

The qualitative analysis of recorded and transcribed interview data was aimed at describing teachers' practical knowledge in planning lessons, categorizing the stated lesson topics and objectives, and to reveal the characteristics of the professionalism of novice and experienced teachers' in terms of practical knowledge (Article I). For the content analysis, stated lesson topics were divided into two categories (student oriented and subject oriented); stated lesson objectives were divided into three categories (too vague, clear but not related to assessing student achievement, and clear and achievement identified using student assessment).

The content analysis was carried out in three steps. First, two experts read the stated topics independently and divided the lesson topics into two categories – student oriented and subject oriented. They also read the stated lesson

objectives in the transcribed interviews. Then, they observed the video recordings of the corresponding lessons, and after that, they assessed the level of agreement between the stated lesson objectives and their implementation as judged on the basis of the recorded lessons using the following reading guide:

- (1) The wording of the lesson objective is too general and not outcome-oriented.
- (2) The objective appeared to be defined and was based on the specifics of the subject matter and the topic of the particular class.
- (3) The objective was well defined, and the teacher made an effort to check the achievement of the objective (see details from Article I).
- (4) The calculated value of Cohen's kappa (.86) confirmed that the agreement in categorization was good (Article I).

Stimulated Recall Interview

The teachers' (n=20) audio recorded comments on classroom interactions (i.e. on their delivery of instruction) were transcribed and grouped according to the categories of teachers' interactive cognitions: (1) thoughts about the particular class; (2) thoughts about individual students; (3) thoughts about students in general; (4) thoughts about student learning and understanding; (5) thoughts about subject matter; (6) thoughts about curriculum; (7) thoughts about goals; (8) thoughts about instructional techniques, (9) teacher – student interaction, and (10) process regulation (Meijer, et al., 1999). The qualitative content analysis of the teachers' statements (idea units) was aimed at comparing the professionalism of novice and experienced teachers in terms of practical knowledge in the delivery of the lessons. The calculated value of Cohen's kappa (.61) confirms that the agreement between the two expert opinions in regard to the categorization was satisfactory (Article II). The analysis is described in more detail in Article II.

Teachers' reflective writings and essays

The qualitative content analysis of essays (*What makes a teacher professional?*) was aimed at describing teachers' views on professionalism, categorizing the teachers' statements (idea units), and revealing the characteristics of novice and experienced teachers' practical knowledge. In total, 387 idea units were identified in the essays. The content analysis grouped overlaps and expressions with similar meanings under 36 keywords or subcategories. The subcategories were divided into seven wider areas that covered all six categories of the teachers' practical knowledge (Meijer, 1999; Van Driel et al., 1998) and the seventh category, which notes a teacher's knowledge and beliefs regarding their personal characteristics. By analysing the system using six categories of practical knowledge, it became clear that these personal traits highlighted by the teachers do not fit into the six categories from Meijer (1999) presented in Table 2.

Therefore a seventh category was added. The codebook included the following categories:

- (1) Knowledge of students;
- (2) Knowledge of students' learning and understanding;
- (3) Knowledge of one's subject;
- (4) Knowledge of curricula;
- (5) Knowledge of aims;
- (6) Knowledge of instruction techniques and methods in teaching technology;
and
- (7) Knowledge of teachers' personal traits.

Two experts separately classified idea units into the seven categories. The calculated value of Cohen's kappa (.67) confirmed that the agreement between the opinions of the two experts in the categorization was satisfactory (Article III).

Similarly, the content analysis of reflective writings aimed to categorise the teachers' comments on their strengths and weaknesses. The system of categories for analysing the reflective writings on the topic "My strengths and weaknesses as a teacher" – the codebook – included four categories:

- (1) Teaching and teaching technology;
- (2) Communication;
- (3) Knowledge of the subject; and
- (4) Teachers' personal traits.

Two experts classified 357 idea units into these four categories. The quality of the experts agreement was assessed (Cohen's kappa= .86). In addition to the qualitative analysis, quantitative analysis was used to a limited extent in counting the teachers' comments in specific categories (Article III).

Student inquiry

To group variables that were defined on the basis of answers to the questionnaire items, an exploratory factor analysis was carried out. This resulted in a single-factor solution, meaning that all answers had strong mutual correlations.

In order to determine whether the mean values of the evaluations were statistically significantly different and linked to teachers' work experience, a comparison of the mean values was carried out using Student *t*-tests for the independent samples of the students of the novice and experienced teachers. The *t*-test was carried out for each question/category separately (Article IV). The internal reliability of the questionnaire was calculated (Cronbach's alpha .92), and the items in the student questionnaire formed a reliable scale (n=314; 15 items; mean 2.79; variance .75).

Triangulation

The triangulation method was used to compare idea units drawn from teachers' reflective writings (Article III) and interviews (Article I, Article II) with the students' perceptions of their teachers' behaviour (Article IV). When connected in that manner, a relationship could be found between students' perceptions and teachers' own views on their professionalism. Since the factor analysis made it impossible to group variables, all statements of the questionnaire items (n=15) were used as a basis for categorizing the idea units obtained from the pre-lesson and stimulated recall interviews, and from the reflective writings.

3.5. Research ethics

The teachers in the study participated on a voluntarily basis. All participants were clearly informed that their participation and interactions are being videotaped and analysed for the research. All participants understood the procedures in which they were engaged. The teachers were fully informed about the study before and signed an informed consent agreement. In terms of informing the students and parents, in cooperation with school administration, the e-school system was used to communicate with the families. More specifically, all parents were informed that the teachers of their children were participating in a study investigating teachers' professionalism and that some of their lessons would be video recorded and the students would answer a questionnaire. The notification contained precise information about which lessons would be recorded on which days. They were also notified that the anonymity of the students was guaranteed. None of the parents objected to their children participating in the study. The study followed the *Ethical guidelines for educational research* (BERA, 2011).

4. RESULTS

This chapter will summarise the results of the study. A more through account of the findings is provided in the articles (Articles I, II, III, and IV).

4.1. Novice and experienced teachers' practical knowledge in planning lessons

In the first step of the study (Article I), the characteristics of novice and experienced teachers' professionalism were analysed in terms of teachers' practical knowledge when planning lessons (research question 1).

The results (Article I) showed that all categories from Meijer's concept of practical knowledge (1999) were recognizable in the teachers' lesson planning interviews. To sum up, the analyse of teachers' answers to the interview questions showed that the thoughts of experienced teachers were oriented towards the students they were going to teach and for whom the lesson was planned. All experienced teachers set clear objectives. In most cases, their objectives were well defined, and six of the experienced teachers defined their lesson objectives using the practical knowledge of student learning and understanding the learned material (3rd type of practical knowledge by Meijer). The formulation of lesson topics and stated objectives by novice teachers, however, was mostly subject oriented. Interviews with novice teachers on their lesson planning showed that they primarily focus on presenting the subject content to the students and paid less attention to how students acquire and interpret the new knowledge. Most of the lesson objectives stated by the novice teachers did not specify what the students were expected to perform in order to confirm that learning took place or to facilitate assessment (Article I).

While planning lessons, the novice teachers in this study had more subject oriented thoughts (1st type of practical knowledge – subject centred) than experienced teachers. Typical thoughts the experienced teachers had were about the students they were going to teach, (for example how to differentiate their learning), objectives, and methods (what he or she will do to achieve the goal/what he or she decides to do with students in order to fulfil the objective). The teachers' self-estimated amount of time spent in lesson planning showed that on average it took the novices more time to prepare lessons than experienced teachers (Table 3, p. 32).

Table 3. Self-reported time for planning the lesson (in hours)

Novice teachers		Experienced teachers	
N1	2	E1	0.5
N2	0.75	E2	0.5
N3	0.5	E3	1
N4	2.5	E4	1
N5	2	E5	1.5
N6	1.5	E6	2
N7	1.5	E7	0.5
N8	2	E8	0.25
N9	2	E9	1
N10	3	E10	1

A novice teacher (N1 – N10) needed 1 hour and 48 minutes to prepare for the lesson on average, an experienced teacher (E1 – E10), 55 minutes on average. The difference in self-estimated average time needed by novice and experienced teachers was statistically significant ($t = 2.93$, $p < 0.01$, r (effect size) = 0.55). Talking about difficulties in preparing the lesson the main concern of the teachers was lack of time. In pre-lesson interviews, novice teachers most frequently expressed the time-pressure (Article I).

