DISSERTATIONES
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UNIVERSITY OF TARTU
Press

Institute of Education, Faculty of Social Sciences, University of Tartu, Estonia

Dissertation is accepted for the commencement of the Degree of Doctor of Philosophy (in Pedagogy) on September 25, 2017 by the joint PhD defence committee between the Institute of Education and the Institute of Ecology and Earth Sciences.

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Commencement: Senate Hall of the University of Tartu, 18 Ülikooli Street,
Tartu, on November 16, 2017, at 12.00 a.m.

This study was supported by the European Social Fund's programme EDUKO (project 1.2.0401.09-0070).

ISSN 1406-1317
ISBN 978-9949-77-588-0 (print)
ISBN 978-9949-77-589-7 (pdf)

University of Tartu Press
www.tyk.ee

Dedication
This work is dedicated to PP

CONTENTS

LIST OF ORIGINAL PUBLICATIONS

The dissertation is based on the following original publications, which are referenced in the text by their Roman numerals:

I. Krull, E., **Koni**, **I**., & Oras, K. (2013). Impact on student teachers' conception of learning and teaching from studying a course in educational psychology. *Asia-Pacific Journal of Teacher Education*, *41*(2), 218–231. Doi: http://dx.doi.org/10.1080/1359866X.2013.777026

II. **Koni, I.,** & Krull, E. (2013). Õppetöö planeerimise oskuste modelleerimine ja küsimustiku väljatöötamine planeerimistegevuse uurimiseks. *Eesti Haridusteaduste Ajakiri*, *1*, 46–71. Doi: http://dx.doi.org/10.12697/eha.2013.1.04

III. **Koni, I**., & Krull, E. (2017). (Accepted). Differences in Novice and Experienced teachers' perceptions of planning activities in terms of primary instructional tasks. *Teacher Development.*

The author contributed to the articles as follows:

For Article I: designing the study, formulating the research questions, carrying out data collection and analysis, writing the article as the second author.

For Article II: designing the study, formulating the research questions, creating the instrument of the study, writing the article as the main author.

For Article III: designing the study, formulating the research questions, planning and carrying out data collection and analysis, writing the article as the main author.

1. INTRODUCTION

Teaching is a complex professional activity whose details often remain unnoticed by people outside the profession. One aspect of teaching often undetected by outsiders is instructional planning; an essential prerequisite of successful teaching emphasized by many researchers (Ball, Knobloch & Hoop, 2007; Clark & Dunn, 1991). Instructional planning is also recognized in teacher professional standards as one of the required competencies (e.g. Council of Chief…, 2013; Kutsestandard…, 2013). Typically, instructional planning has been defined as the first phase of effective teaching (Eggen & Kauchak, 2016), when teachers make decisions about instruction and assessment. The ultimate goal of instructional planning should be to ensure student learning through rational and purposeful teaching activities (Amador & Lamberg, 2013; Frieberg & Driscoll, 1996).

Studies have corroborated that teacher competence in instructional planning makes teaching more effective, and hence promotes student learning (Meyen & Greer, 2009; Ruys, Van Keer, & Aelterman, 2012, Woolfolk, 2016). This is the process of planning through which the available time for teaching and curriculum requirements are transformed into specific instructional activities.

Yet, the ability to plan instruction so that it meets student learning needs and is coherent with the curriculum requirements, is not something that most people manage to do intuitively or can be learned effectively from unguided classroom experience (Darling-Hammond, Banks, Zumwalt, Gomez, Sherin, Griesdorn, & Finn, 2005).

Considering the importance that competence in instructional planning plays in effective teaching, it has become a research object of many scholars in education (e.g. Berliner, 1994; Leavy & Hourigan, 2016; Liyanage & Bartlett, 2010; Okigbo & Okeke, 2011; Ruys et al., 2012; Westerman, 1991). The main purpose of these studies is, in general, to uncover and characterize professional skills that expert teachers use in planning instruction, and to rely on this knowledge when supporting the development of planning skills among novice teachers. Nevertheless, studying teacher planning activities and creating models based on empirical findings is a complicated task. First, instructional planning as a professional activity is multi-layered and context dependent. Second, teachers often do not or cannot follow the lesson outline they have planned and this further complicates the issue. What happens in classrooms is often un-predictable, and therefore difficult to plan for in detail (Clark & Yinger, 1980; Yinger & Hendricks-Lee, 1998). Therefore, detailed planning of instructional activities does not pay off, and experienced teachers often do not produce written lesson plans (Kansanen, 1981), or if they do much of the detail remains in the teacher's thoughts (Clark & Yinger, 1980). Therefore, written lesson plans by experienced teachers tend to be brief and sketchy (see Panasuk & Todd, 2005) and unreliable sources for investigating how teachers think about

instructional planning. However, this does not mean that experienced teachers do not have action plans for unpredictable incidents in lessons.

Prior research on instructional planning (e.g. Berliner, 1994; Liyanage & Bartlett, 2010; Okigbo & Okeke, 2011; Ruys, Van Keer & Aelterman, 2012; Westerman, 1991) has focused on uncovering and characterizing the professional skills that expert teachers use in planning instruction. These comparative studies of teacher expertise are actuated by the fact that experience is a potential factor that influences teacher planning (Superfine, 2008; Yildrim, 2003). Due to the nature and difficulty of the acquisition of instructional planning skills, and since experienced teachers have well-developed routines and practical knowledge about teaching, this knowledge has been studied in order to make recommendations for improving the instructional planning skills of novice teacher (Livingston & Borko, 1990).

Although there are recent and not so recent studies on instructional planning, they focus mostly on planning for certain subject classes or courses, or on using certain teaching methods, and therefore the results of these studies mostly fail to uncover the basic instructional planning skills needed for teaching in different subject areas. This study is an attempt to fill this gap by uncovering the planning skills that are common when planning instruction in different subject areas.

More specifically, this study aims to identify the main variables characterizing how teachers think about instructional planning, and to discover the differences between how novice and experienced teachers think about instructional planning. A better knowledge of these differences is expected to make promoting instructional planning skills among student teachers more effective in their school placement. Since the knowledge held by experienced teachers is not directly transferable to novice teachers, due to its hidden nature, the first step is to uncover the way novice and experienced teachers think when planning instruction.

In order to examine the differences between these two groups, a model how teachers potentially think about instructional planning, has been developed for this study. Creating this model necessitated revisiting previous research on instructional planning and the conceptual models that formed the framework for this research. As a result of this work, a model developed by Gage and Berliner (1998) that conceives teacher work as implementing primary teaching tasks was adopted as the main conceptual framework for this study. This model presents instruction as consisting of three phases – planning, implementation, and assessment/reflection – and makes it possible to see decision-making by teachers in the planning process as impacted by their former experience. In addition, the author of this thesis was guided by general ideas of teacher conceptions about learning and teaching as aspects that influence their thinking about instructional planning. The resulting model – how teachers potentially think about instructional planning – was used as the basis for compiling a questionnaire to uncover differences in instructional planning between novice and experienced teachers.

This thesis consists of five chapters. Chapter 1 introduces the nature of the study, research questions, and structure of the dissertation. Chapter 2 describes the notion of instructional planning, reviews prior research on instructional planning, introduces conceptual models used as guides in planning instruction, and describes the development of the model underlying the questionnaire created for investigating the two groups of teachers in this study. Chapter 3 presents the research methodology used in the study. The results of this study are presented in Chapter 4, and a discussion of the theoretical and practical implications, with the limitations of the study and further suggestions, are in Chapter 5.

1.1. The aim and research questions

The aim of this study is to identify the main variables characterizing how teachers think about instructional planning, and to discover differences in the way novice and experienced teachers think in relation to instructional planning. The revealed differences between the thinking of novice and experienced teachers are then intended to be used to make recommendations for improving teacher education programmes to promote instructional planning skills among novice teachers by focusing on the hidden competence experienced teachers have that novice teachers typically acquire through trial and error in their teaching practice.

Considering the fact that instructional planning is primarily aimed at promoting and supporting student learning, it is obvious that the nature of lesson or subject course plans (explicit or implicit) that teachers create and implement in their everyday work depend heavily on how they understand the nature of learning (see Article I). Therefore, the study has a sub-goal that must be addressed before stating the research questions: to provide an overview of the dominant conceptions of learning and teaching held by teachers that potentially might affect their thinking when planning instruction. Achieving this sub-goal provided the theoretical framework for the thesis and played a central role in the development of the model how teachers potentially think about instructional planning that served as the main theoretical basis for the development of the data collection instrument for the study.

Based on the aim and sub-goal of the study, the following research questions were posed:

1. What are the main variables characterizing how teachers think about instructional planning?
2. What are the differences between in how novice and experienced teachers think about instructional planning and what conclusions for promoting instructional planning skills among teachers can be made on the basis of the research findings?

The research of this dissertation is summarised in the following original publications:

Article I addresses the stated sub-goal and describes the changes in conceptions of learning and teaching among undergraduate student teachers that might shape their understanding of the conditions needed for invoking learning in terms of planning instruction. In addition, the article provides background information on potential differences between student and experienced teachers in terms of understanding the nature of learning.

Articles II and III address research question 1 and introduce the development of the theoretical model describing how teachers potentially think about instructional planning in terms of primary teaching tasks and compiling the instructional planning questionnaire. Article III addresses research question 2 by introducing the main findings of the survey of experienced and novice teachers and analyses differences between how novice and experienced teacher think about planning activities regarding primary instructional tasks. Article III also presents conclusions on how to promote instructional planning skills in novice teachers.

2. THEORETICAL BACKGROUND

2.1. Instructional planning as a research object

Due to the complexity of instructional planning and its multi-layered and context dependent character, its definition as a research object is complicated and depends on the dominant research traditions in certain periods.

A survey of the relevant literature reveals that when following the logic of moving from philosophical to procedural definitions, the first in this order is Schön's (1983) viewpoint that lesson planning is pre-active decision-making that takes place before instruction. Similarly, Eggen and Kauchak (2016) identify lesson planning as the first phase of effective teaching followed by the implementation and assessment phases.

With regard to the dominant research traditions in certain periods, one of the most thorough meta-analyses of studies on instructional planning is carried out by Yinger and Hendricks-Lee (1998). This study reveals, albeit implicitly, changes in defining the notion of instructional planning. In their overview, Yinger and Hendricks-Lee point out that instructional planning has been an object of educational research since the 1950s, although it achieved exceptional prominence only in the 1970s (Carter, 1990). Yinger and Hendricks-Lee (1998) explain that there have been significant shifts in the research methodology of that field since the 1950s. They characterize these developmental shifts as a movement from a technical conception of instructional planning to a psychological and ultimately an ecological conception.

The technical conception of instructional planning (Yinger & Hendricks-Lee, 1998) refers to models that see instructional planning proceeding from an understanding that student learning is controlled by teachers and that the design of teaching in small units assures student success. Such models of instructional planning describe planning as the transition through four consecutive phases: a) specifying objectives; b) selecting learning experiences; c) organizing learning experiences; and d) specifying evaluation procedures (see e.g. Tyler, 1949/69).

Studies conducted since the 1970s proved that teachers do not follow such one-directional and linear models in instructional planning. From these studies it emerged that teachers primarily think of the content of a subject to be taught and of the characteristics of their students, and do not primarily start from defining specific objectives when planning instruction. As cognitive psychology progressed in exploring learning and teaching processes, researchers began to pay more attention to the mental processes involved in teacher instructional planning. Moreover, researchers uncovered the notion that the context in which instruction is organized and the level of planning (e.g. yearly plan, lesson plan) significantly impact the nature of the planning activities (Yinger & Hendricks-Lee, 1998).

The 1980s brought new trends to the research of instructional planning as the ecological conception, which emphasizes social-constructivism (Wildman,

2008), gained more attention. Researchers began to consider the impact of the interaction inherent in the learning activities in addition to the individual psychological processes of a teacher. These studies highlighted that the interaction between teacher and student in the classroom is often unpredictable for the teacher, and thus cannot be planned to a great extent before instruction (Yinger & Hendricks-Lee, 1998). Planning can only provide a framework for the major events that should occur during teaching, as interaction between students and teacher, according to Yinger (1987; as cited in Yinger & Hendricks-Lee, 1998) makes it impossible to follow a detailed pre-planned schedule of activities and that teacher improvisation skills come into play. Hence, the ecological conception can be associated with the teacher's role starting to pay attention to creating a favourable microclimate for learning in the classroom.

In conclusion, it can be said that research in the field of instructional planning has shifted from behaviouristic conceptions to cognitive and social-interactional conceptions, placing greater emphasis on the natural circumstances accompanying instruction, the teacher's cognitive processes, and the interaction in the classroom. Yinger and Hendricks-Lee (1998) emphasize that an understanding of the dynamics of the research environment makes it easier to interpret the results of studies on instructional planning, as well as new emerging concepts on the role of planning in instruction.

In addition to general definitions of instructional planning and the historical point of view as explained above, researchers, in past decades, have defined it from different perspectives and at different levels of generalisation. For example, Liyanage and Bartlett (2010) consider three phases of instruction – planning, implementation, assessment – as the lesson-planning framework, and they identify lesson planning from holistic view where a teacher's planning of intentions, procedures, lesson outcomes, evaluations and reflections form an integral whole. Therefore, lesson planning is seen as a concrete process that incorporates three phases of instruction, where the teacher has to cope with the different tasks of teaching, be ready to adjust their teaching and reflect on lesson outcomes.

