Differences in novice and experienced teachers’ perceptions of planning activities in terms of primary instructional tasks

Article in Teacher Development - March 2018
DOI: 10.1080/13664530.2018.1442876

2 authors:
- Ingrid Koni
  University of Tartu
  6 publications | 10 citations
  See Profile
- Edgar Krull
  University of Tartu
  24 publications | 159 citations
  See Profile

Some of the authors of this publication are also working on these related projects:

ACTTEA View project
Differences in novice and experienced teachers’ perceptions of planning activities in terms of primary instructional tasks

Ingrid Koni & Edgar Krull

To cite this article: Ingrid Koni & Edgar Krull (2018): Differences in novice and experienced teachers’ perceptions of planning activities in terms of primary instructional tasks, Teacher Development, DOI: 10.1080/13664530.2018.1442876

To link to this article: https://doi.org/10.1080/13664530.2018.1442876

Published online: 19 Mar 2018.

Submit your article to this journal

Article views: 36

View related articles

View Crossmark data
Differences in novice and experienced teachers’ perceptions of planning activities in terms of primary instructional tasks

Ingrid Koni and Edgar Krull
Institute of Education, University of Tartu, Tartu, Estonia

ABSTRACT
This study was aimed at investigating differences between novice and experienced teachers’ perceptions of planning activities for developing teacher education students’ professional skills by focusing on promoting of identified ill-developed skills. The teachers’ thinking about instructional planning was conceived as teachers’ decision-making for implementing primary teaching tasks in the planning, delivery, and reflective phases of instruction. This model served as a basis (or framework) for the identification of potential variables of planning skills and developing of items for a teachers’ questionnaire. Fifty-eight experienced and 55 novice teachers from Estonian schools of general education were surveyed. It was revealed that novice teachers did not apprehend events that may undermine reaching long-term instructional objectives and they focused more on the achievement of immediate objectives and the teaching of obligatory content in comparison with experienced teachers.

Planning is one of the key instructional competencies necessary for good teaching (Ball, Knobloch, and Hoop 2007; Clark and Dunn 1991). Research has shown that teachers’ competence in instructional planning makes teaching more effective and, thus, promotes student learning (Meyen and Greer 2009; Ruys, Van Keer, and Aelterman 2012).

Studying teachers’ thinking in instructional planning activities has turned out to be a complicated task. One reason is the complexity of the planning process itself; it is multi-layered and context-dependent. That teachers often do not or cannot follow the lesson outline they have planned further complicates the issue. What happens in classrooms is often unpredictable and, therefore, difficult to plan for (Yinger and Hendricks-Lee 1998). Therefore, experienced teachers often do not produce written lesson plans (Kansanen 1981), or if they do, a large amount of the detail remains in the teacher’s thoughts (Panasuk and Todd 2005).

Despite its complexity, the ability to plan instruction is a skill that prospective teachers should acquire in preservice teacher education. This is a key requirement in teachers’ professional standards of many countries. For example, the Interstate Teacher Assessment and Support Consortium in the USA consider planning of instruction as one of ten major teaching competencies to be acquired by the beginning teachers (CCSSO 2013).
Former studies (e.g. Berliner 1994; Okigbo and Okeke 2011; Yildrim 2003) have revealed that there exist significant differences between novice and experienced teachers’ instructional planning skills. For example, Carter (1990) asserts that compared to novice teachers, expert teachers rely on a rich variety of knowledge originating from their teaching experience. Despite the number of studies, aimed at uncovering differences in teachers’ instructional planning skills, all aspects of this complex professional competence are still far from being thoroughly investigated. One of these aspects is teacher thinking and decision-making in instructional planning, and especially, the differences in them depending on teachers’ experience.

In order to support teacher education students’ instructional planning skills during teacher education studies, it is necessary to bring out the thinking of novice and experienced teachers related to their everyday planning. Therefore, the aims of our study were to develop a model of teacher thinking in instructional planning, to create a new data collection instrument for comparing Estonian novice and experienced teachers’ perceptions of issues of instructional planning, and, on the basis of findings, making recommendations for improving teacher education programs for promoting novice teachers’ planning skills. Two research questions were stated for reaching this aim: (1) what are the main differences between novice and experienced teachers’ perceptions of issues of instructional planning? and (2) what suggestions for supporting the student teachers’ professional development in instructional planning can be made based on these findings?

**Theoretical background**

**Defining instructional planning as research object**

Our survey of relevant research literature revealed that instructional planning as a notion has been conceived in very different ways and at different levels of generalization. If following the logic of moving from philosophical definitions to procedural ones, the first in this line that could be pointed out is Schön’s (1983) statement that instructional planning is a pre-active decision-making that takes place before instruction. Also, Eggen and Kauchak (2013) identify lesson planning as the first phase of instruction followed by implementation and assessment phases.