4.2. Novice and experienced teachers' practical knowledge in comments on the delivery of lessons

This section reflects the results of the analysis conducted in the 2nd step of the study (Article II) aiming at investigating what are the characteristics of novice and experienced teachers' professionalism in terms of practical knowledge when commenting on the delivery of the lessons (research question 2). The analysis revealed that all ten categories of interactive cognitions (Meijer et al., 1999) were represented in the teachers' comments. The largest number of reflections was about student learning and their understanding of the material to be learned (86 idea units, Figure 2, p. 33). In Article II the content of each category of the teachers' interactive cognitions is described and illustrated using fragments from the interviews.

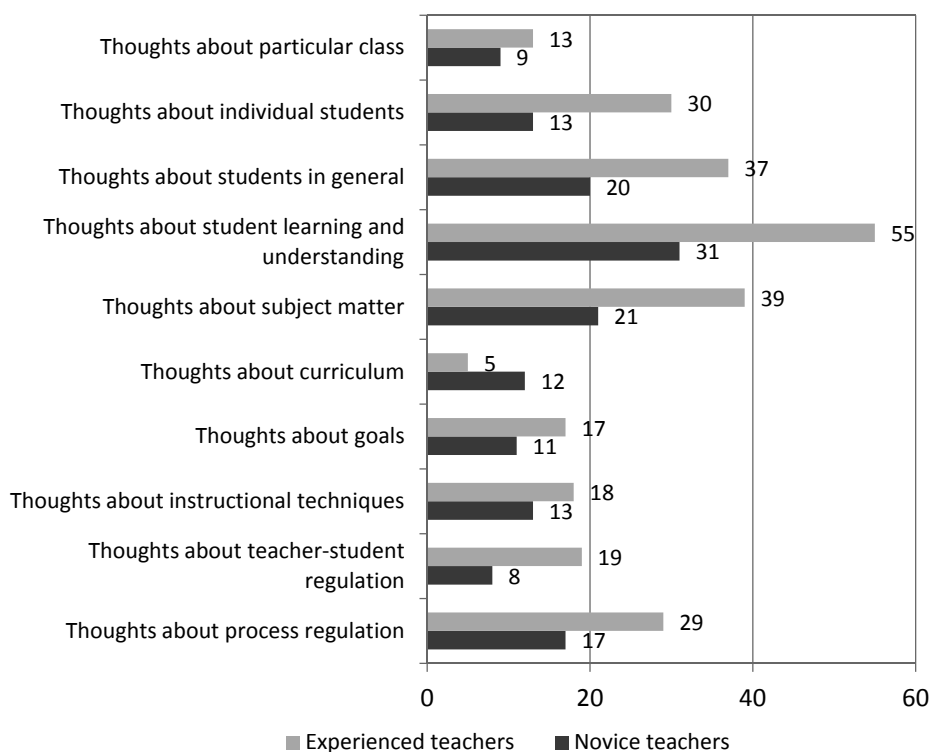


Figure 2. Novice and experienced teachers’ explicated thoughts grouped in categories of ten interactive cognitions (numerically)

Curriculum related topics received the fewest comments (17 idea units), while the majority of these (12 idea units) came from novice teachers. Experienced teachers made more comments than novices regarding all other categories (Article II).

When a teacher expressed thoughts on a specific class, in most cases they were related to the background or other characteristics of the class. Thoughts related to individual students were divided into two main groups: comments in which the teacher explained the student’s social background or other characteristics; and comments that touch upon the studying or behaviour of the particular student. More general comments reflected student motivation issues and described student characteristics, including age-based characteristics and other related features (Article II). When analysing the comments, it became evident that both novice and experienced teachers paid attention to student learning difficulties, while the comments of experienced teachers also involved thoughts about their own efforts in overcoming problems. The comments of beginners were rather summative and their remarks dominated by specific problems related to learning a particular subject. Both experienced and novice teachers expressed many thoughts on their subject material, these usually

comprising the following aspects: difficulty level of the subject; student interest in the subject; and other aspects related to teaching (Article II).

One area where the comments of novice and experienced teachers differed was the novices' unreasonable request that the students remember the material they learned in its entirety; for example, "Students need to memorize the timeline of events when learning about this topic". Experienced teachers valued memorizing the material learned in their comments as well, but found it more important that students understand the subject matter and only then remember it; for example, "... the assignment enables students to associate the events of this period with their dates" (Article II). Novice teachers, who commented on the syllabi (thoughts on the curriculum) more than their experienced colleagues (5 idea units from experienced teachers, 12 idea units from novice teachers), raised the integration of their syllabus with other syllabi and the vastness of the syllabus. A certain element of criticism of the curriculum/subject syllabus dominated the comments of both novice and experienced teachers, primarily concerned with the volume, but also the meaning and value of particular parts and topics (see details in Article II).

The greatest concern for novices was maintaining discipline. When comparing the comments of novice and experienced teachers concerning rules of procedure or discipline, it is evident that experienced teachers have a systematic approach to classroom management: they believe that in order to ensure that a class is managed, the teacher must have thought about it before a lesson even starts. Thoughts related to process regulation, and thereby, also time usage and management were more present among novice teachers (Article II). Experienced teachers consider it important to spend as much time as possible doing the exercises, as this enables students to comprehend and acquire the material they learn. The teachers' statements and arguments presented as examples in Article II and other similar remarks indicated a more considered and integral approach to the events of a lesson among experienced teachers. Teachers consider teacher-student relationships from various angles. Sometimes they analysed their own style of communication; for example, "I'm a very fast-paced person myself. I could see they couldn't keep up – I talk to them too quickly" and "Generally, I don't have problems and I get along well with my students" (Article II).

All three types of practical knowledge (subject-centred, student-centred, and student learning and understanding centered) were identifiable in teachers' comments on classroom events. The practical knowledge of the novice teachers mainly manifested itself in focusing on the subject that was being taught (the comments mostly were categorized under the 1st and 2nd type of practical knowledge) while the practical knowledge of experienced teachers was in most cases expressed in terms of the student's learning and their understanding of the material to be learned. Not only did experienced teachers make more comments (Figure 2, p. 33), but their remarks were also more detailed and meaningful (Article II).

4.2. Novice and experienced teachers' views on professionalism

This subchapter is based on the results of the 3rd step of the study (Article III) aiming at investigating what teachers' views on professionalism are and how novice and experienced teachers reflect their strengths and weaknesses as a teacher (research question 3). The analysis of teachers' essays and reflective writings revealed that all six categories of teachers' knowledge and beliefs (Meijer, 1999; Van Driel et al. 1998) were represented. In addition, a category, which describes a teacher's knowledge and beliefs regarding their personal characteristics, was added.

In novice and experienced teachers essays on the topic "What makes a teacher professional?" the central issues were teachers' personal characteristics and instructional techniques and methods in teaching. In total, three hundred and eighty seven idea units were identified in the essays. The largest number of reflections (98 idea units) was about teachers' personal characteristics. Novice teachers made more statements than their experienced colleagues regarding this category (Figure 3). Also a large number of idea units was about instruction techniques and methods (n=76), about students (n=70), and student learning and understanding of the material to be learned (n=69).