Some researchers see the essence of instructional planning mainly from the interactional point of view emphasizing the importance of the social-constructivist aspect of learning. For example, Lai and Lam (2011) describe instructional planning as "the interaction of teachers and particular content in order to arrive at decisions regarding what and how particular content should be delivered to suit the unique circumstances of each teaching situation" (p. 221). Lim and Chai (2008), on the other hand, have adopted activity theory to explain instructional planning. According to this theory "activity is a series of goal-directed actions that are performed to achieve some intended objectives" (p. 2005) and all activities are mediated by cultural means and tools. Therefore, instructional planning is also an activity that is performed by a teacher with the help of various means in the socio-cultural context. From this viewpoint, instructional planning is explained by the socio-cultural-historical perspective

that in turn accentuates social-constructivism in general. Furthermore, Cvetek (2008) has described instructional planning from the point view of chaos theory which considers instructional planning as a chaotic system that is complex and unpredictable, and even a small unexpected intervention can dramatically cause a change in the whole system. This change is also known as "the butterfly effect". Once again, these three explanations refer to seeing learning from the social-constructivist perspective that imposes seeing teaching as context dependent where unexpected events in the classroom might change the course of the pre-planned lesson, and teachers need to adjust with the dynamics of the classroom.

When emanating from the temporal perspective, the term *instructional planning* can also point to different levels of planning, for example, planning for a lesson, for a week, for a unit or for a year (Woolfolk, 2016). In addition to time, it can also concern setting up the physical and social environment of the classroom (Clark & Yinger, 1987).

When reviewing the literature on instructional planning, the variation of approaches that researchers have used to study teachers' instructional planning is quite impressive. For example, some authors have studied teachers' beliefs about planning (e.g. Tam, 2013); several authors have studied teachers' decision-making about planning (e.g. Lai & Lam, 2011; Liyanage & Bartlett, 2010; Shavelson & Stern, 1981; Superfine, 2008; Westerman, 1991) or teachers' instructional decisions (Kohler, Henning & Usma-Wilches, 2008). Few authors have studied teachers' knowledge and beliefs in combination when planning instruction (e.g. Lui & Bonner, 2016). In this study, when investigating how teachers think about instructional planning, the author of this dissertation refers to how teachers think about content, student characteristics, objectives, teaching strategies, motivation, assessment, and other factors that are not directly related to classroom teaching. These are only some of the examples that may influence teacher thinking when planning instruction. Teachers' thinking is impacted by the classroom context, as well as their beliefs, values, experiences and knowledge (i.e. pedagogical, practical and content), and knowledge about their students (Kohler, Henning, & Usma-Wilches, 2008). Therefore, the emphasis when investigating teacher thinking is on factors that influence teacher decisions when planning instruction.

As can be seen from previous research, instructional planning is a complex professional activity the comprehensive modelling of which calls for multi-dimensional characterization. Relying on previous research, instructional planning in this study is defined as an activity that precedes the delivery of instruction, the nature and quality of which, as already emphasized, is heavily dependent on the teacher's previous experience and knowledge acquired from teaching (e.g. see John, 2006). Even though there are differences in the details of different definitions of instructional planning, all definitions consider it as an inseparable part of teaching since it is the process by which teachers link the curriculum to learning (Clark & Dunn, 1991; Clark & Yinger, 1987).

2.2. The role of practice in acquiring the elementary skills of instructional planning

Teacher education curricula generally consist of foundation courses and methods courses (Grossman, Hammerness, & McDonald, 2009). The former provides student teachers with knowledge for teaching (e.g. understanding about teaching and learning), and the latter with practical tools and strategies for teaching, concerning aspects like school practice, classroom management, and teaching particular subject matter. The development of instructional planning skills in student teachers is supported by both types of courses; however, they do receive more prominence in studies related to practice.

Since instructional planning is an inseparable component of teaching, it is also an important component of school practice in teacher education as highlighted by many researchers (e.g. Brouwer & Korthagen, 2005; Grossman, Compton, Igra, Ronfeldt, Shahan, & Williamson, 2009). The main task of school practice is to create conditions that support the development of the theoretical and practical knowledge of prospective teachers that eventually develop their ability to reflect on their professional learning (Wilson & I'Anson, 2006). Therefore, the school practice can be seen as an opportunity for prospective teachers to practice planning and reflect upon instruction against the background of their theoretical knowledge and ready-to-use capabilities in the uncertain context (which is how teaching is by nature) of the school practicce (Krull & Raudsepp, 2010).

The theoretical and practical studies in teacher education should both support the mastery of instructional planning as it is one of the key competencies for effective teaching, and thus this competency is reflected as a requirement in professional teaching standards in many countries. For example, the Interstate Teacher Assessment and Support Consortium in the USA considers planning of instruction as one of ten major teaching competencies to be acquired by novice teachers (Council of Chief…, 2013). The competency of planning for instruction involves six professional capabilities that see planning in a quite comprehensive way, especially in terms of selecting tasks for acquiring learning experiences (p. 16): (1) individually and collaboratively selecting and creating learning experiences that are appropriate for curriculum goals and content standards, and are relevant to learners; (2) planning how to achieve each student's learning goals, choosing appropriate strategies and accommodations, resources, and materials to differentiate instruction for individuals and groups of learners; (3) developing appropriate sequencing of learning experiences and provides multiple ways to demonstrate knowledge and skill; (4) planning for instruction based on formative and summative assessment data, prior learner knowledge, and learner interest; (5) planning collaboratively with professionals who have specialized expertise (e.g., special educators, related service providers, language learning specialists, librarians, media specialists) to design and jointly deliver as appropriate learning experiences to meet unique learning

need; (6) evaluating plans in relation to short- and long-range goals and systematically adjusts plans to meet each student's learning needs and enhance learning.

To cope with these tasks, teachers need to be aware of seven different areas of essential knowledge (Council of Chief…, 2013, p. 16) so that the teacher: (1) understands content and content standards and how these are organized in the curriculum; (2) understands how integrating cross-disciplinary skills in instruction engages learners purposefully in applying content knowledge; (3) understands learning theory, human development, cultural diversity, and individual differences and how these impact ongoing planning; (4) understands the strengths and needs of individual learners and how to plan instruction that is responsive to these strengths and needs; (5) knows a range of evidence-based instructional strategies, resources, and technological tools and how to use them effectively to plan instruction that meets diverse learning needs; (6) knows when and how to adjust plans based on assessment information and learner responses; (7) knows when and how to access resources and collaborate with others to support student learning (e.g. special educators, related service providers, language learner specialists, librarians, media specialists, community organizations).

According to this standard (Council of Chief…, 2013), the previously described performances and knowledge are accompanied by four "critical dispositions" that a teacher needs to have for planning instruction. These dispositions imply that the teacher (p 16): (1) respects learners' diverse strengths and needs and is committed to using this information to plan effective instruction; (2) values planning as a collegial activity that takes into consideration the input of learners, colleagues, families, and the larger community; (3) takes professional responsibility to use short and long-term planning as a means of assuring student learning; (4) believes that plans must always be open to adjustment and revision based on learner needs and changing circumstances.

In Estonia, the graduates from teacher education curricula have to meet the requirements of the teacher professional standards (Kutsestandard…, 2013) to be licensed as teachers. This professional standard (level 7) states six competence requirements from which one is planning of learning and teaching activities. Therefore, competency in planning lessons is one of the key requirements in teacher education studies.

In Estonia, the teacher education programme is built up using a combination of theoretical and practical studies (Õpetajakoolituse raamnõuded, 2004). Theoretical studies provide prospective teachers with knowledge about learners, learning theories, motivation, assessment, curricula requirements, etc. As with any foundation course, this knowledge guides students' thinking and decision-making about teaching and learning. Practical studies involve the observation of lessons and teaching practice in partner schools lasting for approximately ten weeks.

At the University of Tartu, teacher education students practice initial instructional planning skills during their basic module (Alusmoodul, s.a.),

where they have to plan and deliver micro-lessons in a peer-teaching format. The practicum module comprises four subjects (Praktikamoodul, s.a.): continuous pedagogical traineeship (6 ECP[1]), pedagogical practice (4 ECP), continuous practice (3 ECP), and teaching practice (11 ECP). The skills related to instructional planning are more prominently supported by the latter three subjects (Tartu Ülikooli pedagoogilise…, 2016) and as a result of these studies the student teacher is able to: (1) plan, prepare, implement, analyse and evaluate his or her teaching activities; (2) to take into consideration student characteristics, prior knowledge, and needs (including educational disabilities) and interests when planning and implementing instruction; (3) plan instruction in a systematic, evidence-based and creative way in line with official normative regulations, school, school level and/or subject matter specificities and the needs and interest of learners.

So, teacher education studies involve theoretical and practical studies that both involve planning for instruction; however, the development of instructional planning skills are more thoroughly supported by practical studies. Practical studies are shaped in turn by the requirements of teacher standards, as graduates from teacher education have to meet the requirements for being licensed as teachers.

2.3. The teachers' conceptions of learning and teaching seen as factors influencing their instructional planning

Teaching, above all, addresses the creation of favourable conditions for learning (Gagné, 1985). Therefore, pedagogical decisions by teachers are significantly influenced by their understanding of the nature of learning and teaching; that is, the knowledge and beliefs held by prospective teachers about learning influence their instructional planning and teaching practice (Lui & Bonner, 2016). Therefore, to understand how teachers approach planning instruction, it is helpful to learn how teachers understand those two concepts.

The most common and general definition of learning comes from psychologists in the 1960s and it refers to learning as any process that leads a learner to relatively permanent changes in potential behaviour that result from experience (Krull, 2013). In principle, learning and teaching may be considered as independent or related concepts. If teaching is conceived as the creation of favourable conditions for learning (Gagné, 1985; Tyler, 1949/69) then learning is seen as a conceptual basis determining the selection of appropriate teaching approaches; that is, according to this theoretical approach, teaching can be seen as a derivation of the adopted notion of learning. In this sense, the way a teacher imagines learning, determines his or her approaches to teaching. However, as elaborated in Article I, our understanding of the processes of learning might

[1] ECP - European Credit Point; one ECP equals 26 hours of student work

depend on the psychological perspective we adopt – a change in behaviour as evidence of learning might mean different things (Wildman, 2008). This affects how teachers approach instructional planning since they might see expected learning outcomes in different ways.

Over the past 60 years, (Krull, 2013; Wildman, 2008) three different layers of conceptual frameworks have emerged in studying learning processes. The first framework – the behavioural perspective – dates back to the end of the 19th and beginning of the 20th century. The research in that era focused on manifestations of learning that appeared as permanent changes in behaviour that derived from responding to signals or stimuli (i.e. to the environment). The process of learning was described as an unconscious and mechanical building of associations between different units of information, whereas mental processes in learners were considered irrelevant. By the middle of the 20th century, the cognitive perspective of learning became dominant. From this perspective learning is seen as the gradual construction of knowledge schemes caused by a person's cognitive activity aimed at accommodating his or her environment. The third manifestation of learning – social-constructivist perspective – gained wider recognition in the 1990s as researchers started to pay more attention to how people learn in social and cultural settings. From this perspective learning is seen as resulting from participation in meaningful social practices. As in the cognitive perspective, learning from the social-constructivist perspective is seen as a gradual construction of knowledge but with special attention to the interaction between the learner and his or her social environment in causing this construction.

However, it cannot be said that one perspective is better than the others. Although these three major conceptual frameworks are different by nature, they are not mutually exclusive. Each of them provides insight into different aspects of learning when planning instruction. Together these perspectives allow us to conceive learning as a complex phenomenon (Krull, 2013).

In reality, the conceptions of learning held by student teachers and practicing teachers might be diverse. Their understandings and even convictions about learning as of a psychological phenomenon are shaped by many years of experience starting with school years and ending with their experience as teachers. The conceptions of learning held by learners are, especially in the early grades, heavily shaped by how their teachers teach. Learner conceptions of learning on graduating from senior secondary school and entering universities, including those who have decided to become teachers, are still shaped by the way they were taught by their teachers but also by their personal experiences of learning. This combined and often intuitive knowledge about what learning is serves as a basis for interpreting the theoretical conceptions of learning when taking courses in teacher education. Therefore, it is quite justified to expect student teachers to see learning from different perspectives. Some of them conceive that learning consists mostly of learning ideas by heart (taking a behaviourist perspective), others as integrating new knowledge into a former field of knowledge (cognitive-constructive perspective), and still others as creating a

common understanding of the new knowledge in interaction with the teacher and their classmates (social-constructivist perspective). Studying theories of learning in teacher education typically helps us to see learning in a more balanced way (see Article I). However, as research confirms, when working as teachers for years their conceptions of learning focus on what clearly works in teaching, and often tend to adopt behaviourist perspectives (Martínez, Sauleda, & Huber, 2001).

Considering the important role that conceptions of learning play in teachers' decision-making in instructional planning, a study was carried out to see how and to what extent conceptions of learning and teaching change as a result taking a course in educational psychology. In all, 256 student teachers participated in this study. The respondents were asked to write short essays in response to "learning is most like … because …." and "teaching is most like … because …." according to their understanding at the beginning and after completing a course in educational psychology that introduces the main theories about learning. More details about the participants, procedure and data analysis can be found in Article I.

The essays were submitted to a qualitative content analysis to identify the writer's conceptions of learning, and the results from before and after completing the course on educational psychology were compared. This revealed that there were shifts towards cognitive concepts of learning in students after studying the course (see Table 1). As presented in Table 1, at the beginning of the course, student teachers saw learning from the behaviourist perspective, as the average percentage of metaphors reflecting this perspective was 54.1%, at the same time, 46% reflected a cognitive perspective. In regard to teaching, at the beginning of the course, it was seen predominantly from the behaviourist perspective (66.2% of metaphors) and 31.1% of metaphors reflected the cognitive concept. By the end of the course, the reflections of a behaviourist concept in essays on learning and teaching decreased, and those of a cognitive concept in essays increased. It was remarkable that learning and teaching were practically not seen from the socio-constructivist perspective at all, not even at the end of the course.