Clark and Yinger (1987) have defined planning as a ‘psychological process in which a person visualizes the future, lists means and ends, and constructs a framework to guide his or her future action’ (345). Very similar to this is the definition given by Clark and Dunn (1991), saying that from the psychological perspective planning is a process of envisioning the future, and considering goals and ways of achieving them.

Other definitions of instructional planning are more specific and they refer to explicit aspects of instruction that need to be taken into consideration in a planning process. For example, Panasuk and Todd (2005) have unraveled lesson planning as ‘a systematic development of instructional requirements, arrangement, conditions, and materials and activities, as well as testing and evaluation of teaching and learning. It involves analysis of the learning needs and the development of a delivery structure to meet those needs’ (215). Instead, Lai and Lam (2011) see the essence of instructional planning from an interactional point of view, stating that lesson planning can be described 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’ (221).
In addition to previously mentioned definitions, the term instructional planning can also point to different types of planning, for example, planning for a lesson, for a week, for a unit or for a year (Woolfolk 2016), or to planning that is concerned about setting up the physical and social environment of the classroom (Clark and Yinger 1987).

Drawing on the introduced and other rather multifaceted conceptions we came to a conclusion that instructional planning as a purposeful activity can be characterized as an activity that precedes delivery of instruction, the nature and quality of which are heavily dependent on teacher previous experience and knowledge acquired from teaching (e.g. see John 2006). More specifically, this activity is influenced by teachers’ decision-making and reflection skills (e.g. Westerman 1991), and by many external factors of classroom teaching (curricular requirements, expectations and regulations of school administration, cooperation with parents, etc.). We, also conceive that teacher decision-making in instructional planning should be seen as a two-fold process that consists of short- (e.g. planning for a lesson) and long-term planning (e.g. planning for teaching a series of lessons or a course), like is common in school practice. Regardless of differences in highlighting details in different models of instructional planning, it is considered in all definitions as an inseparable part of teaching since it is the process by which teachers link the curriculum to learning (Clark and Dunn 1991).

A survey of research on teachers’ instructional planning skills

The contemporary research on instructional planning skills exemplifies different methodological approaches used to investigate this phenomenon. For example, many authors have studied teachers’ lesson plans to investigate teachers’ competence in instructional planning (e.g. Panasuk and Todd 2005; Ruys et al. 2012). Some authors have used interviews about delivered lessons to gain insight into this professional skill (e.g. Hagger, Burn, Mutton, and Brindley 2008; Okigbo and Okeke 2011) or stimulated recall method (e.g. Liyanage and Bartlett 2010; Schepens, Aeltermann, and Van Keer 2007; Vesterinen, Toom, and Patrikainen 2010). In the past several decades, the lesson study approach that includes instructional planning as an important component has been more widely used when studying teacher development (e.g. Fernandez 2002; Leavy and Hourigan 2016). The list of introduced studies and approaches is, of course, not definitive.

In addition to different methodological approaches, instructional planning has been investigated as teachers’ hands-on activity or as teachers’ thinking or perception about planning. Many researchers representing the first-mentioned approach have studied instructional planning right in the midst of the planning process. For example, Livingston and Borko (1990) investigated differences between novice and expert teachers in their planning and implementation of a review lesson in mathematics. Results indicated that the cognitive schemata of novice teachers were less elaborate, interconnected and approachable than those of expert teachers as the formers’ pedagogical reasoning skills are still developing. Experts entered the classroom with flexible lesson plans that were easily followed in teaching and enriched with explanations, guided problem solving, summarization, and other aspects. A similar study has been conducted by Westerman (1991), who studied the thinking and decision-making of novice and expert teachers when planning, implementing and reflecting the lessons. Her study results indicate that novice teachers tended to stick to their original lesson plans even when unexpected circumstances in student learning occurred; expert teachers were more flexible making adjustments in their plans to meet student needs.
Some authors have used experimental tasks to expose teachers’ instructional planning skills. For example, in Berliner’s (1994) study, expert teachers, advanced beginners (second- and third-year teachers), and novices (student teachers, first-year teachers) were asked to plan and teach a 30-minute lesson about probability to high school students in an unfamiliar class for them. This situation caused a great deal of anger among the expert teachers since in the planning phase as they felt discomfort at not having enough time to thoroughly understand the teaching context, and for not knowing the students and, therefore, not being able to use certain routines.

Okigbo and Okeke (2011) investigated differences in beginning and experienced teachers’ perceptions of problems they foresaw in teaching mathematics skills. The survey showed that there was a significant difference between the beginner and experienced teachers’ perceptions in planning instruction (e.g. stating objectives in appropriate domains, considering the needs and interest of students, sequencing learning activities).