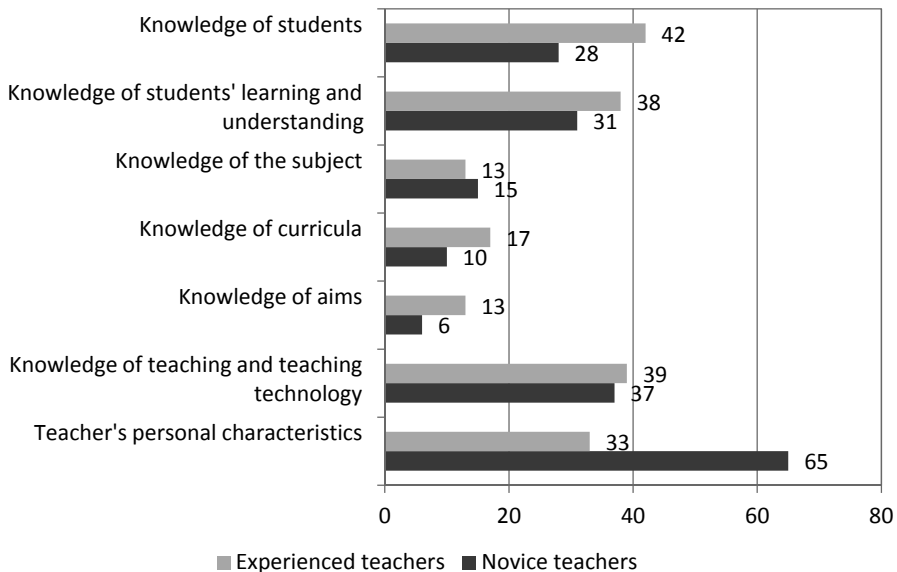


Figure 3. Number of novice and experienced teachers' statements grouped according to categories of teachers' practical knowledge

Most of the similarities emerged with statements noting personal characteristics and education and knowledge:

- Both groups noted the importance of skills for cooperating with students and colleagues;
- The novice and experienced teachers alike value communication skills as qualities of a professional teacher;
- Both the novice and experienced teachers considered teacher education important and appreciated updating their professional knowledge and participating in in-service training as an attribute of professional teachers (Article III).

All novice teachers expressed ideas with different emphasis on IT tools in the classroom. Instead, only four experienced teachers from ten pointed to the potential of IT as a component of teacher professionalism. Seven categories and 36 subcategories with illustrative examples are presented in Article III.

Three hundred and fifty seven idea units were counted in total from the teachers' reflective writing about their own strengths and weaknesses in working as teachers. Teachers' opinions were divided into four main groups: teaching and teaching technology, communication, knowledge of the subject, and teacher's personal characteristics (Figure 4).

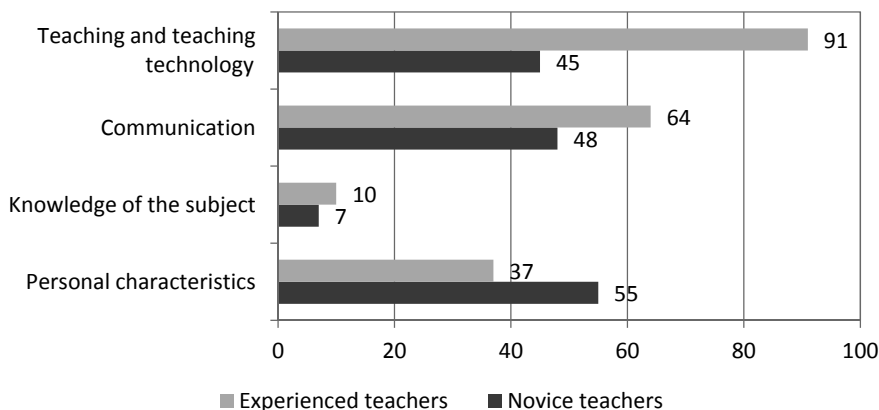


Figure 4. Number of novice and experienced teachers' expressions of strengths and weaknesses as teachers

The largest number of reflections (136 idea units; 91 from experienced teachers and 45 from novice teachers) was about teaching and teaching technology. The teachers also mentioned numerous aspects related to communication (112 idea units: 64 from experienced and 48 from novice teachers) and teachers' personal characteristics (92 idea units, 37 from experienced teachers and 55 from novices). Personal characteristic features were described both as weaknesses and strengths. Thoughts related to knowledge of the subject were only presented 17 times. Communication-related opinions were divided into three groups:

(1) communication with students, (2) communication with colleagues, and (3) communication with parents. Experienced teachers saw their ability to maintain discipline (in terms of communication) as a strength. They stressed the importance of discipline and the teacher's role in keeping order. In contrast, the novice teachers noted that they had problems with this and regarded it as a weakness. According to the novice teachers, they have difficulties maintaining order in the classroom (Article III).

Substantive contrasts both in the essays and in reflective writings related to issues regarding the use of modern technology. The novice teachers mentioned e-learning often; the experienced/older teachers barely mentioned it at all. The novice teachers stressed the technological aspects of teaching and listed the skill of using modern IT equipment as one a professional teacher should have. Most of the experienced teachers did not question the ever-expanding opportunities of e-learning, but they highlighted that it cannot replace real communication between a student and a teacher (Article III).

4.4. Students' perceptions and teachers' own views of their teaching

Next the results of the 4th and final step of the study (Article IV) will be presented. This step investigated how basic education students perceive their teachers' behaviour during the delivery of lessons and how do they perceive the difference between the behaviour of novice and experienced teachers (research question 4), and analysed how students' perceptions and teachers' own views of the delivery of their lessons are related (research question 5).

The analysis of the data showed that students' perceptions of their teachers' behaviour depend on the teachers' level of experience – experienced teachers received statistically significantly higher ratings than novice teachers (Table 4, p. 38). There were 163 students in novice teachers' lessons (n1); 151 students in experienced teachers' lessons (n2).

Triangulation was used to compare the students' perceptions with teachers' statements from the reflective writings and interviews. The triangulation of data drawn from students' inquiry and teachers' interviews and reflective writings revealed coherence between them. Categorization of idea units produced by teachers in terms of students' inventory questions clearly revealed differences in the nature and quantity of novice and experienced teachers' statements and comments. Novice and experienced teachers reflections (numerically) as categorized according to the statements in the questionnaire are presented in Figure 5, p. 42.

The abbreviations used in the following illustrative examples are as follows: N – novice teacher; E – experienced teacher; I – pre-lesson interview; S – stimulated recall interview; R – reflective writing; Q1 – Q15 – the statements from the student questionnaire which were used for categorization and comparison; t = value; df = degrees of freedom; p = statistical significance.

Table 4. Student perceptions of teachers' behaviour in the classroom – results of an independent samples *t*-test and descriptive statistics (n1 = 163; n2 = 151)

Items/questions	M		SD		df	t-value	Effect Size <i>r</i>
	Nov. n1	Exp. n2	Nov. n1	Exp. n2			
1. The objective of the lesson is clear	2.41	3.32	.88	.59	312	10.69*	.52
2. We have sufficient facilities to do the lesson assignments	3.06	3.42	.55	.52	312	5.86*	.31
3. The content of lesson assignments is clear	2.60	3.54	.73	.55	312	12.70*	.58
4. The lesson assignments are difficult	2.08	2.58	.77	.85	312	5.50*	.30
5. My teacher gives practical instructions	2.16	3.21	.76	.52	312	14.10*	.62
6. The teacher regularly verifies whether we understand the lesson assignments	2.14	3.24	.94	.57	312	12.41*	.57
7. My teacher gives clear instructions	2.07	3.50	.80	.56	310	18.6*	.73
8. My teacher is enthusiastic	1.95	3.06	.92	.72	311	11.76*	.55
9. My teacher is willing to explain something a second time	2.43	3.46	.81	.57	312	12.89*	.59
10. My teacher has faith in us	2.47	3.25	.82	.49	312	10.20*	.50
11. My teacher has high expectations of us	2.56	3.54	.99	.60	312	10.45*	.51
12. My teacher is interested in us	1.94	2.94	.92	.78	311	10.34*	.50
13. My teacher shows interest in our ideas	1.70	2.44	.82	.91	312	7.53*	.40
14. My teacher takes notice of contacts between students	2.74	3.29	.74	.65	312	7.07*	.37
15. My teacher verifies whether we are actually working on the lesson assignment	3.40	3.72	.65	.46	312	4.92*	.27

*All differences in means are statistically significant at $p < 0.05$.

Abbreviations meanings in Table 4: M = mean; SD = standard deviation; *t* = value, comparing means; *r* = effect size.

(Q1) The objective of the lesson is clear (student perceptions and teachers' thoughts about the objectives).