The results of the study presented in Article I indicate that student teachers had rather behaviourist understandings of learning and teaching at the beginning of the course on educational psychology. After completing this course their conceptions of learning shifted towards the cognitive-constructive perspective, but practically no change appeared in regard to the social-constructivist perspectives of learning.

Table1. Distribution of metaphors according to conceptions of learning as a percentage (as cited in Article I)

Essays	Behaviourist concepts	Cognitive concepts	Socio-constructivist concepts
	Σ	Σ	Σ
Learning beginning	54.1	46.0	0.0
Learning end	40.5	57.9	1.7
Teaching beginning	66.2	31.1	2.7
Teaching end	57.3	41.7	1.0

Note. **Σ** – average for 2009 and 2010

Martínez et al. (2001), by analysing the metaphorical conceptions of teaching and learning held by experienced elementary school teachers and fourth-year teacher education students without teaching experience, found that 57% of Spanish teachers saw learning and teaching from the behaviourist, 38% from the cognitive and 5% from the socio-cultural perspective. The distribution of Estonian student teachers' conceptions of teaching at the end of studying the course was quite similar. However, the distribution of Spanish student teachers by learning concept reflected in their essays was different, as 56% of them conceived learning from a cognitive point of view and equally 22% from a behaviourist and socio-cultural point of view. Considering that in the case of experienced teachers the share of metaphors expressing the socio-cultural perspective was only 5%, it is quite possible that the attitudes of student teachers in the study by Martinez et al. were significantly influenced by the nature of preservice teacher education courses.

More specifically, the influence of knowledge about learning theories on instructional planning has been studied by Panasuk and Todd (2005). These researchers have presented how knowledge about learning and teaching influences instructional planning and the selection of teaching methods in mathematics, and moreover, the value of combining different theories with the needs of the student, the content to be learned, and the atmosphere of the learning process. According to them, teaching methods based on behaviourist theories would help facilitate the mastery of content to be taught through a thorough statement of the objectives (i.e. students are required to express their new knowledge to teachers). The cognitive perspective is helpful in directing the process of problem solving and use of heuristics in new or unfamiliar contexts by facilitating student learning and individual knowledge construction. Panasuk and Todd (2005) emphasize that they "believe that instructional approaches go beyond one particular theory and must be based on the integration of different theories and models" (p. 221).

Finding answers to the research question "What are the main variables characterizing how teachers think about instructional planning" presumed the creation of a model of teachers' potential thinking about instructional planning.

Considering the importance that teachers notions of learning and teaching may play in their thinking, this influence was taken into account when creating the model and defining the main variables characterizing how teachers think about planning.

Seeing learning predominantly from a behavioural perspective might, on the one hand, predispose a teacher to plan and arrange instruction so that she or he is a transmitter of information and the students like receivers or empty vessels. This conception of learning can lead the teacher to choose methods in instructional planning that ensure him or her the role of active knowledge transmitter and to impose upon the students the role of passive receivers. According to this pattern, the teacher is seen as the transmitter of the knowledge. To avoid this situation, teachers should consciously make sure that they do not stay in the central role of the teaching process, as the students themselves should be actively involved in the process of learning as is emphasized according to contemporary learning theories (e.g. Eggen & Kauchak, 2016). Yet, on the other hand, the behavioural perspective would help the teacher to state the learning objectives, as learning outcomes are seen as activities through which students are required to express their new knowledge to teachers.

According to the cognitive perspective, the teacher needs to plan learning conditions that support the active and self-regulative construction of new knowledge (e.g. through problem-based learning). Since the cognitive perspective emphasizes individual knowledge construction, the teacher can choose in the planning process appropriate methods that are in line with student needs to support student learning processes. It is an important prerequisite that student learning takes place along with his or her own inner interest.

The social-constructivist perspective in conceiving learning emphasizes that humans are social beings, and learning can also take place as social interaction alongside the previously mentioned individual knowledge construction. Therefore, a learner is seen as an active participant in a social process. In planning learning conditions from the social-constructivist perspective, the teacher should take into account the value of the classroom and the potential impact of other individuals on student learning. Hence, the teacher can design learning activities and choose appropriate methods in instructional planning that allow learners to communicate with each other and to express their knowledge and understanding in order to create new shared knowledge. The social-constructivist perspective is directly related to ensuring a positive learning environment, and also, student motivation in the classroom.

In all, when planning instruction, teachers should take into consideration all learning perspectives, as they are helpful for seeing learning as a complex phenomenon, and this can be supported by teacher education courses. Therefore, conceptions of learning and teaching were taken into account when compiling the questionnaire items in this study.

2.4. A survey of research into instructional planning among teachers

The recent studies about instructional planning skills exemplify the different methodological approaches used to investigate this phenomenon. For example, some researchers have studied lesson plans to investigate teacher competence in instructional planning (e.g. Panasuk &Todd, 2005; Ruys et al., 2012). Other authors have used pre- and post-lesson interviews to gain insights into this professional skill (e.g. Hagger, Burn, Mutton, & Brindley, 2008; Mutton, Hagger, & Burn, 2011; Okas, 2016) or a stimulated recall method (e.g. Liyanage & Bartlett, 2010; Nilsson & Van Driel, 2010; Schepens, Aeltermann, & Van Keer, 2007; Vesterinen, Toom, & Patrikainen, 2010). Some authors have used method triangulation (e.g. lesson plans, interviews, field notes, questionnaires) to obtain diverse information about instructional planning (Gallo-Fox & Scantlebury, 2015; Kaasila & Lauriala, 2010). In the past several decades, the lesson study approach including instructional planning as an important component has been widely used when studying teacher development (e.g. Fernandez, 2002; Leavy & Hourigan, 2016; Puchner & Taylor, 2006). These studies are only some examples of the approaches used and this list, of course, is not definitive.

Teacher instructional planning seems to be a topic that at first sight has attracted the interest of researchers for many decades (Kohler, Henning, & Usma-Wilches, 2008), but a more thorough examination reveals that it is quite difficult to find studies with a focus that is interesting or relevant for this study. For example, when researching literature from the ERIC data-base in the years 2000–2017, and using "lesson planning" as a search term in titles and limiting the search to full and peer-reviewed texts, the research engine only finds 32 texts. When searching for the same keyword abstracts and applying the same search criteria, 150 texts were selected – from which a large amount had a focus beyond this study.

As the aim of this thesis is partly to discover differences in the way novice and experienced teachers think in relation to instructional planning, prior research comparing teachers and highlighting their differences was relevant. Research on teacher instructional planning can be divided logically into three categories: (1) studies investigating real activities in planning lessons (e.g. Berliner, 1994); (2) studies investigating how teachers think about planning (e.g. Okigbo & Okeke, 2011) and (3) studies that combine real planning activities with accompanying thinking (e.g. Liyanage & Bartlett, 2010).

Researchers, belonging to the first category, have studied instructional planning right in the midst of the planning process with different methodological approaches. For example, Livingston and Borko (1990) investigated differences between novice and expert teachers in their planning and implementation of a review lesson in mathematics. Diverse data was gathered in this study from observational field notes, audiotapes of lessons, pre- and post-lesson interviews about participants planning and reflection on lessons, and

from planning documents. The results indicated that novices tended to have little knowledge about common misconceptions or of the concepts that were difficult for students. Experts entered the classroom with flexible lesson plans that were easily followed in the course of teaching and enriched with explanations and guided problem solving. Experts more sure-handedly designed on-the-spot activities in response to student answers and questions and were more aware of common misconceptions and errors. Consequently, they had more knowledge about the way their students learn than novice teachers. The authors concluded that hypothetically novices seemed to lack pedagogical content knowledge (i.e. blending of content knowledge, knowledge of learners and their context and general pedagogical knowledge) about student learning in the subject area, and that their knowledge structures were insufficiently developed for flexible teaching.

A similar study has been conducted by Westerman (1991) investigating differences in the thinking and decision-making of novice and expert teachers when planning, implementing and reflecting upon lessons. Data from 5 novices and 5 expert teachers was gathered using pre-lesson interviews, stimulated recall interviews, post-lesson evaluations and reflections, and self-reports made a couple of months later. Her study results indicate that when planning instruction, novices relied more on the stated objectives in the curriculum rather than modifying these objectives to take into account student characteristics and their own goals, as the experts did in the study. Novice teachers also tended to lack knowledge about student learning, and therefore planned each lesson as a separate lesson based on stated objectives in the curriculum, and not seeing the learning as a process or how different objectives or outcomes (as skills) fit together. Furthermore, novice teachers tended to stick to their original lesson plans even when unexpected circumstances in student learning occurred. Experts, on the other hand, were more flexible making adjustments in their plans to meet student needs using well-developed classroom routines or strategies.

Berliner (1994) has used prompt or experimental tasks to expose teacher instructional planning skills. In his study, expert teachers, advanced beginners (second and third-year teachers) and novices (student teachers, first-year teachers) were asked to teach a 30-minute lesson in mathematics to high school students in an unfamiliar class. Lessons were videotaped and stimulated recall interviews were conducted so that teachers could explain their teaching actions. This situation caused a great deal of unpleasantness among the expert teachers since in the planning phase they felt discomfort at not having enough time to thoroughly understand the teaching context, to plan one or more activities to teach the content, and not knowing the students, and therefore not being able to use certain routines. They felt discomfort in the laboratory situation compared to being in their own classroom. This certainly points to the fact that experienced teachers, when planning lessons for classes familiar to them, often rely on tacit knowledge about the context they are teaching in, knowledge that they cannot use for sure in unfamiliar situations.

Smith (2005) investigated the planning discourse between novice and experienced teachers during a joint planning activity. The underlying idea of joint planning was to enable the novice teacher to learn through participation, ultimately leading to the acquisition of planning competence. Data from recorded co-planning conversations and individual interviews showed that tension and discomfort exist when a newcomer tries to bring new ideas into a community of practice and that joint planning is an insufficient measure for increasing the quality of instructional planning by a simple merging of the expertise of experienced and novice teachers.

The above short overview of research on instructional planning refers to studies that were based on gaining data on planning activities directly from the actual planning process. Another perhaps less frequently used and somewhat opposite approach to uncovering factors influencing instructional planning has investigated teacher thinking and perception about these factors. One example can be seen in Okigbo and Okeke (2011), who investigated differences in 12 beginning and 105 experienced teachers' perceptions of the problems they have in using specific educational objectives in their classroom. Data was gathered using a questionnaire that comprised of items on planning instruction, implementing instruction, use of educational technology and maintaining discipline. The results indicated that there was a significant difference between the beginning and experienced teachers' perceptions in using the appropriate skills for mathematics teaching, including planning instruction (e.g. stating objectives in appropriate domains, considering the needs and interests of students, sequencing learning activities).

Yildrim (2003) investigated the perception of 1,320 teachers about their planning at the primary school level using a questionnaire. The study indicated that the main factors having an impact on short and long-term planning are teacher experience, the national curriculum and the course textbooks. For example, in long-term planning, the more experienced teachers gave greater importance to the influence of the national curriculum in the planning process. The same result was found in short-term planning. Moreover, teachers who had more experience in teaching considered the content and design of teaching and learning activities more important when planning instruction than teachers who had less teaching experience.

In the study by Glick et al. (1992), student teachers were asked to complete a questionnaire asking about the sources of instructional representations (e.g. examples, illustrations, demonstrations for the given topic) when thinking about instructional planning. The results indicated that student teachers used several sources (e.g. curriculum materials, self-created materials, cooperating teachers' materials, and other printed materials); however, none of the respondents mentioned previously taken courses in educational subjects as resources for materials or ideas in the planning process. Once again, this finding points to the fact that instructional planning calls for context dependent skills, which are not directly transferable from theoretical teacher education courses to teaching practice.

This overview of studies indicates that differences exist between novice and experienced teachers in their approaches to instructional planning and that researchers have investigated these differences for different purposes and with various approaches. These differences in teacher planning skills occur in their readiness to respond student questions and to state and modify curriculum objectives in line with student characteristics and the teacher's own goals, and in engaging in the specific type of planning (short- or long-term planning). As an addition, for example, Carter (1990) asserts that compared to novice teachers, expert teachers rely on a rich variety of knowledge originating from their teaching experience. Expert teachers are acquainted with the typical behaviour of students, social interactions, and situations that accompany teaching. This type of knowledge enables expert teachers to predict and foresee what might happen in the classroom. Moreover, Westerman (1991) has concluded that expert teachers have more elaborated monitoring skills compared to novice teachers that allow them to recognize problems and make decisions to solve problems.

Furthermore, as can be noticed, earlier research has mostly focused on the planning of specific subject lessons (e.g. mathematics) and a great deal were conducted in the 1970s and 1980s (Uhrmacher, Conrad, & Moroye, 2013). While instructional planning does depend on the subject being taught (e.g. Livingston & Borko, 1990; Rusznyak & Walton, 2011), this study attempts to uncover the planning skills that are common and necessary when planning instruction in different subject areas. Although there are some recent studies on the topic of lesson planning, they focus on a certain subject area or a specific teaching method, and the results of these studies are not so easy to generalise in regard to instructional planning as a whole. To achieve a more elaborated understanding and identification of the factors that are common to planning instruction in different subjects, and that cause differences in how novice and experienced teachers perceive issues related to instructional planning and their own planning activities, a model of planning describing it in its integrity was needed. The model is intended to be used as a basis for compiling a questionnaire to uncover teachers' thinking about general aspects of instructional planning.

