Curriculum and Teachers’ Pedagogical Thinking When Planning for Teaching

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Abstract
School educational reforms often come in the form of curriculum changes, and in practice teachers are the most important persons to implement these changes. Understanding teachers’ pedagogical thinking when they plan their teaching is therefore important for understanding how to implement curriculum purposes effectively. This study looks at how changes made to the Finnish basic education core curriculum in 2010, concerning pedagogical practices that influence learning of all pupils, are part of the teacher’s pedagogical thinking when they are planning their teaching. Twelve primary and secondary public school teachers from grades 1–9 were asked to draw concept maps in advance of being interviewed. The data were then examined using theory-based content analysis. The findings show how the pedagogical purposes of curriculum changes influenced variously, or not at all, teachers’ pedagogical thinking in planning their teaching. Based on these results, the important role of teacher planning in curriculum implementation is considered.

Keywords: Curriculum implementation; Teachers’ pedagogical thinking; Planning for teaching.

Introduction
Successful educational changes are challenging to achieve. This is because changes are required not only within schools and regions and at the country level, but also across these relationships (Fullan, 2003, pp. 39-40). Several studies (e.g., Cohen et al., 2003; Wilson et al., 1996) have shown that the more significant educational reform is, the more challenging the changes are to implement practically into schools.

Educational reforms are often brought into schools in the form of a new curriculum, with the hope of making changes in school practices as well as teaching and learning. Issues related to curriculum implementation have therefore interested scientists since the 1960s. However, curriculum reforms have not achieved the desired changes (Fullan 2003; 2007, p. 13). Many factors have been found to influence curriculum implementation (cf. Atjonen ym., 2008; pp. 117–119, Biesta, 2009; Gudmundsdóttir, 1991; Priestley, 2011; Salminen & Annevirta, 2014; Schwab 2013; Shwartz, 2006; Sulonen et al., 2010, p. 129; Superfine, 2008; Väliljärvi, 1993). Yet, it cannot be denied that in practice teachers are the most important people to implement educational changes. As
Fullan (2007, p. 129) said, ‘Educational change depends on what teachers do and think – it’s as simple and as complex as that.’

Teachers, of course, need favourable preconditions, which are established at both the organisation (school) and policy level (Elmore, 2002), to implement curriculum. But still, it is only through teachers’ thinking, understanding, interpreting, decision-making and acting that the purposes of a curriculum can be achieved. In Finland, the national core curriculum for basic education (grades 1–9) is renewed approximately every ten years, and the latest core curriculum was completed in 2014. The renewed core curriculum will be implemented gradually starting in autumn 2016 after the completion of local curriculum processes through which the objectives and purposes of the national core curriculum will be designed and deepened to meet local needs. However, the changes made to the core curriculum in 2010 have been retained unchanged in the content of the new 2014 core curriculum. These changes have been implemented in Finnish schools from autumn 2011 onwards.

Changes to the Basic Education Act (642/2010) are behind the curriculum reform. The ideological and pedagogical reasons for this Act are to promote inclusive education and to educate more pupils with special needs in a general classroom setting (Pulkkinen & Jahnukainen, 2016). According to the Basic Education Act, these aims are to be met in three ways. First, each pupil has a right to receive support and guidance as soon as their needs are detected and according to each individual’s needs. Second, support for learning and schooling is to be changed from two tiers to three tiers. In other words, before the curriculum changes in 2010 pupils had an opportunity to get either general support or special support (two tiers). While, now the curriculum changes require that the support has to be carried out according to pupils’ needs as general support, intensified support or special support (three tiers). Third, the pedagogical practices that influence all pupils’ learning are to be renewed. The Basic Education Act also requires that changes be made to the core curriculum to support learning and schooling, pupil guidance, pupil assessment, teaching methods and working approaches (Finnish National Board of Education, 2010).

The implementation of the 2010 core curriculum changes has already been studied, for example using statistics (Lintuvuori, 2015) and pedagogical documents (Thuneberg & Vainikainen, 2015), as well as questionnaires and interviews of principals and municipal educational leaders (Vainikainen et al., 2015, Pulkkinen & Jahnukainen, 2016, Rinkinen & Lindberg, 2014). Perceptions of teachers and school personnel have been studied regarding the extent to which the new legislation has affected the organisation and implementation of special education in Finland for students with significant disabilities (Pesonen et al., 2014). The focus of these studies has been on how reforms supporting learning and schooling have succeeded and how school structures have changed. Based on these studies, it can be said that ‘in many places there have been such changes that can be called development’ (Jahnukainen & Hautamäki, 2015, p. 201). However, no studies yet exist on how the amendments and additions to the 2010 Finnish core curriculum appear in teachers’ thinking, planning for teaching and teaching.