According to the students in the current study, experienced teachers set the objective of the lesson more clearly ($t=10.7$, $df=312$, $p<0.05$) than novice teachers. Comparing student evaluations with the teachers' utterances from the essays about professionalism and from the interviews, experienced teachers underlined the ability to formulate objectives so that they are clear enough for class work and to shape the students' learning skills as a sign of professionalism. The novice teachers' ideas about lesson objectives were generally about developing the students in the context of the study materials of the class (see details from Article I).

(Q2) We (students) have sufficient facilities to do the lesson assignments (student perceptions and teachers' thoughts about discipline).

The students in this study felt more clearly that they had the right conditions in which to work in the classes of experienced teachers. In this context, "sufficient" means ordinary, decent working conditions that we associate with the issue of order or discipline in the class. There was a noticeable statistical difference between the average evaluations given for novice and experienced teachers ($t=5.9$, $df=312$, $p<0.05$). The connection between teachers' own evaluation and the students' answers was obvious: experienced teachers in this study maintained order in a way that supports learning. In their essays, experienced teachers underlined the ability to maintain order in the class as their definite advantage, and as a feature of a professional teacher (see more detail from Article III).

(Q3 – Q4) The content of lesson assignments is clear; The lesson assignments are difficult (student perceptions and teachers' thoughts about lesson assignments).

The clarity of tasks given in lesson was rated more highly in experienced teachers' classes ($t=12.7$, $df=312$, $p<0.05$).

The comments that experienced teachers made when watching the video recording generally referred to the tasks given to students.

This task was to prepare them to solve the next one – I usually present them at two levels of difficulty. (E, S)

When studying this part, I think it is important that we have enough time to solve as many different tasks as possible, which should encourage the creation of meaningful connections. (E, S)

It appeared that the tasks given in the experienced teachers' classes were more difficult or challenging ($t=5.5$, $df=312$, $p<0.05$). The teachers who took part in this study expressed many times in their essays that their aim is to

provide all students with feasible work – tasks of appropriate difficulty. “A professional teacher takes into account a student’s ability to acquire.” (E, R)

(Q5 & Q7) My teacher gives practical instructions; My teacher gives clear instructions (student perceptions and teachers’ thoughts about instruction).

Compared to novices, the experienced teachers gave better practical ($t=14.1$, $df=312$, $p<0.05$) and clear ($t=18.1$, $df=310$, $p<0.05$) instructions. The teachers’ comments differed from group to group. Experienced teachers stressed the importance of instructions and work management. In the comments by the novice teachers, however, the issue of students’ limited ability to work independently dominated, which confirms what the students perceived.

In this class it’s necessary to discuss work instructions as a group. (E, S)

What bothers me is that from class to class there are certain students who just don’t understand instructions. (N, S)

(Q 6 & Q15) The teacher regularly verifies whether we understand the lesson assignments; My teacher verifies whether we are actually working on the lesson assignment (students’ perceptions and teachers’ thoughts about controlling/checking the students).

According to the students, experienced teachers verified more whether the students understood the lesson assignments ($t=12.4$, $df=312$, $p<0.05$) and whether students are actually working on the assignment ($t=4.9$, $df=312$, $p<0.05$).

The limited timeframe of a class often doesn’t allow the work done in the class to be checked or to give feedback to the students. (N, R)

(Q8) My teacher is enthusiastic (student perceptions and teachers’ thoughts about enthusiasm).

According to the students in the current study, the experienced teachers were more enthusiastic than the novice teachers ($t=11.8$, $df=311$, $p<0.05$). The teachers’ reflective writing did state that a teacher “has to be open” and “have a positive mind-set”, but enthusiasm as such was not mentioned.

(Q9) My teacher is willing to explain something a second time (teachers’ thoughts about repeated clarifications).

Experienced teachers were ready to repeat explanations more frequently than novices ($t=12.9$, $df=312$, $p<0.05$). One experienced teacher wrote that “teachers should be calm and patient.” (E, R). Novice teachers commented that “there’s no time for long-winded explanations”, and “there’s so much to cover in the curriculum that there’s not enough time to explain things to weaker students”. (N, S).

(Q 10 – Q13) My teacher has faith in us; My teacher has high expectations of us; My teacher is interested in us; My teacher shows interest in our ideas (student perceptions and teachers' thoughts about motivating students).

The experienced teachers had higher expectations of students ($t=10.4, df=312, p<0.05$), showed greater interest in their students ($t=10.3, df=311, p<0.05$) and in their ideas ($t=7.5, df=312, p<0.05$) and had more faith in students than novice teachers ($t=10.2, df=312, p<0.05$). Teachers expressed their belief in students and high expectations (and vice versa) in the following comments:

I encourage students to choose harder tasks because it helps them believe in their skills even more. (E, S)

A large number of students are opposed to any kind of effort, mental or physical. (N, R)

The following comments from teachers reflect a caring attitude to students and are examples of student-centeredness (*our teacher is interested in us*): “Tuuli has been absent for a longer period of time because of illness. She is normally very bright but she was weaker in class today because of this absence” (E, S); “She is in a very complicated situation at home” (N, S).

(Q14) My teacher takes notice of contact between students (student perceptions and teachers' thoughts about communication between students).

Taking notice of contact between students: this kind of attention was perceived more from experienced teachers than novice teachers ($t=7.1, df=312, p<0.05$). The novice teachers' comments about the situation in class focused on discipline: “I don't allow any distractions”; “I have a word with anyone who causes a distraction immediately after the lesson” etc. (N, S). Experienced teachers' comments discussed methods they have applied, e.g. “When it comes to group work, I use different methods. Sometimes students choose their own groups; sometimes I divide them into three groups of different levels.” (E, S). Attention should be paid to the statements from experienced teachers in which they stressed the use of diverse methods; the stimulation and utilisation of students' activeness; and opportunities for doing group work. Experienced teachers also made comments about discipline in class. However, they focused on completely different aspects from those of novice teachers: “This helps even those who are easily distracted to be put to effective use”. (E, S)

Students in this study felt more clearly in experienced teachers' classes that their understanding of a text is checked, and a sense of control was also more prevalent in experienced teachers' classes. Parallels were drawn between the student evaluations and the teachers' own thoughts as reflected in the stimulated recall interviews and written essays. The experienced teachers named a number of different aspects related to supervising the students, presenting them as their strengths. The student inquiry results confirmed the findings from the teachers' interviews and reflective writing; that is, the students noticed the same aspects

in their teachers' instructional behaviour as the teachers themselves reported as strengths and weaknesses (Article IV).

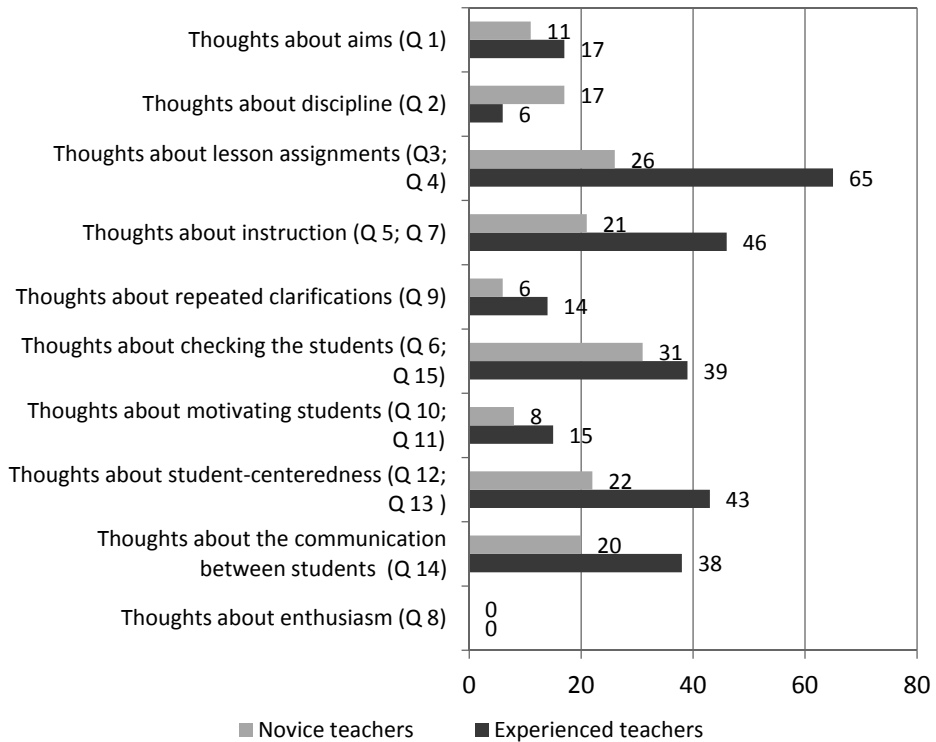


Figure 5. Number of novice and experienced teachers' thoughts as categorized according to the statements in the questionnaire