2.5. Conceptual models reflecting the processes of instructional planning

When investigating complex phenomena like instructional planning, it is practically impossible to embrace all its aspects. Therefore, approximations as theoretical models, of course, are simplified reflections (Box & Draper, 1987) of this phenomenon. This also applies to underlying conceptual models from the studies introduced in the previous section.

As already mentioned (in Chapter 2.1.), the research regarding instructional planning reveals that teachers usually do not conceive teaching as a discrete and linear activity (Ball, Knobloch, & Hoop, 2007; John, 2006; Johnson, 2012) – seeing teaching as a series of steps starting with stating learning objectives and ending with designing assessment strategies in accordance with these objectives. For that reason, many lesson models or models of instructional units have been criticized for being too simplistic to guide teachers in instructional decision-making (Lai & Lam, 2011) and do not take into account the contingencies of teaching, as classrooms are more uncertain places than the model suggests (John, 2006). To overcome this limitation more sophisticated models or concepts as guidelines for training lesson planning skills have been developed by John (2006), Panasuk and Todd (2005), and Rusznyak and Walton (2011).

An interesting model of the widening knowledge of instructional planning among student teachers is offered by John (2006). This model refers to the key aspects of planning that emerge through time and teaching practice; that is, how student teachers gradually broaden their minds about instructional planning when in dialogue with the growing awareness of the issues of planning. According to this model, instructional planning is seen as a developing professional competence on three levels. The first level of decision-making in planning consists of fixing the aims, objectives, and learning outcomes of the sub-processes in instruction (known as core elements). On the second level, as the student teacher's knowledge base about teaching and the nature of the classroom grows, core elements such as initial planning ideas need to be specified in terms of curricular requirements, subject content, tasks and activities and classroom control. The third (extended) level of planning activities foresees designing and updating instruction for the level of difficulty, conceptual understanding, dealing with cross-curricular ideas, student learning style, and so on (John, 2006). The value of the model is in the sense that it makes it possible to conceive instructional planning at different levels of experience, starting from the most basic level of decision-making. John states that this model helps student teachers understand that the process of planning is dialogical; that is, the thoughts put into the action are influenced by the discourse-community in which it is embedded.

The FSLP (Four Stages of Lesson Planning) strategy was initially developed for teaching mathematics in urban low-performing middle schools in New England. This subject-specific strategy guides teachers in planning the complex process of a mathematics lesson to ensure student learning and coherence between learning processes and its outcomes. The four steps of this strategy are (Panasuk & Todd, 2005): (1) formulation of learning objectives in students' observable behaviour as guidance of the lesson planning process; (2) designing homework as a special factor facilitating student perception of the coherence between the objectives, learning outcomes, homework, and classroom activities in their planning process; (3) planning the developmental activities after the

objectives and homework are designed; (4) designing of instructional activities in the classroom that integrate all three previous stages.

Rusznyak and Walton's (2011) model, and underlying lesson planning guide, was developed to support the development of the pedagogical content knowledge of student teachers. The guide emphasizes that lesson planning is an important professional skill that consists of two different components. The first is the instrumental or technical skill of planning that is typically taught in teacher education courses as procedural knowledge. The other is contextual knowledge that typically comes with teaching experience and presumes the development of a competence that Shulman (1987) calls pedagogical content knowledge (PCK), and means a combination of content knowledge, knowledge of the learners and their context and general pedagogical knowledge that is "pedagogically powerful and yet adaptive to the variations in ability and background presented by [learners]" (p. 102). The combination of these two components also means adopting an understanding that lesson planning is not a linear process that begins with the specification of objectives and ends with evaluation but rather dialogical as already emphasized by John (2006).

Rusznyak and Walton's (2011) lesson planning guide for student teachers brings forth six sequential steps that need to be taken into account when planning instruction. These steps include (Rusznyak & Walton, 2011): (1) ensuring routine information on the class and subject to be taught, teaching conditions etc.; (2) clarifying the purpose of the lesson with a focus on the content knowledge, skills, attitudes and values to be acquired; (3) developing content knowledge in summarising their own understanding of the subject to be taught for developing PCK; (4) developing an awareness of learner diversity, prior knowledge, subject vocabulary, common misunderstandings; (5) choosing teaching and learning strategies; and (6) designing a sequence of lesson steps based on the acquired contextual knowledge. The first five steps help to develop contextual knowledge for the instruction. Overall, this model can also be conceived as a model for instructional planning, seeing this process as an activity calling for the development of an awareness of five contextual issues and designing instructional activities.

In addition to the previously described guides for instructional planning, one way to model instructional planning is conceiving it as professional thinking in imagining the planning and implementation of teaching tasks as presented in the lesson or instructional models. Throughout history, different models of instruction have been created to give theoretical support to teachers for planning and delivering instruction. These models are also helpful for bringing out critical factors to be taken into consideration within the planning phase of instruction. According to Reyes (1990), near the end of the 20th century, the best-known lesson and study unit models were those of Hunter (1986), Rosenshine (1983) and Gagné (1985). From them, Hunter's and Gagné's models conceive instructional activities for a variety teaching approaches, and therefore are also of interest for this study.

Hunter's (1986) model represents three decision-making areas for teachers when planning a lesson: (1) selecting instructional content; (2) designing student activities – what students need to do to learn and how they show the teacher that they have learned; (3) choosing their own activities – instructional activities based on their understanding of what should favour successful learning.

Gagné's model is similar to Hunter's – it sees instruction as a means for creating favourable conditions for learning and is based on his well-known concept of the conditions for learning (e.g. Gagné, 1985). The underlying idea of this model is that teaching consists in creating the conditions necessary for activating internal learning processes in students. Gagné has divided the creation of the conditions for supporting learning into nine phases of instruction or lesson events: (1) gaining student attention; (2) informing the students of the objectives and motivating them; (3) stimulating the recall of prior learning; (4) presenting the content; (5) providing learning guidance; (6) eliciting performance (practice); (7) providing feedback; (8) assessing performance; and (9) enhancing retention and the transfer of learning (Gagné & Driscoll, 1988). The list of these events is given in the most likely order of their occurrence. The instruction of a topic or delivery of an instructional unit may take place over many conventional lessons. Although Gagné's model is one of the most elaborate ones, it does not represent organizational activities and the creation of a classroom atmosphere as necessary measures for successful teaching (Krull, Oras, & Sisask, 2007).

The lesson models introduced here cover many relevant aspects that should be taken into consideration when teaching; however, they do not embrace events that take place before and after the delivery of lessons. Therefore, a more general conceptual basis was needed to integrate the ideas reflected in lesson models into the activities of instructional planning in this study. Above all, a model was needed that would embrace the thinking and activities related to planning that teachers engage in all three phases of teaching – initial planning, delivery of planned instructional activities and reflection on planned and delivered instruction. To identify the activities in three phases of instruction, the model of the five primary tasks of instruction by Gage and Berliner (1998, p. 30) was found as the most suitable.

According to this model (see Figure 1), the specification of learning objectives (also, in terms of the content to be taught) and development of an awareness of the student characteristics dominate as teacher activities in the planning phase. The implementation phase involves (1) using the knowledge about the nature of learning and motivation and (2) selecting appropriate methods for teaching. Although these two primary tasks belong to the interactive phase, they still involve elements of planning. The assessment/ reflection phase includes teachers' evaluation of student learning and reflection on their activities that both have a certain impact on their further planning. As already pointed out, the primary tasks are seen as interconnected through the planning, implementation, and reflection/assessment phases. For example, in

the planning phase, teacher decision-making is not guided only by curricular requirements, but also by the teacher's prior experience of teaching the students in this class, and by reflecting upon this experience. Some instructional decisions are made during the instruction; therefore, it is difficult to determine where planning exactly ends, and implementation begins. After teaching, a good teacher evaluates the student achievement and also evaluates his actions to avoid any earlier or further mistakes. The presented model features planning for short and long-term instruction (i.e. for single lessons as well as for entire courses). Since assessing the achievement of the learning objectives and teacher reflection on the effectiveness of the implemented instructional activities provides input for correcting the objectives to be achieved, the teaching is seen as a cyclical process in this model (Gage & Berliner, 1998).

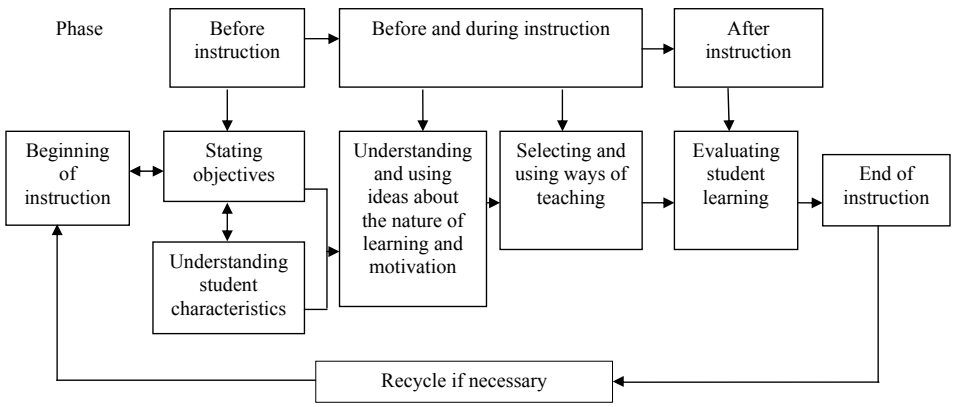

Figure 1. Primary tasks of instruction taking the lead from the model by Gage and Berliner (1998)

As the model by Gage and Berliner (1998) allows us to see instructional planning as interconnected with two other phases of instruction – the delivery of instruction and reflection on instruction – it was adopted as the main conceptual basis or framework underlying the modelling of instructional planning in this study. However, the author also relied on the ideas reflected in the models of instructional planning by John (2006) and Rusznyak and Walton (2011) as being helpful for seeing instructional planning as a non-linear activity that cannot be reduced to the mastery of certain technical skills, but calls for contextual knowledge through many layers of sophistication.

2.6. The development of a model for investigating teachers' professional thinking about instructional planning

As highlighted in Chapter 2.4., research on teacher instructional planning can be logically divided into three methodological approaches; in other words, studies that investigate teachers': (1) real planning activities; (2) thinking about planning, and (3) real planning activities with the accompanying thinking in combination. This study focuses on investigating how teachers think about potential planning activities in different respects using an inquiry into teachers as a data collection method. This methodological approach was chosen since it makes it possible to study a larger group of teachers teaching different subjects.

The results of prior research on instructional planning and related conceptual models, and the idea of conceiving teacher work as implementing primary teaching tasks (Gage & Berliner, 1998), were considered as guidelines when developing the model of the main manifestations of potential thinking among teachers about instructional planning (Table 2). The fact that the former experience of teachers impacts the decision-making in the planning process was also considered. This model conceives instructional planning as an activity preceding the delivery of instruction that is seen to be influenced by a teacher's previous experience acquired from teaching and reflecting on teaching. The author has presumed that input from previous experience and reflection might be one of the major factors causing differences in how novice and experienced teachers think about instructional planning. In particular, the author expected to see large differences in the experience of planning for long-term instruction (for teaching a series of lessons or a course) as mentioned by Woolfolk (2016), "For experienced teachers, unit planning[2] seems to be the most important level, followed by weekly and then daily planning" (p. 559). Therefore, a distinction was made between planning for a lesson (short-term) and a course (long-term).

The vertical axis of the table lists instructional tasks represented in Gage and Berliner's model, and the horizontal axis the main phases of instruction as context. Column 2 in Table 2 represents thought processes in planning the implementation of primary tasks (i.e. planning here and now) without feedback from the implementation and reflection phases. Column 3 represents the potential impact of teachers' former experience from the implementation phase of teaching or anticipating the impact of forthcoming teaching on planning for implementing primary tasks. And, correspondingly, column 4 represents the potential impact of post-teaching reflection on planning the activities. The model presented in Table 2 served as a basis for defining the questionnaire items in a way that that they embrace questions about thinking for short and long-term planning related to the five primary tasks of instruction and to the three phases of instruction.

[2] Author's note: According to Gagné (1985) instructional unit may take place over many conventional lessons (two or three weeks or even more).

Table 2. A model of manifestations of how teachers potentially think about instructional planning as defined by five primary tasks in the instructional process (column one) and their implementation in three contexts (cited from Article III)

Primary tasks of instructional process \ Context of instructional planning	Planning, i.e. planning here and now	Implementation, i.e. planning while thinking about implementation	Assessment/reflection, i.e. planning while reflecting on the implementation
Choosing objectives	X	← x	← x
Understanding student characteristics	X	← x	← x
Understanding and using ideas about the nature of learning and motivation	X	← x	← x
Selecting and using ways of teaching (methods, strategies)	X	← x	← x
Evaluating student learning	X	← x	← x

To select and formulate the questionnaire items, theoretical viewpoints explaining how teachers potentially think about planning were taken into consideration. First, the potential impact of teachers' conceptions of learning (as described in Chapter 2.3.) was taken into account in coping with the primary teaching tasks. The hypothesis was that the way teachers foresee the implementation of these tasks depends on how they conceive learning. In addition, it was presumed that how teachers reflect on past teaching experiences impacts how they see teaching in the next phases of instruction (Husu, Toom, & Patrikainen, 2008) (see Article II). More precisely, in developing the questionnaire items for revealing how teachers' experience from the implementation and assessment/reflection phases impacts implementation of the primary instructional tasks, the author of this thesis relied on Husu and his colleagues (2008) idea of hot and cold reflection. According to these researchers, there are two types of teacher reflection – firstly, the hot reflection that refers to teachers' immediate actions in the classroom teaching, and secondly, the cool reflection that involves reflecting after the emotions have cooled down. This hot-cool system is used to indicate the potential differences in the reflections of teachers depending on time and distance from the interactive phase; that is, questions focused on the impact of reflection on further planning based on the type of reflection.