According to Kansanen et al. (2000, pp. 2–4), the decisions and choices teachers make when planning and teaching are relevant. These decisions may
be either conscious or unconscious and intentional or spontaneous. The thinking that guides teachers' decision-making in the context of curriculum implementation is called pedagogical thinking. This study is particularly interested in how changes made to the 2010 Finnish core curriculum concerning instruction methods that influence the learning of all pupils are part of teachers' thinking when they plan their teaching.

**Teachers' pedagogical thinking when planning for teaching**

Planning is an important phase of teaching, because it is when teachers make teaching decisions that affect pupils' learning opportunities (Clark & Peterson, 1986; Floden et al., 1981). Teachers’ thinking both before and immediately after teaching a class belongs to this phase. According to Kansanen et al. (2000, pp. 2–3) this planning is pedagogical if it is done within the context of a curriculum. Pedagogical thinking may only be evaluated according to curriculum criteria. That is, when planning for teaching, a teacher interprets and converts the written curriculum through his or her pedagogical thinking to make it appropriate for teaching and learning.

Teachers plan teaching differently, but deliberative decision-making is a consistent theme at all planning stages (Sullivan et al., 2012). According to Kansanen et al. (2000, p. 17) decision-making has a central role in teachers' pedagogical thinking. In practice, many kinds of verbal, written and mental functions play a role in planning for teaching. These include, for example, discussions with colleagues, choosing and making teaching materials, reading literature and, above all, thinking and making decisions about future teaching. However, teachers do these activities in very different ways and at various periods of time, from lesson planning to planning a whole school year course, both systematically and more loosely (Calderhead, 1984, p. 71).

Teachers have to make decisions all the time that direct their activities and teaching. These decisions can be made before, during or after teaching pupils. Decision-making is often conscious and deliberate when things do not require immediate execution, such as when planning or evaluating teaching. On the other hand, during interactive teaching phases, teachers have to make decisions that are either based on a proceeding plan or are spontaneous (Kansanen et al., 2000, pp. 17–22; Kansanen, 2004, pp. 87–92).

According to Clark and Peterson (1986, p. 257) teachers’ thinking – which in this study is called teachers’ pedagogical thinking in accordance with Kansanen et al. (2000, pp. 2–3) – and teachers’ behaviour in the classroom interact reciprocally. In other words, teachers’ pedagogical thinking, which includes their preparation, decision-making during teaching and theories and beliefs, affects their actions. Also, teachers’ actions, which include teachers’ and pupils’ behaviour as well as pupils’ achievements, affect teachers’ pedagogical thinking reciprocally. Teachers’ pedagogical thinking and decisions, therefore, are seen to have a decisive impact on how they act. Thus planning for teaching, as part of teachers’ pedagogical thinking, plays a significant role in the transmission of curricular purposes into actual teaching events. This reciprocal interaction between teachers’ pedagogical thinking and their actions is illustrated in Figure 1.
According to Kansanen (2004, pp. 95–96) the basis of teachers’ pedagogical thinking is their personal educational belief systems. These belief systems are based on a teacher's personal needs and history, as well as different kinds of principles, research, expertise and practice experience. Teachers can be conscious, unconscious or partly conscious of their belief systems. However, when implementing curriculum into teaching and learning, teachers' must become conscious and internalise its purposes. In teachers' pedagogical thinking, decisions made before teaching, for example when planning for teaching, derive from a certain kind of deontological thinking. This requires thinking through the curriculum content and the purposes that reflect its values. In other words, when planning for teaching and making decisions connected to this, teachers must move from a classroom action level to a thinking level, which requires analytical thinking skills and qualitative content analysis of curriculum purposes. This has also been seen to strengthen teachers’ autonomy in the teaching profession (Kansanen et al., 2000, pp. 26–27, 30).

**Curriculum as a basis of planning for teaching**

In studies focused on planning for teaching, different results have been obtained on how much and in what ways teachers use a curriculum when planning their teaching. As a starting point for their planning for teaching, teachers use mainly curriculum objectives (Brown, 1988) or assess their subject matter's contents and goals (Atjonen et al. 2008, pp. 104–05), whereas when planning lessons, teachers rely mostly on their previous experiences with and knowledge of their pupils (Kosunen 1994, p. 209). Several studies have also shown that instead of using curriculum, teachers use textbooks and teacher guides in planning their lessons (e.g., Atjonen, 2005; Clark & Elmore, 1981; Heinonen, 2005; Korkeakoski, 2009, p. 173; McCutcheon, 1981; Shkedi, 1998; Smith & Sendelbach, 1979).