These and other studies point out that there exist many differences between novice and experienced teachers’ thinking and perceptions of instructional planning and that these differences have been investigated from various perspectives. Yet, as it appears, earlier research has mostly focused on planning of specific lessons (for example, on mathematics and physical education) and many studies were conducted in the 1970s and 1980s (Uhrmacher, Conrad, and Moroye 2013). However, for a more thorough understanding and identification of differences in novice and experienced teachers’ perception of issues of instructional planning and in their real planning activities, a comprehensive model of planning activities with accompanying thinking is needed.

**Modeling of instructional planning**

Research on instructional planning indicates that teachers usually do not conceive teaching as a one-directional linear activity (Ball, Knobloch, and Hoop 2007; John 2006; Johnson 2012), i.e. seeing it as a gradual movement from stating learning objectives to producing outcomes in line with these objectives. Due to this limitation, many lesson models (e.g. Hunter 1986; Tyler [1949]/1969) or models of instructional units have been criticized for being too simplistic to guide teachers in instructional decision-making and planning (Lai and Lam 2011) and not taking into account the contingencies of teaching (John 2006).

In this sense, as a counterexample to these simplistic approaches, specific and more sophisticated models of lesson planning thinking skills have been developed. For example, John’s (2006) conception of instructional planning represents it as developing professional competence in three layers. The first layer or central element of decision-making in planning consists of fixing aims and objectives of sub-processes in instruction. The next layer represents satellite components that rotate around the central element and call for specifying the initial planning ideas regarding curricular requirements, subject content, tasks and activities, and classroom control. Next, the third or extended layer of planning activities foresees developing and updating instruction for the level of difficulty, conceptual understanding, dealing with cross-curricular ideas, for student learning style, etc. (John 2006). The main value of this model is that it enables one to conceive thinking in instructional planning at different levels of professionalism, starting from the most basic level of decision-making.
Another general model of instructional planning was developed by Rusznyak and Walton (2011). This model is based on the understanding that lesson planning as professional skill consists of two different components. One of them is the instrumental or technical skill of planning that is typically taught in teacher education courses as a procedural knowledge. The other one is contextual knowledge that comes with teaching experience and presumes development of a competence that Shulman (1987) calls pedagogical content knowledge (PCK). The latter means blending of content knowledge, knowledge of learners and their context, and general pedagogical knowledge into representations that are ‘pedagogically powerful and yet adaptive to the variations in ability and background presented by [learners]’ (102). The lesson planning guideline for student teachers conceives planning as consisting of five consecutive preplanning activities followed by real planning (Rusznyak and Walton 2011): (1) ensuring routine information on the class to be taught, subject syllabus, teaching conditions, etc.; (2) clarifying the purpose of the lesson with the focus on knowledge, skills, attitudes, and values to be acquired; (3) developing content knowledge (summarizing their own understanding of the subject to be taught for developing PCK); (4) developing awareness of learner diversity, prior knowledge, common misunderstandings; (5) selecting teaching and learning strategies; (6) designing a sequence of lesson steps based on the acquired contextual knowledge. The first five activities in the list mean developing contextual knowledge for the intended instructional issues. The presented steps of planning can also be considered as a model of lesson planning, seeing this process as an activity calling for developing awareness of contextual issues in five steps.

The introduced models’ underlying guidelines for developing lesson planning skills inform about many relevant aspects of instructional planning. However, these models do not explicitly point out the complexity of planning as depending on teachers’ former experience in teaching lessons and reflecting on them, as factors that certainly have an impact on planning activities.

With the aim of specifying main planning activities as developing on the former experience in these phases, we found the model of the five primary tasks of instruction by Gage and Berliner (1998) as the most suitable. These five tasks are (Gage and Berliner 1998, 29): (1) choosing objectives (content and performances); (2) understanding student characteristics; (3) understanding and using ideas about the nature of learning and motivation; (4) selecting and using ways of teaching (methods and practices); and (5) evaluating student learning. The primary tasks are seen as interconnected in planning, implementation, and reflection/assessment phases. The presented model features planning for short- and long-term instruction. Since the assessment of the achievement of learning objectives and teacher reflection on the effectiveness of implemented instructional activities gives input for correcting formally prescribed objectives to be achieved, the teaching is seen as a cyclical process in this model (Gage and Berliner 1998).