Finally, the idea of teachers' practical knowledge (Meijer, 2010, 2013; Meijer, Verloop, & Beijaard, 1999) was applied to distinguish the use of knowledge and

beliefs and interactive cognitions in the phases of instruction. In the planning and evaluation phase, teachers use knowledge and beliefs that derive from theoretical and practical studies. In the implementation phase, interactive cognitions that represent ready-to-use behavioural patterns rise to the fore (for more details on teachers' practical knowledge see Article II).

In compiling the questionnaire items, hypothetical examples from potential answers are brought forth. This means, for example, that when stating objectives, teachers with a different understanding of learning may have a different comprehension about reaching the objectives. For example, a teacher with a behaviourist perspective might expect the student to master the content (in terms of learning by heart). A teacher with a cognitive perspective might be focused on how the student will integrate his or her prior knowledge with the new material, and a teacher with a social-constructivist perspective might concentrate on the social aspect. This principle was followed with the remaining primary instructional tasks.

3. RESEARCH METHODOLOGY FOR EXPLORING HOW TEACHERS THINK ABOUT INSTRUCTIONAL PLANNING

The following chapter describes the design and context of the empirical part of this study, the selection of the participants, the construction and piloting of the questionnaire, implementing the questionnaire with the teachers, and the data processing procedures used.

3.1. Context of the study

The research activities for investigating how teachers think about instructional planning include creating a model of how teachers potentially think about instructional planning based on the conclusions from the theoretical overview of the major factors (e.g. teaching experience and understanding the nature of learning and teaching) influencing teachers thoughts and earlier research on instructional planning. Based on the model, a questionnaire was developed as a data collection instrument for investigating the differences in the way teachers think in relation to instructional planning. Thereafter, the respondents were selected and contacted. Finally, the analysis of the collected data was conducted.

In Estonia, the core national curricula for basic and upper secondary education specify the subjects to be learned, the objectives, and the competencies the pupils receiving compulsory basic education or upper secondary education are expected to achieve. The national curricula (Gümnaasiumi riiklik õppekava, 2014; Põhikooli riiklik õppekava, 2014) serve as guidelines for compiling school curricula so that the requirements are adapted to suit local needs. Therefore, the context and nature of instructional planning, as with those of other instructional activities, in Estonian schools of general education are coordinated by the national curricula as well as by the local school curricula.

The other factor that shapes and influences how Estonian teachers plan instruction is the teacher education curricula, the requirements of which include graduates having to meet the professional standards (Kutsestandard…, 2013) for being licensed as teachers. Competence in planning lessons is one of the key requirements.

3.2. Selection of participants

The participants for this study were selected using a combination of criterion and convenience based sampling. First, in line with the aim of this study, criterion sampling was applied to identify possible participants. According to Miles and Huberman (1994), in the case of criterion sampling, participants that meet some stated criteria of the group are selected for the study. The

identification of teachers in two groups, as novice and experienced teachers, was based on the findings of earlier research. To identify experienced teachers for this study, criteria were applied from a review of identifying teacher expertise by Palmer et al. (2005). According to their study, teachers were considered experienced if they had had at least five years of teaching experience. Therefore, the teachers whose working experience amounted to more than five years were considered "experienced" in this study. The identification of novice teachers was based on Farrell's (2012) definition of novice teachers, according to which a teacher ceases to be novice after three years of teaching. Therefore, teachers whose working experience was zero to two years were considered "novice" teachers.

The selection of the respondents for both of these categories was based on convenience sampling (for different reasons). The data was collected from 58 experienced and 55 novice teachers from Estonian schools of general education (grades 1 to 12). The group of experienced teachers consisted of practicing school teachers, who cooperated with the University of Tartu as supervisors for the student teacher school practicum programme. The mentioned status of the experienced teachers means it is possible to speculate that in addition to their teaching experience that those teachers were also socially recognized by their school leaders as possessing expertise in teaching, and were hence qualified to guide the school practicum programme. Data collection from novice teachers took place at the end of 2014 and beginning of 2015. A full set of responses to the questionnaire were received from 55 novice teachers.

Ethical issues in this study were taken into consideration by following the British Educational Research Association's (2011) guidelines. For example, all teachers participated in the study on a voluntary basis and they were informed about the aim of the study and that all the information about their planning was only seen and analyzed by the author of the thesis.

The distribution of the experienced and novice teachers participating in the study by gender, age, and teaching experience is provided in Table 3, and the distribution by subject groups taught, in Table 4.

Table 3. Demography of the teachers sampled (N=113)

	Gender		Average age (SD)	Age		Average working experience in years (SD)	Working experience (in years)	
	Women (%)	Men (%)		Min	Max		Min	Max
Novice teachers	48 (87%)	7 (13%)	26.8 (4.3)	19	38	1.0 (0.4)	0,25	1,5
Experienced teachers	54 (93%)	4 (7%)	42.0 (8.4)	28	61	18.1 (8.4)	5	38

Note. min = minimum, max = maximum

Table 4. Distribution of participating teachers by subject groups taught

Subject	Novice teachers (%)	Experienced teachers (%)
Humanities (e.g. languages, history, literature)	42	41
Science (e.g. physics, mathematics, chemistry, biology)	20	28
Subjects of skill (e.g. art, physical education, music, handicraft)	18	11
Elementary school teachers (teaching several subjects)	14	20
Information and communications technology	2	0

3.3. Instrument

In developing the questionnaire, Wolf's (1997) guidelines were taken into account. This means that, after creating the model of how teachers potentially think about instructional planning, the identification of variables took place after the formation of questions. The previously described model (in Chapter 2.6.) was used as the main framework for the questionnaire designed for exploring how teachers think about instructional planning (for more details about the development of the questionnaire, see Articles II and III).

The questionnaire consisted of two main parts. The first part comprised the questions for collecting teachers' demographic data (e.g. gender, age, the subject being taught, teaching experience). The second part included 30 clusters of questions related to instructional planning that focused on the implementation of the five primary tasks of instruction. The questions pertained to activities in the three phases of instruction and were stated in relation to short-term (for teaching a lesson) and long-term planning (for teaching a series of lessons or a course). An overview of the questionnaire structure and the logic of constructing questionnaire items is presented in Figure 2. The definition of questionnaire items represents a path that starts with a primary task and is then specified in terms of the instructional phase, period of planning, and finally of specific items. Part two of the questionnaire included 89 single questionnaire items.

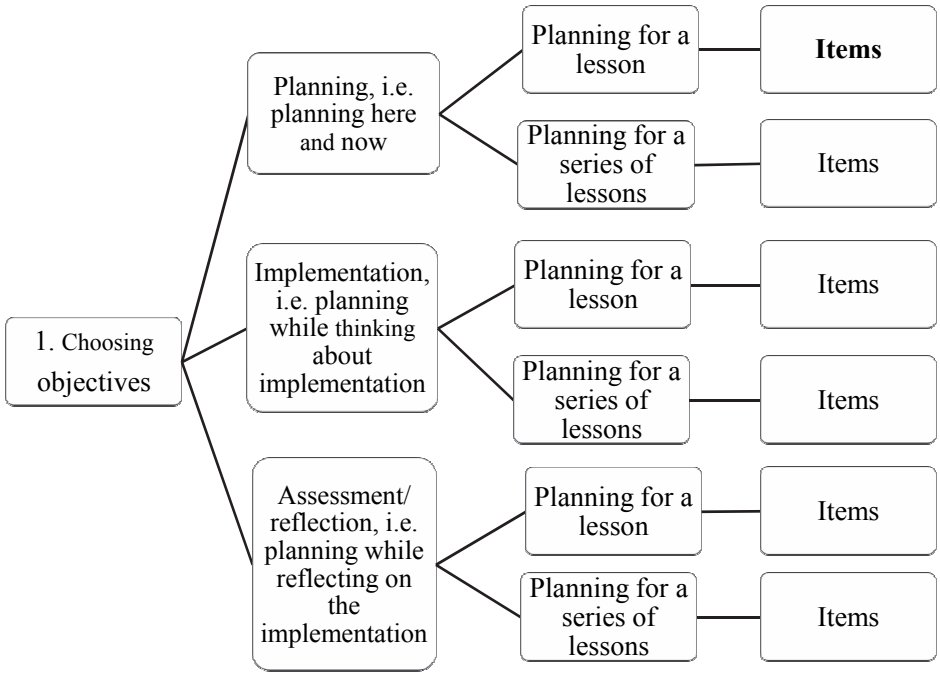

Figure 2. The logic of specifying questionnaire items for primary instructional tasks in the example of the first primary task (the remaining primary tasks follow the same logic)

An example of questionnaire items using the matrix format for choosing objectives as a primary task with space for unstructured comments is given in Table 5 (this item is marked in bold in Figure 2) (as cited in Article II).

Each questionnaire item was provided with a five-point Likert-type scale (unimportant, of little importance, moderately important, important, very important) to express the respondents' level of agreement with each item. The option "undecided" was not used following Keats' (1997) observation that the availability of this option leads to anomalous results. The author decided in favour of a Likert-type scale because it is an extensively used instrument to measure people's attitudes and preferences (Göb, McCollin, & Ramalhoto, 2007), and therefore can be considered an appropriate measure for investigating teacher thinking regarding instructional planning. In addition, each questionnaire item was provided with a space for comments where respondents could express their opinions about the raised issues.

Table 5. An example of a matrix for choosing objectives while planning a lesson (i.e. planning here and now) with space for comments if the provided explanations (in this matrix objectives of teaching as items) do not cover all possible aspects
"When planning a lesson, how important are the objectives listed?"

Items	Unimportant	Of little importance	Moderately important	Important	Very important
Delivering a lesson so that the principal will be satisfied with my work					
Teaching the curriculum material on the topic of the lesson					
Developing the students' knowledge and skills related to the topic					
Reaching the set objectives (e.g. as stated in the curriculum)					
Ensuring a positive learning environment (incl. student motivation) in the classroom					

Other: .....

After compiling the questionnaire, the questionnaire items were then checked with two student teachers, two university lecturers and three teachers, who all answered them and gave feedback about the comprehensibility of the questionnaire items. After complementing the questionnaire, the pilot stage involved testing the questionnaire (Wolf, 1997) with three practicing teachers. Three experienced teachers, whose individual working experience was more than 19 years, were invited to test the questionnaire. During testing, each teacher first answered the questionnaire items. After that, the author of this dissertation conducted interviews with them to give the teachers the opportunity to comment on those items that were confusing. The individual items and the overall design of the questionnaire were discussed; this stage also included a discussion of the five-point Likert-type scale used in the questionnaire to ensure the scale functioning, and to ascertain whether any aspects of teacher planning were missing.

Refining the questionnaire involved different measures. First of all, some of the items were adjusted to improve the clarity of the ideas. Some items were also modified for the sake of achieving harmony between the items and teachers' real-life experiences. Furthermore, some concepts were more explicitly identified in the questionnaire (e.g. long-term instructional planning, assessment) so the participants could understand them in a similar way.

The pilot group pointed out that some questionnaire items were difficult to answer as these items reflected rather ideal teaching situations, which significantly differed from the reality. For example, it was difficult for the teachers to consider the individual capability of a student as there were up to 36 students in the classroom. In addition, teachers pointed out that they would gladly analyse each taught lesson but they just did not have enough the time to do that. So, the participants admitted that they rather answered the items based on real-life experiences than presenting ideal circumstances.

After refining it, the questionnaire was implemented with the respondents of this study (a total of 113 teachers).

Therefore, the validation of the questionnaire included considering the steps necessary in the pursuit of achieving a well-organized questionnaire. The validation of the questionnaire started with the compilation of the model of how teachers potentially think about instructional planning and identifying the variables as questionnaire items (construct validity) in the light of different theoretical frameworks. This was realised by piloting the questionnaire with practicing experienced teachers and ensuring that it covers the main aspects of teacher planning (content validity).

3.4. Data collection procedure

The questionnaire was implemented with experienced teachers at the end of 2013. The average time experienced teachers spent filling in the questionnaire was 40 minutes with a maximum of 90 minutes. Two questionnaires from all those distributed were left unanswered.

Data collection from novice teachers took place via an electronic questionnaire. Due to the small percentage of novice teachers in schools, finding a sufficient number of respondents meant several schools had to be visited, and so the author decided to create an electronic version of the printed questionnaire for economic reasons. The electronic version of the questionnaire was sent to a couple of hundred headmasters in different schools, who were asked to forward the electronic questionnaire to potential novice teachers in their school. The questionnaire was forwarded to 128 novice teachers. The respondents returned 55 fully filled in questionnaire forms. Many questionnaire forms were partly filled in and these data were not used in the data analysis. The low number of correctly filled in questionnaire forms from the novice teachers may be attributed to using an electronic version, as it weakens the contact between the researcher and the respondents, and therefore diminishes the enthusiasm for participating. However, as Cohen, Manion, and Morrison (2007) have pointed out, a 50% return rate can be considered quite satisfactory. More details about the procedure can be found in Article III.

3.5. Data analysis

Taking into consideration the nature of the data and the aim of the study, descriptive statistics, and factor analyses were used to analyse the data. All statistical procedures were performed using SPSS (Statistical Package for Social Sciences) version 20 for Windows. To conduct the data analysis, responses given on 5-point Likert-type scales were converted into numerical values of –2, –1, 0, 1, 2.