The background to the written curriculum can also influence different perceptions, theories and ideologies. These may be incorporated in the curriculum unintentionally by curriculum writers, but can be seen as the real and desirable curriculum purposes. These curriculum purposes have been referred to
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as ‘curriculum meta-narratives’ (Shkedi, 2009), ‘curriculum orientations’ (Cheung & Ng, 2002), ‘curriculum ideologies’ (Eisner, 1994), and ‘curriculum platforms’ (Walker, 1971). Teachers can be unaware of the curriculum purposes and construct their own purposes, which may be very different from those of the curriculum writers. According to Shkedi (2009), denying the curriculum writers’ purposes means denying the essence of the entire written curriculum.

For teachers as the primary curriculum users, it is naturally challenging to put into practice curriculum purposes that may be ‘invisible’ even to the curriculum writers. However, the real purposes of the curriculum can be determined when the curriculum is thoroughly read or its contents carefully analysed (Shkedi, 2009). When schools and teachers are afforded space for local curricular decision-making and the ability to specify the objectives and contents defined in the national curriculum – as in Finland – this increases their commitment to the curriculum goals and enables the pedagogical purposes of the curriculum to be reached (Halinen & Holappa, 2013; Pyhältö & Soini, 2007, pp. 151–52). The particular interest of this study is how the pedagogical changes that were made to the Finnish core curriculum in 2010 regarding pedagogical practices that influence the learning of all pupils appear in school teachers’ pedagogical thinking when they are planning their teaching.

**Pedagogical purposes of the curriculum changes**

In the current curriculum, as in all earlier Finnish national basic education core curricula, the principles, values, and conception of learning are presented first, followed by the separate presentation of subject-specific objectives and contents. One can therefore say that all these documents are organised into a general part and subject-specific parts. Most of the core curricula define the objectives, contents and evaluation criteria of the subjects taught, but they also emphasise the need to be strongly knowledge structured (Vitikka, 2009, p. 271). The general part of the curricula determines the character of basic education and states ‘the pedagogical will’ (Vitikka, 2004, p. 79) or ‘the spirit’ (Vitikka, 2009, p. 168) of the core curricula because it defines the principles of basic education such as its values, conception of learning, learning environment, operational culture, teaching methods and working approaches. In other words, the general part of the core curriculum defines how basic education will be fulfilled.

The teaching methods and working approaches in the general part of the 2010 curriculum reform were significantly redefined. In addition, previously defined general support for learning and special-needs education was changed in the Basic Education Act (642/2010) to ‘learning and schooling support’. This means that support should be put into practice in schools as general support (the first tier of support), intensified support (the second tier of support) or special support (the third tier of support) according to pupils’ needs. Also, the principles of evaluation of pupils who need support or final assessment (grade 9) were supplemented.

The context for this study is teachers’ pedagogical thinking in planning for teaching, and especially such pedagogical thinking as it concerns pedagogical practices that influence the learning of all pupils. The next section will describe specific changes to pedagogical purposes that were made to the core curriculum
Teaching methods and working approaches

According to the 2010 curriculum changes (Finnish National Board of Education, 2010), instruction is supposed to make use of diverse working approaches and teaching methods. Methods and working approaches should be suitable for various learning assignments and situations and support and guide the learning of both the entire group and each individual pupil. Behind these principles is an understanding that schools must provide all pupils with the necessary knowledge and skills for a changing society and a more complicated environment (Vauras, 2004, p. 30). The curriculum changes also require that methods and working approaches support problem solving, working and interaction, self-knowledge and responsibility, participation and influencing, as well as expression and manual skills. Working approaches must also diversely promote information and communications technology (ICT) skills. Teachers are seen as responsible for selecting their teaching methods and working approaches, but this should be done through interaction with pupils.

Curriculum changes also define the principles for selecting methods and working approaches. According to these principles, working methods should motivate pupils and activate goal-oriented learning. Furthermore, working methods should take into account the nature of the learning process as well as the subject matter’s starting points and objectives. In addition, working methods should develop pupils’ skills for learning strategies and for acquiring, applying and evaluating information. These skills are essential for meeting the requirements of profound learning goals and are not developed as a by-product of teaching, but instead require systematic teaching (Vauras, 2004, pp. 38–39). Working methods should support learning through pupil interaction and promote social flexibility, development of cooperation skills and taking responsibility for other people. Further, working methods should promote the formation of an organised knowledge structure and skill learning as well as pupils’ responsibility for and awareness of their own learning.