Since the model of primary tasks by Gage and Berliner (1998) allows seeing the instructional planning as interconnected with two other phases of instruction, we adopted it as the main conceptual basis underlying modeling of instructional planning in our study. But we draw also on 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 nonlinear activity that is based on the mastery of certain technical skills, contextual knowledge, and other experiences.
Conceptual basis for defining basic planning activities for instruction

Relying on prior research on teachers’ skills of instructional planning and related conceptual models, and conceiving teacher work as implementing primary teaching tasks (Gage and Berliner 1998) but, also, trying to emphasize the impact of the former experience in the decision-making in planning, a model of the main manifestations of teachers’ potential thinking about instructional planning was developed (Table 1). The adopted model conceives instructional planning as an activity preceding delivery of instruction but is seen as influenced by teacher previous experience acquired from teaching and reflection on teaching. We presumed that input from previous experience and reflection might be one of the major factors causing differences in the novice and experienced teachers’ thinking about instructional planning.

The column 2 in Table 1 represents thought processes in planning for implementing primary tasks without feedback from implementation and reflection phases. The column 3 represents the potential impact of teachers’ former experience from the implementation phase of teaching or anticipation of the forthcoming teaching on planning for implementing primary tasks. And, correspondingly, column 4 represents the impact of post-teaching reflection on planning activities.

Table 1. A model of manifestations of teacher thinking about instructional planning as defined by five primary tasks of the instructional process (column 1) and their implementation in three contexts (cited from Koni and Krull 2013).

<table>
<thead>
<tr>
<th>Primary tasks of instructional process</th>
<th>Context of instructional planning</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Planning, i.e. planning here and now</td>
</tr>
<tr>
<td>Choosing objectives</td>
<td>X</td>
</tr>
<tr>
<td>Understanding students’ characteristics</td>
<td>X</td>
</tr>
<tr>
<td>Understanding and using ideas about the nature of learning and motivation</td>
<td>X</td>
</tr>
<tr>
<td>Selecting and using ways of teaching (methods, strategies)</td>
<td>X</td>
</tr>
<tr>
<td>Evaluating student learning</td>
<td>X</td>
</tr>
</tbody>
</table>

Method

The empirical part of the current study consisted of compiling a questionnaire for investigating differences in teachers’ thinking about issues of instructional planning, conducting inquiries of samples of the novice and experienced teachers, and in the analysis of the data obtained from inquiries. Instructional planning in Estonian schools of general education is to a great extent shaped by requirements of the national curricula for basic education (Põhikooli riiklik öppekava 2011) and upper secondary education (Gümnaasiumi riiklik öppekava 2011), and by school curricula compiled on the basis of national curricula. Subject syllabi of curricula prescribe compulsory learning objectives, content to be learned, and competencies to be achieved as outcomes of instruction.
The questionnaire

The questionnaire was created on the basis of the previously described model of teacher potential thinking about instructional planning. The teachers’ planning activities were conceived as five primary teaching tasks (Gage and Berliner 1998) that receive input from the three phases of instruction (Eggen and Kauchak 2013). For stating questionnaire items, the teacher planning activities for instruction were specified in terms of teachers’ practical knowledge, i.e. of knowledge and beliefs, and interactive cognitions (Meijer 2013; Meijer, Verloop, and Beijaard 1999). For both categories, potential manifestations of planning activities and attitudes were defined, provided with scales for expressing agreements with statements, and developed as questionnaire items. The details on developing and validating the questionnaire with experienced teachers are published elsewhere (Koni and Krull 2013).

The questionnaire consists of two parts. The first part includes questions on teachers’ demographic data (e.g. gender, age, the subject being taught, teaching experience). The second part includes 30 clusters of questions related to instructional planning that focused on the implementation of the five primary tasks of instruction. The questions pertained to the three phases of instruction and were stated from the perspectives of short- and long-term planning. An overview of the questionnaire structure and the logic of constructing questionnaire items are presented in Figure 1. Altogether, part two of the questionnaire included 89 single questionnaire items. Each questionnaire item was provided with a 5-point Likert-type scale (unimportant, of little importance, moderately important, important, very important) for expressing respondents’ level of agreement with each item. Also, each questionnaire cluster was provided with comment space where respondents could express their thoughts about the item.

The reliability of the items of primary tasks was checked using Cronbach’s alpha. These indices were corresponding to the primary tasks of teaching as 0.84, 0.91, 0.74, 0.74, and 0.70.

![Figure 1](image-url). The logic of specifying questionnaire items for primary instructional tasks.
Participants

Data were collected from convenience samples of teachers from Estonian schools of general education (grades 1–12). Teachers participated in the study on a voluntary basis. When identifying the experienced teachers in this study, the criteria proposed by Palmer and his colleagues (2005) were applied. According to these, researchers considered teachers as experienced when they have had at least five years of teaching experience. The identification of novice teachers is based on Farrell’s (2012) definition, according to which a teacher ceases to be novice after three years of teaching.