To identify the factor structures for describing the differences in how novice and experienced teachers think about instructional planning, an exploratory factor analysis based on the principal components method was carried out using orthogonal Varimax rotation. The decision in favour of the exploratory factor analysis was made based on the fact that the model of how teachers potentially think about planning developed here is hypothetical and not previously validated, and in this case, to explore previously unknown groupings of variables, an exploratory factor analysis (principal components analysis in particular) is recommended (Cohen, Manion, & Morrison, 2007). To determine the number of factors, different procedures were applied – observing the eigenvalue >1 rule, variables with communalities less than 0.4 or multiple loadings were removed from the factor structures (see Article III).

In addition, the reliability of the items pertaining to primary tasks was checked using Cronbach's alpha. These indices corresponded to the primary tasks of teaching as 0.84, 0.91, 0.74, 0.74, and 0.70.

Some novice teachers used the opportunity to add comments to their answers to the questionnaire items. However, since the comments were rather infrequent and occasional, a deeper analysis of these comments was not found to be useful from the point of view achieving the aim of this study.

4. FINDINGS

This chapter provides an overview of the main findings of this study.

4.1. Differences between the mean scores in the replies from novice and experienced teachers

The comparison of mean scores revealed statistically significant differences ($p<0.05$) in answers to 16 questionnaire items given by novice and experienced teachers. These differences are presented by clusters of primary teaching tasks in Table 6. It is noteworthy that three out of four differences, representing experienced teachers attributing greater importance to issues related to primary tasks, belong to the first primary task of teaching – choosing objectives. These three issues are all related to factors that might interfere with the achievement of the objectives planned for long-term instruction.

Table 6. Comparison of the mean scores given by novice and experienced teachers found to be statistically different (t-test, $p<0.05$)

Primary task	Items	Mean (SD)		p
		N	E	
1. Choosing objectives	*While planning a lesson, how important is it to* **(V12)** reach the set objectives (e.g. as stated in the curriculum)?	0.44 (0.83)	0.09 (0.98)	0.04
	When planning a long-term instruction (e.g. a course over a quarter of the academic year), how important is it to **(V14)** deliver a lesson so that the principal is satisfied with your work?	0.27 (1.03)	–0.79 (0.99)	0.01
	(V15) teach the lesson material?	1.56 (0.57)	1.24 (0.68)	0.01
	(V16) develop the students' knowledge and skills related to the topic?	1.93 (0.26)	1.66 (0.48)	0.00
	(V17) reach the set objectives (e.g. of the curriculum)?	0.93 (0.74)	0.55 (0.82)	0.01
	How much do you think the following circumstances interfere with achieving the learning objectives planned for long-term instruction (e.g. a course over a quarter of the academic year)? **(V35)** unexpected events in lessons/on days;	**–0.49** (0.94)	**–0.02** (0.92)	0.01

Primary task	Items	Mean (SD)		p
		N	E	
	(V37) unforeseen communication between students (unexpected student behaviour);	**–0.40** (0.94)	**0.05** (0.92)	0.01
	(V38) inappropriate methods (for yourself and/or students) chosen for teaching;	**0.24** (0.95)	**0.72** (0.86)	0.01
3.–4. Learning and motivation	*How does reflecting upon learning and motivation affect your planning* **(V62)** for a lesson;	0.91 (0.92)	0.59 (0.66)	0.04
	How important are the following factors for choosing methods for teaching new material? **(V67)** the nature of the material taught;	1.36 (0.65)	0.96 (0.70)	0.00
	(V70) the principle that students are as active as possible while acquiring new knowledge;	1.07 (0.77)	0.61 (0.92)	0.01
5. Evaluating student learning	*How important is planning for the formative and summative assessments when planning for instruction at the school stage you are teaching?* **(V75)** for the formative assessment when planning a lesson;	1.15 (0.80)	0.68 (0.92)	0.01
	(V78) for the summative assessment when planning a long-term (e.g. an entire course or over a quarter of academic year) instruction;	**0.73** (0.83)	**1.20** (0.80)	0.00
	How important are the following aspects when you assess (in general) your students? **(V82)** topic mastered;	1.27 (0.65)	1.00 (0.61)	0.03
	(V83) student ability to learn the subject;	1.13 (0.61)	0.73 (0.68)	0.00
	(V86) *How much does the systematic (after every lesson) analysis and reflection of what happened in the classroom help you plan your next lesson(s)?*	0.73 (0.93)	0.31 (0.86)	0.02

Note. V12–V86 are codes of variables; N = novice teachers; E = experienced teachers, SD = standard deviation, p = confidence level

There were only four cases where the experienced teachers' ratings attributed greater importance to the stated activities related to planning than those of the novice teachers. Three of these four answers indicated greater concerns for the impact of factors that might interfere in the achievement of the objectives planned for long-term instruction (How much do you think the following circumstances interfere with achieving the learning objectives planned for long-term instruction (e.g. a course over a quarter of the academic year?) like (V35)

unexpected events in lessons or on days, (37) unforeseen communication between students or unexpected student behaviour, and (38) unsuitable methods chosen for teaching. The fourth item related to long-term instructional planning for summative assessment, and experienced teachers assigned to it more importance than novice teachers (V78 – How important is planning for formative and summative assessments in instructional planning for the school stage you instruct?).

Novice teachers gave greater importance to the 12 remaining items. For example, they gave greater importance to meeting many formal aspects related to planning instruction like achieving the objectives stated in curricula (V12 and V17), satisfying the principal (V14), teaching the planned material (V15), and developing students' knowledge and skills related to the topic (V16). Instead, giving greater importance as reflected in the answers to the items under primary tasks "3–4. Understanding the nature of learning and motivation, and selecting ways of teaching", that reflecting upon learning and motivation affecting planning (V62) or the nature of the material taught affecting the selection of methods (V67) and keeping students active while acquiring new knowledge (V70), rather exposes knowledge learned from courses in pedagogy. The same applies to answers given to items related to evaluating student learning, as novice teachers give greater importance than experienced teachers to the planning of formative assessment (V75), the importance of specifics in assessing (V82 and V83), and to the relevance of post-lesson reflection (V86).

4.2. Comparison of the means of factor variables

A factor analysis was carried out to identify clusters of correlating variables and to compare the means of the created factor variables. The factor analysis was carried out separately for variables related to questionnaire items belonging to specific primary tasks. Conducting a factor analysis separately for primary instructional tasks was imposed by the need to observe the "rule of thumb" of the ratio between the numbers of variables and cases in the factor analysis – according to Cohen, Manion and Morrison (2007), there should be at least 5 cases per variable. The analysis revealed a three-factor structure for the set of answers to questions on the first primary task (choosing objectives), a two-factor structure for the answers to items belonging to the second primary task (understanding student characteristics), a single factor structure for the answers to items belonging to the third/fourth combined primary tasks (understanding the nature of learning and motivation; selecting teaching methods), and a three-factor structure in the set of answers to questions on the last primary task (evaluating student learning) (see Appendix). The comparison of the means of factor variables for novice and experienced teacher groups revealed that there were statistically significant differences ($p<0.05$) in the case of two factors (F1.3 and F5.3) and a less reliable difference ($p<0.1$) in the case of one factor

(F1.1) out of a total of nine (Table 7). The full list of the factors revealed with the variables belonging to them are presented in the Appendix.

Table 7. Factor variables representing statistically significant differences between answers by novice and experienced teachers

Primary task	Factors	Novice teachers		Experienced teachers			
		M	SD	M	SD	t	p
1. Choosing objectives	F1.1. The influence of unforeseen events in the classroom upon instructional planning (V31–32, V35–38); α=0.82; %=19.71	–0.17	0.95	0.17	1.03	–1.82	0.07
	F1.3. Inclination towards formalism during instructional planning (V10, V12, V15, V17); α=0,76; %=15.81	0.28	0.84	–0.27	1.07	3.02	0.00
5. Evaluating student learning	F5.3. Considering students' abilities when choosing assessment procedures during instructional planning (V79, V83); α=0.53; %=19.31	0.22	0.93	–0.22	1.02	2.40	0.02

Note. V10-V83 variables; F = factor and its numerical order in the primary task cluster; α = Cronbach alpha; % = variance explained by a factor; M = standardized mean; SD = standard deviation

As can be seen from the Table 7, when choosing objectives, novice teachers considered teaching the given material and reaching the set objectives (e.g. in the curriculum) more important when planning a short and long-term instruction than experienced teachers (F1.3. Inclination towards formalism during instructional planning) (factors and questionnaire items as variables belonging to them are presented in the Appendix). They also considered individual student abilities and their potential for learning the subject more important than experienced teachers when planning student assessment (F5.3. Considering students' abilities when choosing assessment procedures during instructional planning). Instead, the experienced teachers perceived the influence of unforeseen events when thinking about instructional planning more harmful than novice teachers did (F1.1. The influence of unforeseen events in the classroom upon instructional planning), as could already be noticed from the comparison of means.

As can be seen from the analysis of the data, the results of the factor analysis corroborated findings already revealed through the comparison of means from answers to questionnaire items. Again, experienced teachers were more concerned about different, unexpected events interfering with the planned teaching, such as disruptive behaviour and communication among the students, unexpected other lesson events, and inappropriate teaching methods. Instead, the novice teachers gave greater importance to considering student capabilities but also covering the content and reaching the prescribed objectives in short and long-term planning.

5. DISCUSSION

The aim of this study is to identify the main variables characterizing how teachers think about instructional planning, and to discover differences in the way novice and experienced teachers think in relation to instructional planning. Based on these findings, it is possible to make recommendations on how to improve teacher education programmes to improve how novice teachers think about instructional planning. In the following two sub-chapters, the findings of the study are discussed and recommendations made for developing instructional planning skills in teacher education. The third sub-chapter describes the contribution this study has made to the field, and the fourth, the limitations of the study and suggestions for further research.

5.1. Discussion of the findings

This study provided answers to all of the stated research questions. Research question 1 (*What are the main variables characterizing how teachers think about instructional planning?*) was answered by developing a model for investigating how teachers think about instructional planning (for more details see Articles II and III). This model relies on former research on instructional planning among teachers, their understanding of the nature of learning and teaching, and conceptual models of instruction. To summarise these findings, Gage and Berliner's (1998) model of primary tasks of instruction was used to describe thinking about planning from the perspective of immediate planning before instruction, seen as influenced by delivery, and planning seen as influenced by reflection. The created model conceives the work of a teacher as implementing five primary teaching tasks (choosing objectives, understanding student characteristics, understanding and using ideas about the nature of learning and motivation, selecting and using ways of teaching, and evaluating student learning) in three phases of instruction, and it allows seeing decision-making by teachers in the planning process as impacted by their former experience. This theoretical framework was taken as a basis for identifying variables characterizing how teachers think in planning, and was used to compile the questionnaire items for the survey of novice and experienced teachers.

The first part of research question 2 (*What are the differences in how novice and experienced teachers think about instructional planning and what conclusions for promoting instructional planning skills among teachers can be made on the basis of the research findings?)* was answered by comparing the mean scores of the teachers' replies to questionnaire items and the means of the factor scores, revealing that there are significant differences in how novice and experienced teachers perceive issues related to instructional planning (see Article III). Experienced teachers considered some issues related to planning

more important than novice teachers, and vice versa. Yet, novice teachers were inclined to give greater importance to a larger number of issues related to the instructional planning than experienced teachers. This may have been due to novice teachers having higher expectations about their effect on student learning. Instead, experienced teachers were less concerned, and therefore they attributed less importance to issues that they felt they were able to solve using routines.

Three of the four cases where experienced teachers attributed greater negative impact to factors interfering with teaching belonged to the primary task of choosing objectives. In particular, they brought forth more events that may interfere with reaching the long-term objectives of instruction than novice teachers, who probably did not foresee the harmful impact of these events on teaching. This finding is in accordance with John's (2006) review of how student teachers think about lesson planning, suggesting that while experienced teachers focus on long-term planning, novices are rather short-term-oriented. The reason for this difference is that the thinking of novice teachers is overwhelmed with concerns about the content to be taught, class management, timing, and providing resources.

One of the differences between the teachers investigated here concerned reflecting on learning and motivation. More precisely, novice teachers think more than experienced teachers that reflecting on learning and motivation affects their further lesson planning. When choosing teaching methods in planning instruction, novice teachers also emphasized the relevance of the specifics of the topic to be taught and activating students as much as possible when teaching. According to earlier studies (e.g. Berliner, 1994; Yildrim, 2003), this kind of thinking seems to be more characteristic of experienced teachers than novice teachers. For example, according to Berliner's (1994) model of teacher professional development, making conscious choices regarding teaching (e.g. setting rational goals, choosing sensible means for reaching the ends, determining what is and what is not important) characterizes more competent teachers than novices. On the other hand, it cannot be excluded that, in this study, novice teachers pointed out what they have learned during their teacher education courses. For example, Uhrmacher, Conrad and Moroye (2013) point to a similar influence of preservice teacher education on how novice teachers think.

As emerged from the results of this study, novice teachers gave greater importance to teaching the set material of the lesson and reaching the set objectives in both short and long-term planning than experienced teachers. This finding is in accordance with previous research. For example, the findings of Mutton et al. (2011) indicate that student teachers are concerned with how to cover certain amounts of curriculum content within the limited time frame, and Lai and Lam's (2011) study revealed that student teachers see the content in the curriculum framework crucial for teaching the subject, due to their limited experience of teaching.