Differentiation

The curriculum changes (Finnish National Board of Education, 2010) require that pupils’ strengths and needs be a starting point for supporting pupils’ learning and schooling. The teacher should take into account both the needs of every teaching group and the diversity of individual pupils. The pedagogical core that takes into account pupils’ individual needs and starting points is called differentiation, which involves both the philosophical bases of and practical issues concerning teaching. Differentiation strives to increase the individuality of teaching, supporting every pupil’s learning potential and abilities in the best possible way. However, the teaching group is also needed because learning is a communal process. It is important that both individuality and group membership are in balance (Ahtiainen et al., 2012, p. 58). However, the core of differentiated teaching is making sure that what pupils learn, how they learn and how they show what they have learned, matches their abilities, interests and unique way of
studying (Tomlinson, 2004, p. 519). On a practical level, differentiation may concern teaching contents and methods, as well as the amount of work (at school or at home) and time available to carry out different kinds of tasks and tests.

Co-teaching – which refers to two or more teachers’ planning for teaching, teaching and pupil assessment to promote the learning of a heterogeneous group of pupils – is closely linked with differentiation. In order for differentiation be easier, pupils can also be flexibly grouped on the basis of their learning needs. Several teachers can then teach these groups. Thus, co-teaching can be both an important working approach and a versatile way of teaching basic education (Ahtiainen et al., 2012, p. 59).

**Pupil guidance and counselling**

The curriculum changes (Finnish National Board of Education, 2010) state that every pupil has a right not only to teaching but also to guidance and counselling. The purpose of guidance and counselling is to support pupil success; to strengthen study skills and self-regulative learning; and to develop cooperation skills, the ability to work in different groups, and the ability to take responsibility for one’s own and common work. Study assessments, which were already required by the 2004 national core curriculum, mean that every pupil should above all be guided to become aware of and take responsibility for their own learning and for the development of their own learning skills (Annevirta, 2009; Atjonen, 2009). Guidance during learning should exist in all teaching situations and subjects, with feedback given to pupils. Feedback is meant to add to pupils’ understanding of themselves, their skills and their potentials, i.e., to create understanding of their personal learning processes. In other words, feedback is meant to guide the pupil, among other things, to stop and think about what he or she is doing and to observe the working methods and learning strategies in use. A wide range of feedback should be systematically used to encourage and guide pupils. It is not new for teachers to both teach and guide pupils, but the pedagogical purpose of the curriculum changes requires that pupil guidance, counselling and diverse feedback be systematic in all teaching situations.

**Research data and methods**

The research participants were twelve primary and secondary public school teachers from grades 1–9 who voluntarily agreed to participate in the study. The teachers were from three municipalities and six different schools in southwest Finland. Each teacher was separately met for about 1.5 hours outside of school hours.

The research method was interviews preceded by a teacher-drawn concept map. Each teacher was first given instructions to draw up a concept map (adapting Novak, 2010 and Åhlberg, 2010) of his or her pedagogical thinking when planning for teaching. Thereafter, an in-depth interview was conducted immediately. The concept maps served as starting points for the interviews, but it was emphasised to the teachers that they could explain their planning for teaching both by using their concept map and by deviating from it. The interviews were conducted openly, since the teachers were allowed to explain their
pedagogical thinking freely and the interviewer primarily asked questions that sought more details or expansive answers. The interviews were videotaped so that the teachers’ references to the concept maps could be taken into account when analysing the data. Thus, the concept maps were not analysed separately, but were used to support the interview analysis.

Teachers’ pedagogical thinking has been studied using a number of different methods and it is typical to use methodological triangulation. Triangulation between interviews and concept maps is supported by Novak’s and Gowin’s (1998) and Åhlberg’s (2010, pp. 60–61) findings that thinking is difficult to distinguish from speech and writing, but easier to grasp from concept maps. In turn, it can be difficult to obtain a detailed picture of a person’s thinking from a mere concept map, but an interview can help to focus the map concepts and the connections between them. The triangulation of an interview and concept map also increases the reliability of a study because each method patches the other’s reliability challenges. In other words, using interviews and concept maps together more strongly reinforces the information than if each method were used separately (Åhlberg, 2010, p. 67).

Furthermore, combining concept maps and interviews was meaningful in this context because teachers are familiar with concept maps, which are widely used as tools for learning and teaching. Also, concept maps helped the teachers to recognise and analyse their thinking more deeply before being interviewed. This approach was therefore thought to ensure a deeper and broader understanding of the dimensions of teachers’ pedagogical thinking when planning for teaching.

**Data analysis**

For the analysis, the received data were transcribed. When transcribing the videotaped interviews, the concept maps were simultaneously observed. This was because when the teachers were describing their thinking when planning for teaching they also illustrated their thinking by referencing their concept map. However, the visual information provided on the concept map would not have been meaningful to transcribe because essential information would have been lost. In order to observe easily and simultaneously the transcribed texts and the concept maps, the subjects on the concept map were numbered so that the first subject mentioned by the teacher was numbered ‘1’, the second numbered ‘2’, etc. The actual analysis amounted to 60 pages of transcribed text and 12 concept maps.