5. DISCUSSION AND CONCLUSIONS

The results of this study confirm that the stated aim – investigating novice and experienced teachers’ professionalism in terms of practical knowledge in the three main phases of teaching, and comparing teachers’ explicated thoughts with their students’ perceptions – was achieved and answers to the research questions were found. The related findings are three-fold: the identification of differences in teachers’ professional competences based on the categories of Meijer’s (1999) concept of teachers’ practical knowledge, corroboration of the identified differences in categories of practical knowledge via an inquiry involving students, and suggesting ways to update teacher education on the basis of the identified differences in the professional competences of novice and experienced teachers.

Teachers’ interviews and their reflective writings

The analysis of data collected from novice and experienced teachers’ interviews on lesson planning and stimulated recall interviews, and written essays and reflections made it possible to compare these two groups of teachers in the categories of Meijer’s concept of teachers’ practical knowledge.

- The content analysis of transcripts of interviews on lesson planning with novice and experienced teachers, written essays on professionalism and reflections (as answers to the first and third research questions), revealed that all six categories of the teachers’ knowledge and beliefs as defined in Meijer’s concept of teachers’ practical knowledge (used in this study as the main model for categorizing teacher professional competences), were represented. It is well known from previous research that novice teachers typically have problems with lesson planning (Borko, 2004; Bubb & Early, 2004; Burden, 1980; Fullan, 1991; John, 2006; Korthagen, 1999; Saad, 2011; Saad, Chung, & Dawson, 2014). Typically, lesson planning is seen as consisting of stating lesson objectives, selecting teaching methods and choosing timelines associated with the delivery of lessons (Saad et al., 2014). Novice teachers use to have difficulties stating lesson objectives (John, 2006), which should be clear, understandable, measurable and rigorous (Instructional Planning and Delivery, 2011). The analysis of the interviews with teachers on planning in this study confirmed all these former findings – experienced teachers outperformed beginning teachers in the clarity of their instructional objectives and in seeing the subject to be taught from the perspective of their students learning and understanding (Article I).

Another clear difference between novice and experienced teachers is the time needed for planning lessons. While novice teachers reported that they needed one hour and 48 minutes on average for planning a lesson then experienced teachers reported that they needed

55 minutes on average. Actually, the shortage of time seemed to be a main concern for novice teachers in many countries. Previous research (Bubb & Early, 2004; Saad, 2011; Saad et al., 2014) indicates that novice teachers often spend an unreasonable amount of time on lesson planning. Woodward's explanation is that this problem is caused by the inexperience of novice teachers. Due to the lack of ready to use routines and patterns they have too many factors to keep in mind simultaneously as they think about their forthcoming classroom activities with students. Experienced teachers have a greater knowledge base of the content, and they are also more competent in altering lesson designs (Woodward, 2001).

- The content analysis of teachers' written essays and reflections uncovered that the original list of categories for knowledge and beliefs in Meijer's concept of practical knowledge covered all manifestations of the teachers' reflections in current study, except comments on their personal characteristics, and therefore, an additional category "Teachers' personal characteristics" was introduced. In the essays 65 idea units belonging to this category were produced by the beginning teachers and only 33 by their senior colleagues. In the reflective writing these numbers were respectively 55 and 37 (Article III). As it has been pointed out in many former studies, teachers at the beginning of their professional career are mostly concerned about their personal survival, and with further experience they will be able to pay more attention to teaching and student learning and outcomes (Burden, 1982; Fuller & Bown, 1975; Huberman, 1989; and Kagan, 1992).

The remaining statements in the essays as well as in the reflective writing belonged to the original six categories of knowledge and beliefs. For all these categories the experienced teachers commented more frequently. The more frequently commented issues in relation to knowledge of students, knowledge of students' learning and understanding, knowledge of curricula, and knowledge of aims can be interpreted as the better awareness of relevant issues in teaching practice among the experienced teachers.

More specifically, the analysis of teacher essays and reflections revealed that experienced teachers stressed more issues related to the knowledge of the students and the teacher's role as an educator. The experienced teachers also mentioned issues related to ensuring discipline and order more often: they saw their ability to maintain order in the classroom as a strength, and it was important to them. The novice teachers also considered order in the classroom relevant but admitted having difficulties in ensuring it, and therefore, saw it as their weakness (Article III). Yet, it is well known that having control over a class is one of the keys to success in teaching (Duffield et al., 2000). The results confirm what many researchers have already observed – classroom management is the most significant cause of concern for novice teachers (Arens, Morin, & Watermann, 2015; Berliner, 1988; Bromfield, 2006; Fuller, 1969; Huberman, 1992; Pigge & Marso, 1997; Reupert & Woodcock, 2010; Watzke, 2003, 2007). The ability of teachers to cope with student discipline issues, according to

McCormick and Shi (1999) and Lewis, Pomi, Qui and Katz (2005), is integrally related to teachers' professionalism. Considering the importance given to this topic in the research literature, more attention should be paid to preparing teachers in preservice education and in-service training to cope with discipline problems.

- The content analysis of the transcripts of the stimulated recall interviews (in answer to the second research question) proved that all ten categories of interactive cognitions defined in Meijer's concept of practical knowledge were present in the idea units produced by the interviewed teachers. Again, the experienced teachers were more active in commenting on lesson events in their videotaped lessons, except in regard to thoughts about the curriculum where beginning teachers produced 12 and experienced teachers 5 idea units. The biggest differences between these two groups of teachers were found in commenting about student learning and understanding (55 idea units by experienced teachers against 31 idea units by novice teachers) and in commenting about subject matter (39 idea units against 21) and about students in general (37 and 20 correspondingly). However, as already reflected in the teachers' essays, the biggest concern for the beginning teachers in their comments was maintaining discipline. Here the experienced teachers pointed out that they have a systematic approach and established rules.

From 10 categories of interactive cognitions, 9 represented the greater sensitivity in experienced teachers towards related issues, and only in regard to thoughts about the curriculum were comments by beginning teachers more frequent. Previous studies have shown that expert teachers may have very different interpretations of videotaped classroom situations in comparison with novice teachers: among other things experienced teachers typically have a deeper understanding of the interconnectedness of classroom events (Bransford, Brown, & Cocking, 2000; Needels, 1991; Sato, Akita, & Iwakawa, 1993). In a previous study of Estonian teachers, comments by novice teachers when interpreting classroom events were found to be less to the point than those of experienced teachers, even when they were as talkative as experienced teachers (Krull, Oras, & Sisask, 2007). According to Poom-Valickis & Mathews (2013) beginning teachers are rather superficial in their analysis of their own classroom experiences. This can be explained by the fact that experts have a well-developed conceptual knowledge of their field that allows them, in the teaching context, to interpret typical classroom situations and to make sense of student thinking (Borko, 2004). In contrast, student teachers and novice teachers often have difficulty recognizing what to focus on when watching the video of their teaching. But there are also research findings that contradict the research findings introduced above, and claim preservice teachers notice even more related events than practicing teachers while studying a previous lesson (Amador & Weiland, 2015). The authors pointed out that the development of sensitivity towards relevant professional activities as a learned skill should

already begin during preservice teacher education programmes (Amador & Weiland, 2015; Star & Strickland, 2008).