The inquiry of experienced teachers took place at the end of 2013. This group consisted of practicing school teachers who cooperated with the University of Tartu as supervisors of student teachers’ school practice. Teachers were asked by preceding email to participate in this study and during the meeting with them, 60 questionnaires were distributed, from which two questionnaires were not returned. Data collection from novice teachers took place at the end of 2014 and beginning of 2015. Electronic questionnaires were sent to school headmasters who forwarded it to novice teachers, if particular teachers, meeting the sampling criteria, were working in the school. A full set of responses to the questionnaire were received from 55 novice teachers from the total of 128 respondents reached.

The distribution of the experienced and novice teachers participating in this study by gender, age, and teaching experience is provided in Table 2 and the distribution by subject taught in Table 3.

Table 2. Demography of the teachers sampled (N = 113).

<table>
<thead>
<tr>
<th>Gender</th>
<th>Average age (SD)</th>
<th>Average years of working experience (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Women (%)</td>
<td>Men (%)</td>
</tr>
<tr>
<td>Novice teachers</td>
<td>48 (87)</td>
<td>7 (13)</td>
</tr>
<tr>
<td>Experienced teachers</td>
<td>54 (93)</td>
<td>4 (7)</td>
</tr>
</tbody>
</table>

Table 3. Distribution of participating teachers by subject taught.

<table>
<thead>
<tr>
<th>Subject</th>
<th>Novice teachers (%)</th>
<th>Experienced teachers (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Humanities (e.g. languages, history, literature)</td>
<td>42</td>
<td>41</td>
</tr>
<tr>
<td>Science (e.g. physics, mathematics, chemistry, biology)</td>
<td>20</td>
<td>28</td>
</tr>
<tr>
<td>Subjects of creative skills (e.g. art, physical education, music, handicraft)</td>
<td>18</td>
<td>11</td>
</tr>
<tr>
<td>Elementary school teachers (teaching several subjects)</td>
<td>14</td>
<td>20</td>
</tr>
<tr>
<td>Information and communications technology</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

Data analysis

Considering the nature of the data and the aim of the study, descriptive and inferential statistics, and factor analysis were used to analyze the data. All statistical procedures were performed using SPSS version 20 (Statistical Package for Social Sciences) for Windows. For data analysis, responses given on the 5-point Likert-type scale (from unimportant to very important) were converted into numerical values of −2, −1, 0, 1, 2.

For the grouping of correlated variables, to seek underlying patterns, an exploratory factor analysis based on the principal components method (Cohen, Manion, and Morrison 2007) was carried out with using orthogonal Varimax rotation to create the factors. Different procedures were applied to determine the number of factors, e.g. observing the eigenvalue >1
rule. Variables with communalities less than 0.4 or multiple loadings were removed from the factor structures.

Results

Differences between the mean scores in novice and experienced teachers’ replies

The comparison of mean scores revealed statistically significant differences \( (p < 0.05) \) for answers to 16 questionnaire items given by novice and experienced teachers (see Table 4). There were no significant differences found in the average scores of answers given by respondents’ groups to items representing primary tasks in short- and long-term planning.

As can be seen from Table 4, from 16 cases where mean values of novice and experienced teachers’ answers to questionnaire items were significantly different, there were only four cases when experienced teachers’ ratings on the scales expressed higher importance than ratings of the novice teachers. Three of these answers reflected higher concerns for the impact of factors that might intervene in the achievement of the objectives planned for long-term instruction like unexpected events in lessons or days (V35), unforeseen communication between students or student’s unexpected behavior (V37), and unsuitable methods chosen for teaching (V38). The fourth case was related to long-term planning of the summative assessment as experienced teachers assigned to it more importance than novice teachers (V78).

Novice teachers gave higher importance to the 12 remaining questionnaire items, including many formal indicators or standards of instruction (V12, 17, 14, 15, and 16). Instead, giving higher importance as reflected in answers to the items (V62, 67, and 70) in the fields of primary tasks three and four, rather exposes knowledge learned from pedagogy courses. The same applies to answers given to issues related to evaluating student learning (V75, 82, and 86).

Comparison of the means of factor variables

The analysis was carried out by questionnaire items pertaining to specific primary tasks with the need to observe the ‘rule of thumb’ of the ratio between numbers of variables and cases in factor analysis, i.e. according to Cohen, Manion, and Morrison (2007), there should be at least five participants per variable. The revealed factor structures pertaining to the primary tasks are presented in Appendix. The comparison of the means of factor variables of the 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 in the case of F1.1 \( (p < 0.1) \) of the total nine (Table 5). A list of revealed factors with the variables belonging to them are presented in Appendix.