Before the actual analysis, a general overview was made of how the teachers plan their teaching and how they describe it. This was done so that, if necessary, possible differences in the way the teachers plan could be taken into account in the context of the findings.

Next, the data were examined using theory-based content analysis, which allowed systematic and comprehensive representation of the data. For content analysis, the data are divided in units of analysis. This makes it possible to organise the data meaningfully for interpretations and conclusions (Krippendorf, 2004, pp. 18–19, 25). In theory-based content analysis, the units for analysis are based on the study’s theoretical framework (Tuomi & Sarajärvi, 2009, p. 97). In this study, the theoretical framework was formed by the purposes of curriculum
changes by the Finnish National Board of Education 2010. After data transcription, the starting point of data analysis was to identify the essential meanings of the text in accordance with the research questions and the point of view of the theoretical frameworks. As the theoretical framework of this study was the pedagogical purposes of curriculum changes, the data were analysed from three viewpoints: How the requirements of curriculum changes were included in teachers’ planning for teaching (1) through choosing teaching methods and working approaches, as well as participating pupils; (2) through teacher differentiation, co-teaching and flexible pupil groupings; (3) through systematic pupil guidance and counselling and giving pupils diverse feedback.

The data were analysed by searching units of the text on the basis of these three viewpoints. Units of analysis varied from one sentence to few sentences. For example, teacher three (T3) spoke about the starting points for planning differentiation.

T3: “I think ... [about] what the knowledge and skill level of this class is (8). And who are the pupils that need differentiation (9). Not every pupil needs differentiation, but some do need it in writing and some in learning grammar. And these things connect here (6)”.

The numbers within the text refer to the numbering of the concept map (Figure 2), which is numbered in the order the teacher mentioned things during the interview.

![Figure 2 - Concept map of planning for teaching by teacher three (T3)](image)

The concept maps supported and enriched significantly the interpretation of the transcribed text. First, they supported understanding of the connections and issues included in teachers’ planning for teaching. Second, the visual information provided by concept maps, along with interviews, brought deeper understanding of teachers’ pedagogical thinking when they were speaking about their planning for teaching.

Since content analysis is always unique and researcher’s interpretations subjective, an attempt was made to increase the reliability of this study by having two researchers conduct content analysis together at all stages of the analysis.
Results

In general, teachers’ descriptions of their planning for teaching were very similar. All of them thought that planning for teaching is very important and that planning for teaching includes both long-term planning (school year, term, period, week) and single lesson planning. However, some teachers placed greater emphasis on long-term planning, while others spoke more about lesson planning. Nevertheless, when the teachers described their plans for teaching, the pedagogical purposes of curriculum changes were equally noticeable in all their thinking. Planning typically involved a lot of each teacher’s thinking and reflection on various formal and informal settings, data acquisition (internet, literature, textbooks and teacher’s guides) to support planning, and discussions and reflections with colleagues. It was also characteristic that the teachers wrote their plans down.

Teaching methods and working approaches in teachers’ planning for teaching

First, we studied how the requirements of curriculum changes were included in teachers’ planning for teaching when these changes involved teaching methods and working approaches, as well as pupils’ participation.

All teachers were thinking about teaching methods and working approaches when planning for teaching, but in a variety of ways. Some teachers took into account only one new curriculum requirement for selecting teaching methods and working approaches, while others took into account several. Their selection of methods and approaches clearly seemed to be based either on the subject content or the needs of the class. These are both mentioned in the curriculum changes as appropriate criteria. The teachers who emphasised the subject matter as their basis for selecting their teaching methods and working approaches said that they thought learning different subjects required using different types of methods.

T1: “I think that subject content is the most important thing to consider when choosing teaching methods… if it, for example, requires inquiry-based learning or observation. So I try to include the methods required by the subject content … Teaching methods also affect how aims are achieved”.

Teachers who planned teaching methods and working approaches on the basis of the class needs said that they were thinking most of all about how the lesson would be meaningful to and motivating for pupils.

T7: “And I think of course about these teaching methods … That I could make the learning situation meaningful so that the pupils could maintain their motivation and joy for learning”.

The curriculum changes also require additional principles to be considered when choosing teaching methods and working approaches. For example, the curriculum changes require that working methods should promote the development of versatile ICT skills. Some of the teachers were indeed planning to use ICT in their teaching, but their selection of working methods was based not on promoting ICT skills, but on using ICT as an additional teaching method.
T11: “It would be also nice to attach some ICT to my teaching because we have the computers and many kinds of programs at our school. So, if it is suitable, I’d like to attach one part of that too”.

The curriculum changes also state that the working methods should develop pupils’ interaction and promote social flexibility, development of cooperative skills, and taking responsibility for other people. However, teaching these skills did not appear in teachers’ planning for teaching the way that the curriculum changes require. The teachers said that they planned different kinds of working in pairs and groups, but these were seen mainly as another way of working.