Student responses

The responses of students in regard to their teachers' instructional behaviour in the classroom using a questionnaire developed by Van der Schaaf (2005) and adapted to Estonian conditions by the author of this dissertation proved that students value teachers' professionalism. The comparison of ratings given on the 4-point Likert scale for 15 statements on the teachers' instructional behaviour (in answer to the fourth research question) revealed that the mean ratings for experienced teachers given by the students were always significantly ($p < 0.05$) higher than those for beginning teachers. This finding confirms that this questionnaire can be considered an instrument for collecting data for assessing teaching quality. The authors of previous studies on student perceptions of their teachers' instructional behaviour have emphasized that this aspect of the manifestation of teaching competences deserves more attention in assessing teacher professionalism (Claessens et al. 2016; Doll, Spies, LeClair, Kurien, & Foley, 2010; Fauth, Decristan, Rieser, Klieme, & Büttner, 2014; Krips, 2008). Furthermore, it has been found that learning from student feedback can help teachers see their teaching from different perspectives and reflect upon that (Pham et al., 2012; Wagner, Göllner, Helmke, Trautwein, & Lüdtke, 2013).

- Using the triangulation of the analysis of data from teachers' statements drawn from interviews and reflective writing, and the student questionnaire items (in answer to the fifth research question), it was uncovered that the teachers were not indifferent regarding commenting on professional competences represented in these questionnaire items. Again, experienced teachers commented on these relevant professional competences/skills more frequently than beginning teachers, except in regard to discipline. In this case, beginning teachers made 17 comments compared to 6 from experienced teachers. In all other cases the experienced teachers revealed a richer and deeper understanding of instructional issues. For example, 65 reflections on lesson assignment were identified in the experienced teachers' statements, and only 26 in the beginning teachers' statements.

When comparing our findings, drawn from responses by students, with findings from other similar studies (McPherson, 2006; McPherson, Todd Jewell, & Kim, 2009; Wang, Haertel, & Walberg, 1993; White, 2009), it is possible to notice several important parallels. For example, McPherson (2006) and McPherson, et al. (2009) investigated factors influencing students' perceptions and pointed out that one of the essential factors is teachers' work experience: experienced teachers received typically higher ratings.

- The study confirms that both the student inventory and teacher self-reporting instruments (interviews and reflective writings) used here can be applied to collect data necessary for identifying differences between the professional competences of novice and experienced teachers. The coherence in the data collected using teacher self-reporting tools and student questionnaires confirms that both data collection instruments can be used to identify differences in the professionalism of beginning and experienced teachers (professional competences), and that a combined use of these instruments increases the validity and reliability of findings.

Limitations of the study and suggestions for further studies

The research presented in this thesis certainly has many limitations due to the limited scope of a doctoral study. One of major limitations is the small sample of participating teachers that does not make extensive generalizations based on the findings possible. The research sample consisted of teachers of different subjects. However, this cannot be considered a very significant limitation as the data collection tools and the categories used in the qualitative content analysis did not presume subject specificity.

There were other methodological issues as well. For example, the teachers were supposed to comment on their interactive thinking in the lessons they had just taught. In some cases it was impossible to carry out stimulated recall interviews immediately after the lesson because the teacher was busy teaching another class. Another problem was the thoroughness of the reflection. Some teachers were rather reluctant to comment on their lessons, while other teachers were so willing to comment that their interviews lasted three hours.

To conclude, the methodology used in this study offered a systematic approach to identifying the characteristics of teachers' professionalism in terms of the categories of practical knowledge depending on the teachers' work experience. However, to ensure a greater level of generalization of the findings some improvements in the methodology in further studies are needed. Therefore, in future research larger research samples of teachers should be used, for instance, carrying out more than one stimulated recall interview per teacher, and to exclude the potential impact of the school level at which the teacher is teaching and the subject he or she is teaching, stratified samples according to these two dimensions should be investigated.

Implications and recommendations for teacher education

The results of this study do not directly point out how to improve the quality of pre-service or in-service teacher education, but the results do confirm that the data collection instruments and related data analysis procedures used in this study are suitable for the identification differences in novice and experienced teachers' professional competence. In this sense, the teachers self-reporting instruments (pre-lesson interviews, stimulated recall interviews and written

reflections) as well as the student inquiries and data analysis procedures used here can be exploited as components of student teacher portfolios in their field practice. The identified levels of professional competence and changes in them can be used as feedback for reflections on further ways of improving professional competence. In addition, teachers' knowledge and beliefs categories from Meijer's concept of practical knowledge, and the statements in the student questionnaire by Van der Schaaf can be considered as the bases for constructing assessment rubrics (e.g. Krull & Leijen, 2015) for student teachers in their teaching practice in schools. Experienced teachers' knowledge is perhaps the most fundamental recourse together with the teacher education courses for improving future teachers' professionalism. One practical solution from author of this dissertation is to create an E-forum where for novice teachers and student teachers it is possible to be consulted by experienced teachers.

SUMMARY IN ESTONIAN

Algajate ja kogunud õpetajate praktiline teadmine õppetöö planeerimisel, läbiviimisel ning reflekteerimisel

Väitekirja eestikeelne ülevaade

Õpetajate professionaalsete oskuste defineerimine ja hindamine on alati olnud tõsiseks probleemiks nii uurijatele kui õpetajakoolitajatele. Lahendust on püütud leida kõige erinevatel viisidel. Käesoleva doktoritöö aluseks olev uurimus keskendub algajate ja kogunud õpetajate professionaalse teadmise ja mõtlemise erinevuste väljaselgitamisele õppetöö planeerimise, läbiviimise ja tehtu üle reflekteerimise faasides. Üheks paljulubavaks ja üha laiemat tunnustust leidvaks lähenemiseks õpetajate kutsealase kompetentsuse defineerimisel õppetöö põhi-faasides on erinevad õpetaja praktilise teadmise kontseptsioonid.

Käesoleva doktoritöö eesmärk on rakendada Meijeri (1999) õpetajate praktilise teadmise kontseptsiooni kategooriaid algajate ja kogunud õpetajate professionaalsuse iseloomustamiseks õpetajatöö kolmes põhifaasis ning võrrelda õpetajate professionaalsuse avaldusi nende õpilaste hinnangutega. Eesmärgi saavutamiseks sõnastati järgmised uurimisküsimused:

1. Millisena avaldub algajate ja kogunud õpetajate professionaalsus praktilise teadmise kategooriates tunni planeerimisel?
2. Millisena avaldub algajate ja kogunud õpetajate professionaalsus praktilise teadmise kategooriates iseenda läbiviidud õppetöö kommenteerimisel?
3. Millised on õpetajate arusaamad professionaalsusest ning kuidas reflekteerivad algajad ja kogunud õpetajad oma ametialase professionaalsusega seonduvat, kirjeldades oma tugevusi ja nõrkusi õpetajana?
4. Millised erinevused ilmnevad õpilaste hinnangutes algajate ja kogunud õpetajate õpetamistegevusele?
5. Kuivõrd kooskõlalised on õpilaste hinnangud õpetaja tegevusele tunnis õpetajate endi arusaamadega, kajastatuna nende intervjuudes ja kirjalikes refleksioonides?

Uurimuse teoreetiline tagapõhi

Uurimuse teoreetiliseks aluseks on uuringud, mis käsitlevad õpetajate professionaalsuse defineerimist, õpetajate professionaalse arengu kirjeldamist mudelitena ning õpetajate praktilise teadmise kui mõiste kujunemist ja defineerimist.

Professionaalsuse kui mõiste erinevate käsitluste analüüs tõi välja, et seda iseloomustab eelkõige kolm tunnust. Professionaal on isik, (1) kellel on erialased kompleksed teadmised, oskused ja hoiakud, mida tunnustavad nii oma kui teiste valdkondade esindajad; (2) kes on autonoomne oma erialases tegevuses ja (3) kes on võimeline langetama vastutustundlikke otsuseid (Niemi & Kohonen, 1995; Šteh & Požarnik, 2005). Õpetaja professionaalsuse põhiallikaks on nii teoreetiliselt kui praktiliselt teadmisel põhinev õpetamispraktika (Eraut, 2008).