The results of the factor analysis showed that 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.). Also, novice teachers considered students’ individual abilities and their capability for learning the subject more important than experienced teachers when planning student assessment (F5.3.). Instead, the experienced teachers
Table 4. Comparison of the means of scores given by novice and experienced teachers found to be statistically different (t-test, \( p < 0.05 \)).

<table>
<thead>
<tr>
<th>Primary task</th>
<th>Items</th>
<th>Mean (SD)</th>
<th>( N )</th>
<th>( E )</th>
<th>( p )</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Choosing objectives</td>
<td>While planning a lesson, how important is it to</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(V12) reach the set objectives (e.g. as stated in the curriculum)?</td>
<td>0.44 (0.83)</td>
<td>0.09 (0.98)</td>
<td>0.04</td>
<td></td>
</tr>
<tr>
<td></td>
<td>When planning for long-term instruction (e.g. a course over a quarter of the academic year), how important is it to</td>
<td>0.27 (1.03)</td>
<td>−0.79 (0.99)</td>
<td>0.01</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(V14) deliver a lesson so that the principal is satisfied with your work?</td>
<td>(1.03)</td>
<td>(0.99)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(V15) teach the lesson material?</td>
<td>1.56 (0.57)</td>
<td>1.24 (0.68)</td>
<td>0.01</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(V16) develop the students' knowledge and skills related to the topic?</td>
<td>1.93 (0.26)</td>
<td>1.66 (0.48)</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(V17) reach the set objectives (e.g. of the curriculum)?</td>
<td>0.93 (0.74)</td>
<td>0.55 (0.82)</td>
<td>0.01</td>
<td></td>
</tr>
<tr>
<td></td>
<td>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)?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(V35) unexpected events in lessons/days;</td>
<td>−0.49 (0.94)</td>
<td>−0.02 (0.92)</td>
<td>0.01</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(V37) unforeseen communication between students (students' unexpected behavior);</td>
<td>−0.40 (0.94)</td>
<td>0.05 (0.92)</td>
<td>0.01</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(V38) inappropriate methods (for yourself and/or students) chosen for teaching;</td>
<td>0.24 (0.95)</td>
<td>0.72 (0.86)</td>
<td>0.01</td>
<td></td>
</tr>
<tr>
<td>3–4. Understanding the nature of learning and motivation, and selecting ways of teaching</td>
<td>How does reflecting upon learning and motivation affect your planning (V62) for a lesson;</td>
<td>0.91 (0.92)</td>
<td>0.59 (0.66)</td>
<td>0.04</td>
<td></td>
</tr>
<tr>
<td></td>
<td>How important are the following factors for choosing methods to teaching new material?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(V67) the nature of the material taught;</td>
<td>1.36 (0.65)</td>
<td>0.96 (0.70)</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(V70) the principle that students are as active as possible while constructing new knowledge;</td>
<td>1.07 (0.77)</td>
<td>0.61 (0.92)</td>
<td>0.01</td>
<td></td>
</tr>
<tr>
<td>5. Evaluating student learning</td>
<td>How important is planning for formative and summative assessments in instructional planning for the school stage you instruct?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(V75) for the formative assessment when planning a lesson;</td>
<td>1.15 (0.80)</td>
<td>0.68 (0.92)</td>
<td>0.01</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(V78) for the summative assessment when planning a long-term (e.g. an entire course or over a quarter of academic year) instruction;</td>
<td>0.73 (0.83)</td>
<td>1.20 (0.80)</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>How important are the following aspects when you assess (in general) your students?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(V82) topic mastered;</td>
<td>1.27 (0.65)</td>
<td>1.00 (0.61)</td>
<td>0.03</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(V83) students’ capability for learning the subject;</td>
<td>1.13 (0.61)</td>
<td>0.73 (0.68)</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(V86) How much does systematic (after every lesson) analysis and reflection of what happened in the classroom help you to plan your next lesson(s)?</td>
<td>0.73 (0.93)</td>
<td>0.31 (0.86)</td>
<td>0.02</td>
<td></td>
</tr>
</tbody>
</table>

Note: V12–V86 variables; \( N \) = novice teachers; \( E \) = experienced teachers; SD = standard deviation; \( p \) = confidence level; all characterizations were on a 5-point scale of importance and their numerical values were −2, −1, 0, 1, 2 (from unimportant to very important).
perceived the interference of unexpected events (F1.1.) as more harmful (i.e. they gave it more importance) than novice teachers, as it could be already noticed from the comparison of means.

Discussion

The aims of this study were achieved and answers to its two research questions found. The study revealed that the experienced teachers’ thinking in instructional planning is more advanced than that of the novice teachers. Experienced teachers highlighted more events that may interfere with reaching long-term objectives of instruction than novice teachers, who probably do not anticipate the negative impact of these intervening events on the delivery of instruction. This finding is in accordance with previous research. For example, John’s (2006) review suggests that while experienced teachers focus on long-term planning, novices’ thinking is rather short-term-oriented. Novice teachers’ thinking is overwhelmed with concerns about the immediate content to be taught, class management, timing, and providing resources.