T12: “In the beginning of the learning period or when I think about that period, I think a little bit about teaching methods. For example, I get an idea that we could work with pairs or do some group work”.

On the other hand, teachers’ planning for teaching methods and working approaches was also influenced by challenges in maintaining class discipline, which may even prevent working approaches that promote pupils’ learning through interaction.

T5: “And of course, I think a lot about what we are all doing together, or in groups or with a pair, or with the teacher. And then ... I almost always think about how I am going to maintain discipline in the classroom so that pupils are able to learn. So many things are linked to the question of discipline in the classroom that I am forced to go back to teacher-centred learning”.

According to the curriculum changes, teachers are responsible for choosing teaching methods and working approaches, but these choices are to be made in cooperation with the pupils. Some teachers did think about possibilities for pupil participation when planning for teaching, whereas other teachers spoke about planning teaching methods and working approaches themselves without pupils’ participation.

T11: “Then I begin to think about what I’m teaching. Can I involve pupil participation and functionality? ... And how pupils could also influence how things are taught to them ...; how they can learn the best way.

T9: “Pupils ... they are very important to me. But still I think it is I who makes the plans. So I think and plan the teaching methods and working approaches myself”.

The curriculum changes require that teaching methods and working approaches should also develop pupils’ learning skills and increase awareness of their own learning. One interesting result was that none of the teachers thought about their choice of teaching methods and working approaches from this point of view.

**Differentiation in teachers’ planning for teaching**

The second question studied was how the new curriculum requirements for differentiation of teaching and co-teaching and flexible groupings of pupils were being included in teachers’ planning for teaching.

According to the changes in the curriculum, teaching must be differentiated by the baseline strengths and needs of both the teaching group and individual pupils. The teachers agreed that paying attention to the special characteristics of the teaching groups was the starting point for the planning of their teaching.
T7: “I think that the planning begins by thinking about what kinds of pupils there are in the class. So I have to be able to face them ... For example, if there are some problems in their social relationships. Or, I think about how the classes differ from each other. And then I start to plan how I can best teach this subject to this class”.

Most of the teachers also considered individual differentiation important and thought a lot about it when planning their teaching. The starting point for differentiation in teaching was their knowledge of the pupils, and therefore this planning was regarded as easier when they already knew the pupils. Teachers also took into account the special needs of some pupils, for example by planning limited learning objectives for them. The teachers also planned alternative tasks which pupils who had a different learning pace could choose suitable exercises from. Attention was also paid to the differentiation of homework, i.e., pupils who progressed more slowly were given easier homework.

However, some of the teachers thought less about differentiation when planning for teaching because they felt that, when teaching a class, responding to the needs of individual pupils was not possible or individual needs could only be partly met.

T5: “I can’t say that I can think about individual pupils very much. This is after all teaching for the whole class. So there are some pupils who can and others who can’t. But I have to teach somewhere in the middle, and I can differentiate just a little in this or that direction, but not very much”.

The results also showed that curriculum purposes were not met if there were some elements external to the curriculum that affected teachers’ planning for teaching. Some of the teachers emphasised that their well-being at work influenced their differentiation planning, in that they planned less for differentiation if they had challenges to their well-being.

T4: “And this individual support links completely to my well-being at work. So I realise that too ... So once in a while my lessons are quite poorly planned and I don’t even have anything to ‘pull out of my sleeve’”.

Teachers planning for teaching were also affected by other teachers’ understanding of co-teaching and flexible grouping as important means for differentiation and their willingness to plan and teach with other teachers. In other words, even if the teacher him or herself considered co-teaching and flexible grouping important, if there was no willingness among others at the school to teach together, then the teachers were not able to plan either co-teaching or flexible grouping.

T6: “This cooperation, which I think is very important, is very hard to execute at this school ... I would like ... that we could teach together, that we could make both short and long term plans together that it could be really something that could benefit the pupils ... so that I could give them what I have to give. But the problem is that, when we try to suggest co-teaching ... it isn’t accepted at this moment”.

On the other hand, if there was a common understanding among a school’s teachers that co-teaching and flexible grouping were important for implementing differentiation, the planning of both was successful.

T2: “We plan with colleagues what, how, to whom and with whom. Some networks ... Finding appropriate working methods together ... That is pedagogical preparing ... We plan at least one week beforehand what is coming so that we can anticipate and plan the best way to work with every pupil. We do it quite a lot ... and I bring my own expertise to that. However the main point in all this is the pupil”.
Some of the teachers thought that co-teaching and flexible grouping of pupils were a nice change from working alone. Therefore, neither co-teaching nor pupils' flexible grouping were used as a method for differentiation and thus did not necessarily serve only the pupils' needs.