Et paremini mõista õpetajate arengut algajast professionaaliks, analüüsiti uurimuse teoreetilises osas erinevaid õpetajate professionaalse arengu mudeleid. Neist osutusid käesoleva uuringu eesmärgist lähtudes kõige informatiivsemaks Fulleri 4-astmeline õpetaja töömurede kujunemise mudel (Fuller & Bown, 1975) ja Berlineri viie-astmeline professionaalse arutluse ja otsuste langetamise oskuse arengumudel (Berliner, 2001, 2004). Mõlemad mudelid kinnitavad, et algajast meistriks kujunemine on pikaajaline protsess. Paljude autorite hinnangul võtab meistritaseme saavutamine õpetajatöös kuni 10 aastat (Berliner, 1994; Ericsson, 1996; Gladwell, 2008 jt.).

Õpetaja praktiline teadmine on viimasel 30 aastal levinud kontseptsioon õpetajate professionaalse tegevuse aluseks olevast personaalsest, osaliselt alateadlikust ja valdavalt kogemuslikul baasil kujunenud teadmistest ja uskumustest (Fenstermacher, 1994; Grossman, 1990; Shulman, 1986). Sellise teadmise ja uskumuste aluseks on varasematest teooriaõpingutest ja töökogemusest kujunenud üldistused ning omaksvõetud hoiakud ja teisalt käitumismallid, mis kujunevad otsuste langetamise ja õpilastega interaktsiooni vahendusel (Schepens et al., 2007; Krull, 2010). Meijeri (1999) kui ühe tuntuma õpetajate praktilise teadmise käsitluse järgi koosneb praktiline teadmine õpetaja teadmistest ja uskumustest ning interaktiivsetest kognitsioonidest. Õpetaja interaktiivsete kognitsioonide all mõistetakse õpetaja mõtteid ja arutlust õpetamistegevuse käigus. Need jaotuvad 10 kategooriaks: mõtted konkreetse klassi, üksikute õpilaste, õppimise ja arusaamise, oma aine, õppekava, tunni eesmärkide, õppemeetodite, õpilaste ja õpetajate vahelise suhtlemise ja õppeprotsessi regulatsiooni kohta. Teadmised ja uskumused jaotuvad 6 kategooriaks: teadmised õpilaste, õpilaste õppimise ja arusaamise, õppeaine, õppekava, õppe-eesmärkide ja juhendamise viiside kohta (Meijer, 1999; Meijer, Verloop, & Beijaard, 1999).

Uurimismetoodika

Uuringus osalesid 2010/2011. ja 2011/2012. õppeaastal kümme algajat ja kümme kogenud Eesti põhikooliõpetajat (neist 18 naist ja 2 meest) ning nende 314 õpilast. Kogenud õpetajad olid koolis töötanud vähemalt 10 aastat, staažikaim neist 44 aastat. Algajate õpetajate töökogemus oli alla kolme aasta. Õpetatavatest ainetest olid esindatud: eesti keel emakeelena, inglise keel võõrkeelena, matemaatika, keemia, bioloogia, geograafia ja ajalugu.

Õpetajate praktilise teadmise kohta andmete kogumiseks kolmes õpetajatöö põhifaasis kasutati põhimeetoditena nii intervjuerimist ja kui kirjalikke reflektiivseid eneseanalüüse. Lisaks viidi läbi õpilasküsitlus, et võrrelda õpetajate endi arusaamu oma professionaalsusest õpilaste tähelepanekutega. Andmekogumisvahendite konstrueerimisel toetuti Hollandi uurijate (Van der Schaaf, 2005; Van der Schaaf, & Stokking, 2008) eeskujule. Konkreetselt kasutati uurimuses andmete kogumiseks:

- tunnieelset intervjuud õpetajaga;
- õppetunni videosalvestust;
- tunnijärgset intervjuud õpetajaga;

- õpetajate reflekteerivaid kirjutisi;
- õpilaste ankeeterimist õpetaja õpetamistegevuse kohta tunnis.

Graafilise ülevaate kasutatud uurimisdisainist saab väitekirja põhitekstis esitatud jooniselt (Figure 1, lk.24).

Andmekogumine käivitus õpetajate intervjuerimisega tunniplaneerimise kohta. Seejärel toimus ainetundide videosalvestamine, õpilaste ankeeterimine õpetaja õpetamistegevuse kohta tunnis ja õpetajate intervjuerimine stimuleeritud meenutuse meetodil tunnisalvestuse baasil. Lõpuks paluti õpetajatel kirjutada refleksioonid teemal „Minu tugevused ja nõrkused õpetajana“ ning esseed teemal „Missugune on professionaalne õpetaja?“

Andmetöötles kasutati transkribeeritud intervjuude ja reflekteerivate kirjutiste analüüsiks kvalitatiivset kontentanalüüsi, toetudes Hollandi uurijate õpetajate praktilise teadmise määratlusele (Meijer, 1999; Van Driel, Verloop, & Vos, 1998), lisades vajadusel täiendavaid kategooriaid (Artikkel I, II, III). Õpilaste küsitluse Likert-tüüpi skaalal vastuste töötlemiseks kasutati statistilist analüüsi (Artikkel IV). Et võrrelda õpetajate arvamuseavaldusi nende töö kohta õpilaste hinnangutega, kasutati erinevatel meetoditel kogutud andmete triangulatsiooni. Selleks jaotati õpetajate mõtteavaldused (intervjuudest ja reflekteerivatest kirjutistest) kategooriatesse, mis olid esindatud õpilaste küsimustikus. Nii seostati õpetajate endi vaated õpetamisele õpilaste tähelepanekutega nende tegevuse kohta (Artikkel IV).

Tulemused ja järeldused

Tulemused õpetajate intervjuude ja reflekteerivate kirjutiste põhjal

Õpetajate intervjuude ja reflekteerivate kirjutiste analüüs (vastusena esimesele ja kolmandale uurimisküsimusele) näitas, et kõik kuus õpetajate teadmise ja uskumuste kategooriat olid esindatud. Intervjuude analüüsil selgus, et kogenud õpetajate mõtted olid tundi planeerides algajatest enam orienteeritud õpilaste õppimisele ja õpitust arusaamisele, mis osutavad Meijeri kolme praktilise teadmise tüübi (kahe esimese tüübi alla kuuluvad mõtted õpetatavast aineist ja mõtted õpilastest) tähenduses professionaalse mõtlemise kõrgeimale astmele. Algajad õpetajad keskendusid tundi planeerides pigem aine sisu edastamisele, sh antud tunni teemast tulenevate õppeülesannete lahendamisele. Ka selgus õpetajate intervjuudest tunni planeerimise kohta, et võrreldes algajatega kogenud õpetajad sõnastasid selgemini õppe-eesmärgid ja nägid enam õpetatavat ainet oma õpilaste õppimise ja arusaamise positsioonilt. Oluline erinevus ilmnis tunni ettevalmistamise ajas: algajatel kulus selleks keskmiselt 1 tund ja 48 minutit, kogenud õpetajatel keskmiselt 55 minutit. Ajapuuduse üle kurtsid nii algajad kui kogenud õpetajad, viidates sealjuures ülepaisutatud ainekavadele, materjali üleküllusele, info mahukusele ning üldisele ülekoormatusele (Artikkel I).