It was also found that novice teachers think that reflecting on learning and motivation affects more their further lesson planning than their more experienced colleagues did. They also emphasized the relevance of the nature of the material to be taught and activating students as much as possible when teaching, an understanding that we would consider more appropriate for experienced teachers.

Yet, while rating importance of reaching the set instructional objectives or teaching the foreseen lesson material, novice teachers considered reaching the set objectives in both short- and long-term planning more important than experienced teachers. This result is coherent with Okigbo and Okeke’s (2011) findings that student teachers are concerned with how to cover certain amounts of curriculum content within a specific time frame, and with Lai and Lam’s (2011) study revealing that student teachers see the content represented in the curriculum framework as crucial for teaching the subject, due to their modest experience of teaching.

The novice teachers’ stronger emphasis on reaching the set objectives in curricula echoes findings in Panasuk and Todd’s (2005) study that the objectives stated in curricula serve for
them as a leading framework for planning. Also, as found in John’s (2006) study, the novice teachers tend to rely rigidly on the objectives stated in curricular guidelines because of experiencing difficulties (see e.g. Okigbo and Okeke 2011) in specifying and stating objectives themselves.

Despite many similarities in differences between novice and experienced teachers in the findings of this study with the findings of earlier research, some novel ideas appeared in this study that need more attention in further studies. For example, it was revealed that novices attributed more relevance to teacher reflection, to taking into consideration the nature of the material to be taught, and to activating students when teaching. These positive trends in novice teachers’ thinking might be caused by the theoretical studies in teacher education of our respondents that emphasize constructivist approaches to learning and origin of knowledge, student centeredness, and importance of reflection in learning and teaching. Uhrmacher, Conrad, and Moroye (2013) point to a similar influence of preservice teacher education on novice teachers’ thinking. Therefore, it would of great importance to uncover where the borderline goes between formal (context-free) and real thinking of the novice teachers in their decision-making for instructional planning. To this end further studies are needed.

Revealing differences in experienced and novice teachers’ perceptions of issues of instructional planning, in this study, allows us to make some conclusions for updating approaches to developing student and novice teachers’ contextual knowledge of instructional planning. John (2006) and Rusznyak and Walton (2011) point out that teachers’ contextual knowledge about instructional planning grows gradually. Our study confirmed also that novice teachers were less concerned about factors that might interfere with long-term instructional planning, i.e. they were less sensitive regarding broader context of instruction. This also explains why novice teachers gave higher importance to many formal requirements like teaching the set material and reaching the set goals than experienced teachers. This means that the novice teachers’ thinking about instructional planning tends to be formal, and might impart the knowledge obtained in teacher education studies.

The differences in the averaged answers to 16 questionnaire items inform teacher educators about the novice teachers’ way of thinking about instructional planning and in comparison with their more experienced colleagues. A main circumstance or a factor that causes the differences in the novice and experienced teachers’ thinking about instructional planning is experience. Teachers acquire the needed experience typically by teaching as independent learners for years. However, the acquisition of this experience can be speeded up by purposeful and systematic practical studies in school practice such as student teachers’ and mentors’ or supervising teachers’ joint activities when planning lessons and developing lesson plans. For example, within different assignments, student teachers should have the opportunity to think ahead of several problems that may occur in the implementation phase of teaching and plan alternatives to overcome interfering issues when planning instruction. Also, student teachers should be made acquainted with the modeling of the planning process and classroom activities of mentor teachers or teacher educators to learn more about planning and delivering instruction. This way, student teachers could see the planning process in its integrity, and it would help making their pedagogical thinking more flexible. The value of interaction with peer student teachers or with more experienced colleagues has been shown for example by Lai and Lam’s (2011) study.
There are a few considerations that need to be taken into account regarding the research methodology used in this study. One of the limitations is a rather small sample of respondents. To generalize the results on a larger scale, an inquiry of representative samples of novice and experienced teachers is needed. The questionnaire itself needs further development as only answers to 16 survey items from 89 revealed differences in teachers’ thinking.

To sum up, the present study introduced a novel model that reflects teachers’ potential thinking about instructional planning and the developed questionnaire based on it. The initial results revealed valuable knowledge on teachers’ thinking about instructional planning and differences in it depending on teaching experience, and can be seen as preparation for more thorough studies in the field. In addition, the model underlying teachers’ thinking about instructional planning can be seen as a guideline for courses on educational psychology. The five primary tasks of instruction can be used to clarify the structure of a course, i.e. the tasks that teacher needs to address when planning instruction in the light of three phases of instruction.