T11: “It's nice to plan and try some co-teaching every now and then or to combine classes in big groups or make different kinds of groups to study something in the syllabus. I like to make some changes throughout the year because it brings joy to work and it is nice to plan and work together with other teachers”.

**Pupil guidance and counselling in teachers' planning for teaching**

The third subject of interest was how the requirements of curriculum changes were included in teachers' planning for teaching concerning systematic pupil guidance and counselling, and providing diverse feedback.

In general, the results showed that teachers did not think about providing pupil guidance or feedback when planning their teaching. However, discussing her planning, one teacher reflected on her planning for teaching in many ways. The same teacher ended her description of planning by noting that she should plan pupils’ guidance together with other things.

T7: The school is so much more than just the content aims of some subject and how you teach them. There are also other educational aims . . . because they are ... I think they are very important. The guidance is something you don't think about. Perhaps I didn't write it down because I didn't plan it, because you can't plan it ... The guidance is mainly involved when you meet the pupil ... of course it comes along when you are teaching the subjects too ... but maybe I can't perceive of it quite that way. So maybe that's why I don't think about the guidance when I plan my teaching ... But actually I should plan that too.

**Discussion**

In this article, teacher's pedagogical thinking in describing their planning for teaching has been studied. The main focus has been on how the changes that were made to the Finnish core curriculum in 2010 concerning pedagogical practices that influence the teaching of all pupils are manifested in teachers' pedagogical thinking. The results show that pedagogical purposes of curriculum changes occur variously in teachers' pedagogical thinking when planning for teaching. These variations can be explained by the different belief systems that influence teachers' pedagogical thinking. In other words, by committing themselves to some beliefs (e.g., theory, authority, model, textbook), teachers can ignore other issues (cf. Kansanen, 2004, p. 96). Also, differences among teachers' concepts of teaching and their different capacities for analysing curriculum content might explain the variations among teachers' pedagogical thinking when planning their teaching. However, it is essential that teachers understand curriculum purposes when they plan, because it plays an important role in putting curriculum purposes into practice (cf. Clark & Peterson, 1986; Kansanen et al., 2000; Shkedi, 2009). In other words, those issues that teachers think about and are aware of when planning for teaching are more likely to be implemented.

When teachers participate in local curricular processes, this also increases their commitment to curriculum goals and facilitates their achieving those goals (Halinen & Holappa, 2013; Pyhältö & Soini, 2007, pp. 151–52). Based on the
results of this study, participating in either a school’s curriculum process or its curriculum advancement before the curriculum changes seems to affect teachers’ pedagogical thinking when planning for teaching. In other words, the pedagogical purposes of curriculum changes appeared more widely and in more versatile ways in the planning of those teachers who have participated in the advancement of curriculum before curriculum changes or have been involved in the local curriculum process. For example, teacher two (T2), whose planning included several pedagogical purposes of curriculum changes, said that she had been involved in a local curriculum process. She thought that this process had deepened her planning for teaching and also positively affected her teaching.

T2: I know what it says in our local curriculum because I was involved in formulating it: What the aims are and what we are trying to achieve. It has also helped me to get off from ‘the old path’... I’ve been forced to think things over. It helps me focus more deeply on teaching.

Teacher six (T6), whose planning for teaching didn’t include many pedagogical purposes from the curriculum changes, didn’t participate in the local curriculum process and also thought that process had failed in her own municipality.

T6: I think that the teachers’ experience is that the new curriculum was given from above to our schools... And that a planning group planned the changes on their own. There was only this group, and the planning of this curriculum change was never implemented in our schools. And not all the schools participated. I think this is the case in many other municipalities too. At least this is how it happened in our case.

The changes that were made to the Finnish core curriculum in 2010 concerned the general part of the curriculum, which defines the fulfilment of basic education (cf. Vitikka, 2004; Vitikka, 2009). However, 90% of the curriculum changes inform and edify, while only 10% of them clearly direct teaching pedagogy (cf. Salminen & Annevirta, 2014). Thus, the purposes of the curriculum are not necessarily clear to teachers who are required to reflect on and interpret them by themselves. On the other hand, those teachers who have been involved in curriculum advancement have probably been able to analyse and internalise the pedagogical purposes of curriculum changes together with other teachers (cf. Halinen & Holappa, 2013; Pyhältö & Soini, 2007, pp. 151–52).