Õpetajate reflekteerivate kirjutiste ja esseed analüüs tõi välja, et Meijeri praktilise teadmise kontseptsiooni teadmiste ja uskumuste kategooriad haarasid

kõiki õpetajate mõtteavaldusi peale kommentaaride eneseisloomustamiseks. Seetõttu toodi sisse täiendav kategooria „Õpetaja personaalsed karakteristikud“. Esseedes pärines 65 selle kategooria alla kuuluvat ideeühikut algajatelt ja 33 kogenud õpetajatelt. Reflekteerivates kirjutistes olid need näitajad vastavalt 55 ja 37 (Artikkel III). Ülejäänud mõtteavaldused nii esseedes kui reflekteerivates kirjutistes paigutusid kuue algse teadmise ja uskumuste kategooria alla. Kõigi nende osas ületasid kogenud õpetajad kommentaaride arvukuselt algajaid. Arvukamad ja sisukamad kommentaarid õpilaste, õpilaste õppimise, õppekava ja õppe-eesmärkide tundmise kohta viitavad sellele, et kogenud õpetajad on paremini kursis õpetajatöö oluliste probleemidega. Kui kogenud õpetajad nägid distsipliinikindlustamist oma tugeva küljena, siis algajad pigem osutasid probleemidele selles valdkonnas. Stimuleeritud meenutusega intervjuude üleskirjutiste sisuanalüüs (vastusena teisele uurimisküsimusele) kinnitas, et kõik kümme Meijeri praktilise teadmise kontseptsiooni interaktiivsete kognitsioonide kategooriat olid esindatud intervjueritud õpetajate mõtteavaldustes. Taas olid kogenud õpetajad aktiivsemad videosalvestatud tundide sündmuste kommenteerimisel, peale mõtteavalduste õppekavade kohta, kus neilt tuli vähem kommentaare. Suurimad erinevused kahe õpetajate grupi vahel olid kommentaarides õpilaste õppimise ja arusaamise (kogenud õpetajatelt 55 ja algajatelt 31 ideeühikut), õppeaine (39 ja 21 ühikut), ning õpilaste (vastavalt 37 ja 21) kohta (Artikkel II).

Tulemused õpilasküsitluse põhjal

Van der Schaafi (2005) õpilasküsimustikuga selgitati, millised erinevused ilmnevad õpilaste hinnangutes algajate ja kogenud õpetajate tegevusele tunnis (neljas uurimisküsimus). Analüüsides õpilaste hinnanguid, ilmnes, et kogenud õpetajatele antud hinnangud olid kõrgemad kui algajatele õpetajatele omistatud. Uuringus osalenud õpilaste hinnangul olid kogenud õpetajad entusiastlikumad kui algajad, kõrgemate ootustega õpilaste suhtes, näidates üles suuremat huvi õpilaste ideede vastu ja uskudes algajatest enam oma õpilaste võimetesse. Võrreldes algajate õpetajatega andsid kogenud õpetajad õpilaste arvates tunnis enam praktilisi ja selgeid juhiseid tööks ning püstitasid õpilastele selgemad tunni eesmärgid. Kogenud õpetajad olid õpilaste arvates ka kannatlikumad, kui tekkis vajadus teistkordselt selgitusi jagada (Artikkel IV). Anketeerimise tulemused kinnitavad, et õpilasküsimustiku kasutamine õpetajate professionaalsuse hindamisel on oluline meetod, enesestmõistetavalt mitte määrav, vaid kasutatuna teiste hindamise meetodite kõrval.

Et võrrelda õpilaste hinnanguid õpetajate endi arusaamadega oma õpetamis-tegevusest (viies uurimisküsimus), kasutati andmete triangulatsiooni, mis seisnes õpetajate intervjuudes ja reflekteerivates kirjutistes olevate kommentaaride kategoriseerimises õpilastele küsitluses esitatud 15 küsimusega seostuvalt. Õpilaste hinnangute keskmiste ja õpilastele esitatud küsimuste järgi kategoriseeritud õpetajate mõtteavalduste kõrvutamisel selgus, et õpilaste hinnangute ja õpetajate endi arusaamade vahel ilmnes märkimisväärne kooskõla: õpilaste

kõrgematele hinnangutele olulistele õpetamisoskustele vastasid kogenud õpetajate sagedasemad ja olulised kommentaarid. Erandi moodustasid vaid algajate õpetajate sagedasemad kommentaarid probleemidele tunnikorra kindlustamisel.

Õpilaste hinnangute erinevusest algajatele ja kogenud õpetajatele saab järeldada, et õpilased tajuvad algajate õpetajate tundides nende õpetajate endi sõnasutatud muresid – momente, mida nad ise oma õpetamistegevust analüüsides enda nõrkadeks külgedeks pidasid. Näiteks õpilaste vastustes kajastusid probleemid tunnis korra hoidmisega madalamas hinnangus algajatele õpetajatele küsimustes, mis puudutasid tööõhkkonda tunnis. Kogenud õpetajad rõhutasid enesekirjeldustes õpetaja rolli tunnikorra tagamisel ning pidasid seda enda tugevuseks. Ka nimetasid nad hulgaliselt teisigi oma tugevusi (sh õppetöö planeerimine, õpilaste juhendamine ning kontrollimine), mis kajastusid ka õpilaste positiivsemates hinnangutes (Artikkel IV).

Järeldused

Käesoleva doktoritöö spetsiifilisteks ja uuenduslikeks joonteks on:

- (1) algajate ja kogenud õpetajate professionaalsuse identifitseerimine ja võrdlus praktilise teadmise kategooriates toetudes õpetajate intervjuudele, eneseiseloostustele ja refleksioonidele;
- (2) õpetajate intervjuudes, eneseiseloostustes ja refleksioonides kajastuvate mõtteavalduste ja õpilaste küsitlustulemuste kooskõllalisuse väljaselgitamine.

Algajate ja kogenud õpetajate professionaalsuse karakteristikute väljatoomine praktilise teadmise kategooriates annab sisendi õpetajakoolituse tõhustamiseks. Kooskõllalisuse väljaselgitamine õpetajate enesekirjelduste ja õpilashinnangute vahel on edasisamm õpilasküsitluste usaldusväarsuse suurendamisel õpetajate professionaalse kompetentsuse hindamisel teiste hindamisvahendite kõrval. Uuringu tulemused kinnitavad, et nii õpilasküsimustiku kui õpetajate intervjuude ning reflekteerivate kirjutiste kasutamine on õigustatud algajate ja kogenud õpetajate professionaalsete oskuste kõrvutavaks analüüsiks. Õpetajate eneserefleksioonide ning õpilasküsitluse tulemuste kooskõllalisus näitab nende kasutatud meetodite kombinatsiooni usaldusväarsust.

Algajate ja kogenud õpetajate professionaalse kompetentsuse analüüsimine praktilise teadmise kategooriates, kolmes õpetaja tunnitöö põhifaasis aitab näha õpetaja õpetamistegevust süsteemsemalt ja terviklikumalt ning tuua selgemini esile erinevused nende kahe õpetajate grupi kutseoskustes, mis omakorda aitab eesmärgipärasemalt kujundada esmaõpet ja täiendõpet õpetajakoolituses. Eelkõige pakuvad uurimistulemused uusi võimalusi õpetajakoolituse üliõpilaste õpetamisoskuste hindamiseks pedagoogilisel praktikal. Näiteks saab kasutada praktilise teadmise kontseptsiooni kategooriaid (Meijer, 1999) õpetamise liigendamiseks osaoskusteks õpetamisoskuse hindamisrubriikide konstrueerimisel ning õpilasküsimustikku (Van der Schaaf, 2005) õpilastelt tagasiside saamiseks õpetajakoolituse õpetamispraktikal. Ka sobivad uuringus andmekogumiseks kasutatud tunnieelne intervjuu, stimuleeritud meenutusel põhinev intervjuu,

kirjalikud refleksioonid ja õpilasküsitluse tulemused õpetajakoolituse üliõpilaste professionaalse arengu mapi sissekanneteks põhikomponentidena õpetajakoolituse praktikal. Uurimuse üheks oluliseks praktiliseks väljundiks on loodav E-foorum, kus algajad õpetajad saavad probleemide korral (näiteks tunni planeerimisel ning läbiviimisel) pöörduda kogunud meisterõpetajate poole. Ajendi E-foorum loomiseks andis uuringus õpetajate praktilise teadmise kategooriates selgesti esile tõusev erinevus algajate ja kogunud õpetajate vahel tööalastest probleemidest arusaamises ja nendega toimetulekus.

Siiski, uurimistulemustest rakenduslike järelduste tegemisel tuleb arvestada, et erinevused praktilise teadmise kategooriates algajate ja kogunud õpetajate vahel on välja selgitatud väikese valimiga. Et kindlustada uurimusest selgunu laiem üldistatavus, on vajalik teema edasine ulatuslikum uurimine suurema õpetajate valimiga, sealhulgas ka õpetatavate ainete lõikes.

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