Conclusions

The aims of this study – developing a model of teacher thinking about instructional planning, creating a new data collection instrument for comparing Estonian novice and experienced teachers’ perceptions of issues of instructional planning, making recommendations for improving teacher education programs for promoting novice teachers’ planning skills – have been achieved.

The teachers’ inquiries revealed that there are differences in novice and experienced teachers’ perceptions of planning activities in terms of primary instructional tasks. The research methodology used appeared suitable for investigating differences in novice and experienced teachers’ perceptions of many aspects of instructional planning. Also, the findings of this study allowed us to make suggestions for improving novice teachers’ preparation for instructional planning. However, for getting a deeper insight into differences between novice and experienced teachers, further research in this field should incorporate more thorough analysis of authentic planning activities.

Disclosure statement

No potential conflict of interest was reported by the authors.

Funding

This work was supported by the European Social Fund [grant number 1.2.0401.09-0070].

Notes on contributors

Ingrid Koni is a lecturer in general education at the University of Tartu. She is interested in teachers’ expertise and has published articles on teacher education.

Edgar Krull is Professor Emeritus at the University of Tartu in Estonia. He has authored several books and research articles on teacher education.
References


Appendix 1. Results of factor analysis of novice and experienced teachers’ answers to questionnaire items pertaining to primary tasks (from unimportant to very important).

<table>
<thead>
<tr>
<th>Primary task</th>
<th>Factors and questionnaire items belonging to them</th>
</tr>
</thead>
</table>
| 1. Choosing objectives | **Factor 1.1. The influence of unforeseen events in the classroom upon instructional planning**  
Cronbach $\alpha = 0.82$; variance explained by a factor (%)=19.71  
*How much do you think the following circumstances intervene in achieving the learning objectives planned for a lesson?*  
(V31) students’ continuous disruptive behavior;  
(V32) unforeseen communication between students (students’ unexpected behavior);  
*How much do you think the following circumstances intervene 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 behavior;  
(V37) unforeseen communication between students (students’ unexpected behavior);  
(V38) inappropriate methods (for yourself and/or students) chosen for teaching; |
|  | **Factor 1.2. Considering students’ abilities during instructional planning**  
Cronbach $\alpha = 0.81$; 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 students’ individual capability;  
(V20) students’ general capability (including interests, motivation) and the level of social development of the class;  
(V21) students’ capability for learning the subject;  
*While setting objectives for long-term instruction, how important is 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 of the class;  
(V26) the nature of the material taught; |
|  | **Factor 1.3. Inclination toward formalism during instructional planning**  
Cronbach $\alpha = 0.76$; 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. Understanding students’ characteristics | **Factor 2.1. Influence of emotions raised by relationships between students on instructional planning**  
Cronbach $\alpha = 0.91$; variance explained by a factor (%)=41.15  
*How much do you think the following students’ characteristics influence planning for a lesson?*  
(V47) students’ learning habits;  
(V48) students’ relationships (including their unpredictable behavior in a lesson);  
*How much do you think the following students’ characteristics influence planning for long-term instruction (e.g. a course over a quarter of the academic year)?*  
(V50) students’ behavioral habits;  
(V51) students’ motivation for learning;  
(V52) students’ learning habits;  
(V53) students’ relationships (including their unpredictable behavior 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 long-term instruction for the same students? |
|  | **Factor 2.2. Influence of students’ characteristics on instructional planning**  
Cronbach $\alpha = 0.84$; variance explained by a factor (%)=27.13  
*How much do you think the following students’ characteristics influence lesson planning?*  
(V44) students’ capability/developmental level;  
*How much do you think the following students’ characteristics influence planning for long-term instruction?*  
(V49) students’ capability/developmental level; |

(Continued).
Appendix 1. (Continued).

<table>
<thead>
<tr>
<th>Primary task</th>
<th>Factors and questionnaire items belonging to them</th>
</tr>
</thead>
</table>
| 3.4 Understanding the nature of learning and motivation; selecting teaching methods | **Factor 3.1. Creating a favorable learning environment during instructional planning**  
Cronbach α = 0.84; variance explained by a factor (%)=56.38  
How important is planning for developing students’ learning motivation
(V59) in planning a lesson;
(V60) in planning a course (for long-term instruction);
(V61) How much do the emotions acquired from previous long-term teaching influence your planning for developing 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 students’ 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 acquired 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 students to be taught, how important is it to foresee the assessment procedures when planning for 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 the formative assessment when planning a lesson;
(V77) for the formative assessment when planning for long-term instruction;

**Factor 5.3. Considering students’ 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) students’ capability for learning the subject; |