The results of this study show that some of the pedagogical purposes of curriculum changes didn’t occur in any of the teachers’ planning for teaching. In other words, the teachers didn’t think either about methods that develop pupils’ skills in learning or awareness of their learning, or about giving pupils guidance and feedback when planning their teaching. This result raises questions. How well do the teachers actually understand the pedagogical purposes of curriculum in other words all the issues that define teaching (cf. Salminen & Annevirta, 2014, p. 338)? Furthermore, if teachers think mainly about curricular subjects content and goals when planning for teaching (cf. Brown, 1988; Atjonen et al., 2008), are the wider purposes that influence the background of the curriculum ignored (cf. Shkedi, 2009; Vitikka, 2009)? It is of course also possible that pedagogical purposes of curriculum changes are so self-evident to teachers that they don’t think about them when planning their teaching. Teachers may also think that certain issues related to teaching – such as pupil guidance – belong so closely to
pupil interaction that teachers don’t plan them, or at least not consciously. However, according to Clark and Peterson (1986) and Kansanen and others (2000), the things that teachers are aware of when planning for teaching are the ones most likely to happen in teaching situations.

Furthermore, the results lead us to think about the connections between teachers’ pedagogical thinking, the implementation of curriculum purposes and teachers’ planning for teaching from the perspective of teachers’ expertise development. If teachers’ expertise is based on both a theoretical understanding of teaching practices and official (curricular) documents (Niemi, 2006, pp. 92–93), then student teachers’ curricular abilities should be strongly guided during teacher training. Also, students should be taught to reflect on their existing knowledge as well as their understanding of teaching and its objectives. Through this knowledge and understanding, which is applied in different kinds of teacher students’ practical training situations, teacher expertise is developed. In these training situations, it is essential that focus is directed toward understanding curriculum purposes and their influence on teaching practices. Furthermore, this understanding and expertise are constantly developing as a graduate teacher becomes a member of the teacher community (Vitikka, Salminen & Annevirta, 2012, p. 51). Seeing teacher communities’ curriculum as the common working process of teacher experts creates opportunities for all its members to develop further their own pedagogical expertise (Tynjälä, 2006, p. 99–101).

We argue that emphasising both student teachers’ and teachers’ planning for teaching while at the same time strengthening their planning skills can promote improvements to the implementation of curriculum in teaching practice. In other words, teachers’ pedagogical thinking and expertise could be developed further by analysing the curriculum purposes together with planning teaching. In Figure 3 we illustrate how planning for teaching can work as a tool for teachers’ pedagogical thinking, actually as ‘a gate of consciousness’ between a curriculum and teachers’ actions. When the pedagogical expertise of student teachers is developed, inter alia, through training planning for teaching situations at schools, awareness of curriculum purposes and theoretical understanding of teaching practices can be developed at the same time. Furthermore, the kind of curriculum processes in which school teachers analyse curriculum purposes and plan teaching together could also encourage implementation of curriculum purposes in teaching practices. Through teachers’ common pedagogical thinking, it is also possible to develop teachers’ pedagogical expertise.
Figure 3 - Teacher planning as ‘a gate of consciousness’ between curriculum and teachers’ actions in the context of teachers’ pedagogical thinking.

Reliability and limitations of the research

The quality and reliability of this study is of course affected by the ability of the teachers participating in the study to recognise and verbalise their pedagogical thinking related to their planning for teaching. Calderhead (1981, p. 213) has even questioned to what extent teachers are able to do this. Attention must also be paid to the fact that teachers’ pedagogical thinking when planning for teaching is of such nature that teachers talk or write about it less. Teachers who participated in this study indeed said that they hadn’t previously reflected or expressed their pedagogical thinking related to planning for teaching this way. However, methodological triangulation of the concept maps and interviews (cf. Åhlberg, 2010; Novak & Gowin, 1998) was meaningful in order for determining teachers’ pedagogical thinking when planning for teaching and also, as Åhlberg (2010) states, for insuring the reliability of the study. Thus, having teachers first draw a concept map, a familiar tool to them, gave them the opportunity to reflect on and become aware of their own pedagogical thinking related to planning for teaching. When drawing their concept maps, teachers thought intently about the issues they wanted to focus on and the connections between them. Moreover, during the interviews teachers were able to speak comprehensively about their thinking by pointing to the concept map. Furthermore, they were able to go back and forth in describing their planning for teaching and also reflecting their own pedagogical thinking. One example of this was a comment by teacher seven (T7). Triangulation between the concept map and interview helped us to obtain a detailed and comprehensive understanding of teachers’ pedagogical thinking when planning their teaching. After their interviews, some teachers said that both drawing the concept map and the interview were even learning experience for them (cf. Åhlberg 2010; Novak 2010). An example of this experience is a comment by teacher three (T3).

T3: This was really quite interesting because you can see this all here. You also learn from yourself. I didn’t know that I was so organised. This was a happy surprise.
The positive experiences of the teachers who participated in this study encourage further study of the triangulation of teacher concept maps and interviews, particularly in order to make visible teachers' pedagogical thinking.

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