The concern among novice teachers about reaching the set objectives in the curriculum is similar to the findings in Panasuk and Todd's (2005) study,

revealing that the objectives stated in the curriculum serve novices as a leading framework. This means that the objectives stated in the compulsory curricula help them to design their instructional and assessment strategies when planning instruction. Moreover, as found in John's (2006) study, novice teachers tend to exploit the objectives as stated in curricular guidelines more than experienced teachers due to the difficulties they have experienced in specifying and stating the objectives themselves (see e.g. Okigbo & Okeke, 2011). A similar finding from the US has been presented by Westerman (1991), whose study indicated that when planning lessons, novices relied on curriculum objectives rather than using the curriculum as a guideline for making their own unique lessons in accordance with student needs and their own goals as was intrinsic to the expert teachers in that study. Therefore, when considering only curriculum objectives, novice teachers have a narrower view of classroom teaching than experts, who adjust those prescribed objectives according to their own needs and those of their students. The fact that novices cling to the prescribed objectives might consequently lead to situations where they experience difficulty answering the students' sudden cues and questions (i.e. respond to the contingencies of teaching) due to their drive to accomplish the stated objectives.

Therefore, the results of this study indicate that experienced teachers see more harmful events that might interfere with achieving the long-term objectives of the planned instruction than novice teachers. The latter instead perceive reflecting on learning and motivation as affecting their planning more. Novice teachers also attributed more importance to teaching the set material and reaching the set goals, and to considering student abilities when planning assessment strategies.

5.2. Recommendations for developing instructional planning skills in teacher education based on the study results

The differences in how experienced and novice teachers think about issues related to instructional planning in this study make it possible to draw conclusions and present recommendations for increasing the effectiveness of teacher education studies as part of the answer to the second part of research question 2 (*What are the differences in how novice and experienced teachers think about instructional planning and what conclusions for promoting instructional planning skills among teachers can be made on the basis of the research findings?*) (see Article III).

Earlier research on the instructional planning skills of teachers indicates that their instructional planning expertise increases gradually (John, 2006; Rusznyak & Walton, 2011). The results of this study revealed that novice teachers were also less concerned about issues that might interfere with long-term instructional planning than experienced teachers. This means that novice teachers are less

sensitive in regard to the broader context of instruction. Furthermore, this study revealed that novice teachers were more concerned about the formal requirements such as teaching the set material and reaching the set goals than experienced teachers. Based on these findings it may be concluded that the understanding of instructional planning among novice teachers is not yet fully developed, tends to be formal and might be based more on the knowledge learned in teacher education studies rather than their own thinking. In reality, the main difference between these two groups of teachers can be seen in terms of the flexibility and contextual sensitivity of their professional thinking.

Therefore, what prospective teachers need is knowledge and skills that go beyond the basic level of planning in terms of the model by John (2006) and the lesson planning guide by Rusznyak and Walton (2011). Since novice teachers saw formal requirements as more important, they should be taught to plan lessons in broader terms following the general curricular ideology rather than being led by the specific objectives stated in the relevant curriculum (Westerman, 1991).

To broaden the knowledge of student teachers about different factors that may interfere with the achievement of the long-term objectives of instruction (i.e. to see what events interfere with the teaching), student teachers should have the opportunity to think ahead about the kinds of problems that may occur in the implementation phase of teaching, and plan alternative actions to overcome these issues when planning the instruction. These real-life problems, for example, can be put into practice in teacher education studies and also during the school practicum, when student teachers are required to plan and deliver lessons. In addition, students could be given several roles in peer teaching activities (e.g. a disrupting student, unmotivated student), in order to provide different learning experiences for students in the teacher role. In this way, the contingencies inherent in teaching are better highlighted for prospective teachers so they can take them into account. Furthermore, student teachers should acquainted with the modelling of the planning process and classroom activities of mentor teachers or teacher educators to learn more about planning and delivering instruction.

Therefore, the development and promoting of instructional planning skills at an advanced level should be practice-based and involve the planning of lessons (and series of lessons to observe the learning process over time), classroom observations as well as post-lesson reflections on planning and teaching activities. In academic teacher education and school practice, the development of instructional planning skills in student teachers might be supported by practicing joint planning activities with mentors. Joint planning or joint activities allows the hidden knowledge of experienced teachers about planning to become more explicit to the student teachers. For example, Meijer (2013) has suggested team-teaching as a way to incorporate a teacher's practical knowledge in teacher education. Or as Woolfolk (2016, p. 559) has highlighted – "Working with other teachers and sharing ideas is one of the best experiences in teaching". For that reason, a collaborative approach to planning, as used in Japan (*kenshu)*

and the US (*lesson study*), has become popular among researchers. Perhaps it would be wise to have more insight into the option of integrating the lesson study approach into Estonian teacher education programmes or into schools as a support system for subject teachers to develop instructional planning skills. The value of interaction with peer student teachers or with more experienced colleagues has been highlighted, for example, by Lai and Lam (2011) where student teachers in their study interacted with more experienced partners in practice situations and learned more about the students and the school as an environment, clarified their understanding of the curriculum, obtained ideas about the topics to be taught, and learned how to plan lessons together.

For teacher education courses, the differences between the two groups of teachers revealed in this study can potentially be seen in terms of the missing experience and practical knowledge of novice teachers. However, these competencies can be promoted via reflective activities and instructional planning tasks that are integrated into courses and the school practicum to make teacher education more effective.

5.3. Value of the study

In the framework of this study, a new theoretical model of how teachers think about instructional planning was developed.

The model of instructional planning introduced here presents many aspects of planning activities that have been identified in earlier research (e.g. selecting content and pedagogical strategies, following curriculum requirements and materials, and taking into account student characteristics) but the author has also paid attention to the aspect of social interaction that, according to Lai and Lam (2011), has not generally been accentuated in the earlier research on instructional planning. In the process of developing the questionnaire items, the perspective of social-constructivism was applied as one of the learning theories explaining teacher thinking about instructional planning (e.g. ensuring a positive learning environment (incl. student motivation) in the classroom, social interaction between students).

From the methodological perspective, an original questionnaire for investigating how teachers think about instructional planning activities was created and used in this study to investigate differences between how novice and experienced teachers think about instructional planning. The questionnaire items are defined in a comprehensive manner, and not limited to a specific school subject, which makes it possible to use this questionnaire to investigate how teachers think about planning for teaching any school subject. In this sense, this study is original and, in contrast to the majority of former studies on teachers' instructional planning skills, it focuses on the manifestations of thinking about planning that are common to teachers of different subjects.

5.4. Limitations of the study and suggestions for future research

The research methodology used in this study has some limitations. One of them is caused by the rather small sample of respondents. Therefore, the results of this study are not generalisable to all novice and experienced teachers nationally. The other limitation comes from the failure to use a common data collection format (using hard copies of the questionnaire with experienced teachers and an online form with novice teachers), which might complicate the comparison of answers given to some questionnaire items.

The questionnaire itself, as an effective tool for investigating differences in how novice and experienced teachers think about instructional planning, needs further development. In our study only 16 items from 89 revealed differences in the teachers' thinking. Further, a new survey should be carried out with a larger and more representative sample of teachers, and the questionnaire items that did not differentiate effectively enough between novice and experienced teachers should be revised or removed. Finally, more attention should be paid to contrasting how experienced and novice teachers think about instructional planning by using representative samples of expert and student teachers.

The questionnaire as a data collection instrument is a convenient way of studying the hypothetical thinking (opinions and perceptions) of the respondents in regard to solving instructional planning issues. On the other hand, it always leaves some doubt about how honestly and rigorously the respondents answered the questions, how well did they understand the information given or whether they had enough knowledge to answer the questions (Wolf, 1997). To increase the validity and reliability of uncovering how teachers think about instructional planning, using multiple data sources, perhaps by complementing the written inquiry with in-depth interviews, is needed to gain more insight into the differences between novice and experienced teachers' thinking. It is also possible to ask teachers to comment on their written lesson plans or analyse a taught lesson by referring to the lesson plan underlying this lesson. These additional measures would help uncover thinking about instructional planning more profoundly, and also uncover hidden knowledge in this activity, than would be possible when relying only on answers to the questionnaire.

Finally, the model introduced here of how teachers potentially think about instructional planning that forms the foundation for the final questionnaire, as with any model, is a hypothetical construction that, on the one hand, helps us see instructional planning in its entirety but, on the other hand, calls for further validation through empirical studies.

To conclude, a novel model of how teachers potentially think about instructional planning was created followed by a questionnaire as a data collection instrument for investigating differences in how novice and experienced teachers think about instructional planning in the framework of this study. The research methodology appeared suitable for investigating differences in how novice and

experienced teachers think about issues in instructional planning. These initial study results can be seen as preparation for further studies to obtain a more in-depth comprehension about differences between novice and experienced teachers, and incorporate a more thorough analysis of authentic planning activities.

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APPENDIX

Results of the factor analysis of novice and experienced teachers' answers to questionnaire items pertaining to primary tasks

Primary task	Factors and questionnaire items belonging to them
1. Choosing objectives	**Factor 1.1. The influence of unforeseen events in the classroom upon instructional planning** Cronbach α=0.82; variance explained by a factor (%)=19.71 *How much do you think the following circumstances interfere in achieving the learning objectives planned for a lesson?* (V31) students' continuous disruptive behaviour; (V32) unforeseen communication between students (unexpected student behaviour); *How much do you think the following circumstances interfere in achieving the learning objectives planned for in long-term instruction (e.g. a course over a quarter of the academic year)?* (V35) unexpected events in lessons/on days; (V36) students' continuous disruptive behaviour; (V37) unforeseen communication between students (unexpected student behaviour); (V38) inappropriate methods (for yourself and/or the students) chosen for teaching;
	Factor 1.2. Considering the students' abilities during instructional planning Cronbach α=0.81; variance explained by a factor (%) =19.71 *While setting objectives for a lesson, how important is it to take into consideration the following factors?* (V19) each student's individual capability; (V20) students' general capability (including interests, motivation) and the level of social development in the class; (V21) general student ability to learn the subject; *While setting objectives for long-term instruction, how important is it to take into consideration the following factors?* (V24) each student's individual capability; (V25) students' general capability (including interests, motivation) and the level of social development in the class; (V26) the nature of the material taught;

Primary task	Factors and questionnaire items belonging to them
	Factor 1.3. Inclination towards formalism during instructional planning Cronbach α=0,76; variance explained by a factor (%) =15.81 *While planning a lesson, how important is it to* (V10) cover the content planned for the lesson; (V12) reach the set objectives (e.g. as stated in the curriculum); *When planning for long-term instruction (e.g. a course over a quarter of the academic year), how important is it to* (V15) teach the lesson material? (V17) reach the set objectives (e.g. of the curriculum)?
2. Under-standing student characteristics	**Factor 2.1. Influence of emotions raised by relationships between students on instructional planning** Cronbach α=0.91; variance explained by a factor (%)=41.15 *How much do you think the following student characteristics influence planning for a lesson?* (V47) student learning habits; (V48) student relationships (including their unpredictable behaviour in a lesson); *How much do you think the following student characteristics influence planning for a long-term instruction (e.g. a course over a quarter of the academic year)?* (V50) student behavioural habits; (V51) student motivation for learning; (V52) student learning habits; (V53) student relationships (including their unpredictable behaviour in a lesson); (V55) In your opinion, to what extent are you influenced by former emotions and critical experiences related to the specificities of students when planning for a long-term instruction for the same students?
	Factor 2.2. Influence of student characteristics on instructional planning Cronbach α=0.84; variance explained by a factor (%)=27.13 *How much do you think the following student characteristics influence lesson planning?* (V44) student capability/developmental level; *How much do you think the following student characteristics influence planning for a long-term instruction?* (V49) student capability/developmental level;

Primary task	Factors and questionnaire items belonging to them
3.–4. Understanding the nature of learning and motivation, selecting teaching methods	**Factor 3.1. Creating a favourable learning environment during instructional planning** Cronbach α=0.84; variance explained by a factor (%)=56.38 *How important is planning to develop the students' learning motivation* (V59) in planning a lesson; (V60) in planning a course (for long-term instruction); (V61) How much do the emotions from a previous long-term teaching experience influence your planning to develop motivation for the next long-term instruction for the same students? *How does reflecting upon learning and motivation affect your planning* (V62) for a lesson; (V63) for a long-term instruction; *How important are the following factors for choosing methods for teaching new content?* (V66) the congruity/match between teaching method and student readiness to learn (including their capability, interests, discipline, motivation);
5. Evaluating student learning	**Factor 5.1. Influence of teachers' emotions on assessment choices during instructional planning** Cronbach α=0.72; variance explained by a factor (%)=24.55 *How important is planning for formative and summative assessments in instructional planning for the school stage you instruct?* (V76) for summative assessment when planning a lesson. *How much do the emotions from a previous lesson influence your assessment policy in planning instruction?* (V84) when planning for the next lesson; (V85) when planning for long-term instruction;
	Factor 5.2. Planning formative assessment during instructional planning Cronbach α= 0.69; variance explained by a factor (%)=21.10 (V74) Considering the characteristics of the students to be taught, how important is it to foresee the assessment procedures when planning for a long-term instruction? *How important is planning for the formative and summative assessments when planning for instruction at the school stage you are teaching?* (V75) for formative assessment when planning a lesson; (V77) for formative assessment when planning for a long-term instruction;

Primary task	Factors and questionnaire items belonging to them
	Factor 5.3. Considering student abilities when choosing assessment procedures during instructional planning Cronbach α=0.53; variance explained by a factor (%)=19.31 *How important are the following aspects when you assess (in general) your students?* (V79) each student's capability; (V83) student ability for learning the subject;

SUMMARY IN ESTONIAN

Algajate ja kogenud õpetajate arusaamad õppetöö planeerimisest

Õppetöö planeerimine on õpetajatöö keskne osa (Ball, Knobloch, & Hoop, 2007). Uurimused kinnitavad, et õpetamise tõhusus ja kvaliteet olenevad suurel määral õppetöö planeerimise oskusest (Meyen & Greer, 2009; Ruys, Van Keer, & Aelterman, 2012).

Valdavalt on seniste õppetöö planeerimisalaste uurimuste (nt Berliner, 1994; Leavy & Hourigan, 2016; Liyanage & Bartlett, 2010; Westerman, 1991) eesmärgiks olnud selgitada välja, milles avaldub õpetaja professionaalsus õppetöö planeerimisel ja kuidas rakendada väljaselgitatut algajate õpetajate paneerimisoskuse arendamiseks. Need uuringud on näidanud, et õppetöö planeerimisoskuse kirjeldamine mudelitena on osutunud teadlastele üsna keeruliseks ülesandeks. Üheks põhjuseks on planeerimise kui professionaalse tegevuse enda keerukus – see on mitmetahuline ja kontekstist sõltuv. Lisaks raskendab planeerimise uurimist ka asjaolu, et eelnevalt planeeritu pole sageli klassis üksüheselt rakendatav, sest klassis toimuv on sageli etteaimamatu ning polegi täies mahus ette planeeritav (Clark & Yinger, 1980; Yinger & Hendricks-Lee, 1998). Kuivõrd tunnis toimuv pole detailides ette planeeritav, siis kogenud õpetajad sageli ei koostagi kirjalikke tunnikonspekte (Kansanen, 1981) või kui koostavadki, siis vaid põhijoontes ja langetavad detailsed otsused õppetöö käigus (Clark & Yinger, 1980). Seetõttu ei kajasta kogenud õpetajate tunnikonspektid (kavandid) sageli tunnis reaalselt toimuvat (vt Panasuk & Todd, 2005), ega ole allikmaterjalidena piisavalt informatiivsed selgitamaks välja, kuidas ja millest lähtuvalt õpetajad planeerivad õppetegevusi, mis reaalselt leiavad aset tundides. Sellel asjaolul on õpetajate planeerimisoskuse uurimisel üha enam hakatud pöörama tähelepanu sellele, kuidas õpetajad mõtlevad ja langetavad otsuseid õppetöö planeerimisel.

Vaatamata senistele õppetöö planeerimise alastele uurimustele, keskenduvad need peamiselt konkreetse õppeaine planeerimisele või konkreetse õppemeetodi kasutamisele. Paraku need tulemused ei anna täielikku ülevaadet oskustest, mis on ühised planeerimistegevuses erinevate ainete õpetamiseks. Käesolev doktoritöö püüab seda varasemate uurimuste lünka täita, üritades välja selgitada need planeerimisoskused, mis on ainete ülesed.

Käesoleva väitekirja eesmärk on selgitada välja õpetajate planeerimisalast mõtlemist iseloomustavad põhijooned ja algajate ja kogenud õpetajate mõtlemise erinevused õppetöö planeerimisel. Õpetajate mõtlemist ja seega ka tunniks ettevalmistamist mõjutavad otseselt nende arusaamad õppimisest ja õpetamisest, seega püstitati käesolevas doktoritöös alaülesanne: selgitada välja, millised võivad olla algajatel ja kogenud õpetajatel arusaamad õppimisest ja õpetamisest, kuivõrd erinevused nendes võivad oluliselt mõjutada õppetöö planeerimist. Selle alaülesande täitmine andis sisendi doktoritöö teoreetilise osa valmimisse ning mängis olulist rolli õpetajate planeerimisalast mõtlemist kajastava mudeli loomisel. Loodud mudel oli omakorda aluseks uurimisinstrumendi

loomisel, et selgitada välja erinevused algajate ja kogenud õpetajate mõtlemises õppetöö planeerimisest.

Tulenevalt seatud eesmärgist ja alaülesandest püstitati järgmised uurimisküsimused:

1. Millised põhimuutujad iseloomustavad õpetajate mõtlemist õppetöö planeerimisest?
2. Millised on erinevused algajate ja kogenud õpetajate mõtlemises õppetöö planeerimisest ja milliseid järeldusi saab uurimuse tulemuste põhjal teha algajate õpetajate õppetöö planeerimisalaste oskuste edendamiseks?

Vastused uurimisküsimistele leiti doktoritöös järgmiste põhitegevusena. Esiteks selgitati välja, millised on õpetajate arusaamad õppimisest ja õpetamisest ning kuidas need arusaamad nihkuvad pedagoogilise psühholoogia õpingute tulemusena. Kuivõrd õppetöö planeerimise lõpptaotluseks on kutsuda esile õpilaste õppimine, siis loomulikult mõjutab see, kuidas õpetaja saab aru õppimisest, suurel määral tema mõtlemist ja otsustamist õppetöö planeerimisel. Uuringust selgus, et õpetajakoolituse üliõpilaste algselt biheivioristlikud arusaamad õppimisest ja õpetamisest õpingute tulemusena asendusid kognitiiv-konstruktivistlike arusaamadega (vt artikkel I). Kuid nagu näitavad uuringud teistes riikides, taanduvad õpetamiskogemuse laienemisega taas biheivioristlikumateks (Martínez, Sauleda & Huber, 2001). Uurimistöö järgmine ja samas kõige ulatuslikum tegevus hõlmas teoreetilise tööna varasemate õppetöö planeerimisoskuste uurimuste ja kontseptuaalsete mudelitega tutvumist, teoreetilise mudeli loomist õpetajate potentsiaalsest mõtlemisest (õppetöö planeerimisest enne õppetööd, õppetöö käigus ja pärast õppetööd) ning õpetajate küsimustiku koostamist (II ja III artikkel).

Mudeli loomisel tugines autor varasematele uurimustele õppetöö planeerimisest, Gage ja Berlineri (1998) mudelile õpetamise põhiülesannetest ning õpetaja praktilise teadmise kontseptsioonile. Mudeli põhjal fikseeriti õppetöö planeerimisega kaasnevat mõtlemist iseloomustavad muutujad. Fikseeritud muutujatest lähtuvalt formuleeriti küsimustiku küsimused väidetena. Viimaste formuleerimisel püüti ette näha, kuidas õpetajate erinevad arusaamad õppimisest ja õpetamisest võiksid mõjutada omakorda arusaamu planeerimisest.

Töö tulemusena valmis küsimustik, mis hõlmas 89 väidet õppetöö planeerimisest, mis jaotusid viide rubriiki: õppe-eesmärkide väljavalimine, õpilaste eripäraga arvestamine, õppimise ja motivatsiooni olemuse mõistmine, õppemeetodite väljavalimine ja õpilaste õppimise hindamine/reflekteerimine. Väidetena esitatud küsimused olid esitatud Likert-tüüpi viiepalliliste skaaladena, kus uuritaval tuli teha märge lahtrisse, mis ühildus kõige enam tema arvamusega.

Praktilise tööna viidi läbi küsitlus 58 kogenud ja 55 algaja üldhariduskooli õpetajaga. Kogenud õpetajad olid vähemalt 5-aastase tööstaažiga õpetajad, kes osalesid pedagoogilise praktika juhendamisel Tartu Ülikoolis. Algajad õpetajad olid kuni kaheaastase tööstaažiga õpetajad. Kogenud õpetajate küsitlus viidi läbi 2013. aasta lõpus, algajate õpetajate küsitlus 2014/2015 aastal.

Algajate ja kogenud õpetajate vastuste keskmiste võrdlusest ilmnes, et küsimustiku 16 väite puhul (89-st) esines statistiliselt oluline erinevus, millest nelja väidet hindasid kogenud õpetajad kõrgemalt kui algajad õpetajad. Nii näiteks hindasid kogenud õpetajad häirivamaks asjaolusid (nt ootamatud sündmused tunnis/päevas, õpilaste omavaheline suhtlemine, ebasobilikud meetodid õpetamisel), mis võivad segada pikaajaliseks õppetööks püstitatud eesmärkide saavutamist. Ka ilmnes, et kogenud õpetajad hindasid pikaajalisel planeerimisel kokkuvõtva hindamisega arvestamist olulisemaks kui algajad õpetajad.

Eesmärkide püstitamist käsitlevas rubriigis hindasid algajad õpetajad aga olulisemaks erinevaid formaalseid aspekte nagu õppekavas olevate eesmärkide saavutamine, direktori rahulolu kindlustamine, tunniga seostuva materjali selgeks õpetamine, õpilastes teemakohaste teadmiste ja oskuste arendamine. Lisaks rõhutasid algajad õpetajad refleksiooni olulisust edasise õppetöö planeerimisel ning mitmete asjaoludega arvestamist õpilaste hindamisel.

Faktoranalüüs kinnitas vastuste keskmiste võrdlusest tehtud järeldusi. Nimelt kaldusid eesmärkide püstitamisel algajad õpetajad olulisemaks pidama erinevaid formaalseid asjaolusid (nt õppekavas toodud eesmärkide saavutamist ja õppematerjali selgeks õpetamist) kui kogenud õpetajad. Algajad pidasid hindamisprotseduuride planeerimisel olulisemaks arvestada ka õpilaste individuaalsete eripäradega kui kogenud õpetajad. Viimased tajusid aga olulisemalt klassiruumis aset leidvaid sündmusi, mis võivad planeerimist mõjutada.

Uurimuse tulemused kinnitavad, et algajate ja kogenud õpetajate mõtlemine õppetöö planeerimisest erineb. See erinevus ilmneb eelkõige õpetajate praktilises teadmises tulenevalt õpetamiskogemusest. Nende erinevuste teadvustamine ja arvesse võtmine õpetajakoolituse teoreetilistes ja praktilistes õpingutes aitab tõhustada algajatel õpetajatel õppetöö planeerimise oskuste omandamist. Näiteks selleks, et aidata algajatel õpetajatel hoida tasakaalus formaalsete asjaoludega arvestamist olulisemates õpetamisülesannetes orienteerumisega, võiks õpetajakoolituse ained enam tähelepanu pöörata kooli õppekavade üldiste taotluste ja ideoloogia mõistmisele ja nii toetada algajatel õpetajatel oluliste õppetöö-eesmärkide püstitamise oskust ja julgust sõnastada neid tulenevalt õpilaste eripärast ja oma arusaamadest.

Selleks, et aidata algajatel õpetajatel näha erinevaid tegureid, mis võivad mõjutada pikaajaliste eesmärkide saavutamist, võiksid õpetajakoolituse õpingud sisaldada planeerimisalaseid ülesandeid ja tegevusi, mis aitaksid ette näha võimalikke ootamatusi õpetamisel ja pakutavaid lahendusi nende ületamiseks. Lisaks võiks algajatel õpetajatel olla võimalus kokku puutuda kogenud õpetaja või õpetajakoolituse õppejõu planeerimisalase tegevusega, et laiendada oma arusaamist planeerimisest ja õpetamisest. Viimasest ettepanekust võiks välja kasvada ka võimalus ühisplaneerimiseks, et kogenud õpetajate planeerimisalast teadmist esile tuua ja see algajatele õpetajale paremini nähtavaks teha.

Läbiviidud uurimuse põhiline uuenduslik moment seisneb originaalse küsimustiku loomises algajate ja kogenud õpetajate erinevuste välja selgitamiseks õppetöö planeerimisega seostuvas mõtlemises ja otsustamises ning mainitud erinevuste väljaselgitamises. Saadud uurimistulemusi tuleb siiski pidada

esialgseteks, sest need on saadud suhteliselt väikeste valimitega, mistõttu ka ei õnnestunud usaldusväärselt välja selgitada oletatavaid erinevusi algajate ja kogenud õpetajate mõtlemises reageeringutena suurele osale väidetele küsimustikus. Seetõttu tuleks edasises uurimistöös viia läbi uus küsitlus representatiivsete valimitega, mis aitaks veenvamalt välja selgitada erinevused algajate ja kogenud õpetajate planeerimisalases mõtlemises ja ühtlasi viimistleda kasutatud küsimustikku võrdlevateks uuringuteks. Saadud uurimistulemusi saaks edaspidi täiendada näiteks süvaintervjuudega saadud andmetega õpetajate mõtlemise kohta õppetöö planeerimisest.

ACKNOWLEDGEMENTS

With the greatest respect, I would like to thank my supervisor, Prof. Edgar Krull, for walking this road with me and for being always there for me when I needed his advice. Edgar, your logical thinking, extensive knowledge about pedagogy and research, and (nevertheless, positive) criticism have guided me through my journey of becoming an independent researcher. Thank you for supervising and sharing your knowledge with me.

Karin, Liina and Egle, thank you for your time for listening to me and sharing useful ideas. Your support and friendship are well held in my heart.

I also want to thank my friends and colleagues who have, on one hand, emotionally supported my studies, and on the other hand, shared their knowledge on how to move further in this process.

Finally, I would like to thank my family for believing in me and providing time for me to write my thesis. Especially, I would like to thank my sister and husband for encouraging me in rough times and for just being there for me. I carry you always in my heart.

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Koni, I., & Krull, E. (2017). (accepted). Differences in Novice and Experienced teachers' perceptions of planning activities in terms of primary instructional tasks.

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- Õpetajate õppetöö planeerimisoskused

Publikatsioonide nimekiri:

Krull, E., **Koni**, **I**., & Oras, K. (2013). Impact on student teachers' conception of learning and teaching from studying a course in educational psychology. *Asia-Pacific Journal of Teacher Education*, *41*(2), 218–231. Doi: http://dx.doi.org/10.1080/1359866X.2013.777026

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Koni, I., & Krull, E. (2017). (accepted). Differences in Novice and Experienced teachers' perceptions of planning activities in terms of primary instructional tasks.

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