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Teachers' roles, instructional approaches and teaching practices in the social-cultural context

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CONTENTS

LIST OF ORIGINAL PUBLICATIONS

This doctoral dissertation is based on the following original studies, which are referred to in the text using their Roman numerals.

I   Uibu, K., & Kikas, E. (2008). The Roles of a Primary School Teacher in the Information Society. *Scandinavian Journal of Educational Research*, *52*(5), 459–480.

II   Uibu, K., Kikas, E., & Tropp, K. (2010). Instructional approaches: differences between kindergarten and primary school teachers. *Compare: A Journal of Comparative and International Education, x*(x), 1–21 (in press).

III   Uibu, K., Kikas, E., & Tropp, K. (2010). Teaching Practices, Their Dynamics, Associations with Self-Reported Knowledge and Students' Language Achievement. In A. Toomela (Ed.), *Systemic Person-Oriented Study of Child Development in Early Primary School* (pp. 47–71). Frankfurt am Main: Peter Lang Verlag.

As author of this doctoral dissertation I contributed to the publications as follows:

Study I
I designed the study, worked out the theoretical framework, constructed the questions for the semi-structured interview, conducted the interviews with teachers, chose the narrative perspective method of content analysis and analysed the teachers' interviews. I wrote the article with support and contributions from my supervisor.

Study II
I designed the study, composed the theoretical framework, developed an original questionnaire, collected data from teachers and conducted variable-oriented data analyses. I interpreted the results and wrote the article with suggestions and contributions from my supervisor. The person-oriented analyses were carried out with the help of the third author.

Study III
I constructed all the instruments: the teachers' questionnaires as well as the language tests for grade 3 and grade 4 students. I participated in the collection of the data on the teachers and students within the framework of the larger project – *The effectiveness of Estonian primary school*. I carried out variable-oriented data analyses, participated in person-oriented data analyses with support from the third author, and wrote the article. My supervisor also guided me in the data analysis and writing process.

I. INTRODUCTION

According to social-cultural theory, the cultural context is a key aspect of the development of human knowledge, values and behaviour. Such development is conditioned by outward influences and experiences and contains many inner changes (see Vygotsky, 1928/1994). As cross-cultural studies have indicated, the conditions determined by historical, social and cultural surroundings have a substantial role in the development of cognitive, social, emotional and physical skills (Chien, 2007; Säljö, 2003; Vygotsky, 1928/1994). More precisely, this context forces one to think, feel and act in a certain way. However, it has a different impact on different individuals, because everyone interprets and reacts to the same situation in a slightly different way (Säljö, 2003). Apart from social relations and practices, human progress is influenced by general beliefs and values in society. However, each person adapts his/her behaviour in accordance with social norms, which relate to assumptions about and the conditions of a certain situation (Säljö, 2003; Valsiner, 2006).

In accordance with social circumstances and expectations, as well as their pedagogical knowledge, beliefs and concepts of teaching, teachers create a rather close-fitting pedagogical context, where the instructional process takes place. This pedagogical context has social frames and features just like the social-cultural context. When changes occur in society, the pedagogical context, which involves learning environments, practical tools (e.g., study materials, computers) and intellectual tools (e.g., curriculum, instructional approaches and teaching methods), should also change (Ruus, 2004; Säljö, 2003). In the information society the physical and intellectual tools as well as knowledge and experience are available to everybody (Davis, 2004). The new tools create new possibilities, which require new competencies from users, including teachers (see also Kikas, 2003). A lack of specific skills restricts teachers' use of these tools and possibilities. In other words, whether and how the pedagogical context has been changed in reality, depends on the decisions, choices and skills of each teacher, and this also has an impact on student progress (Guskey, 2002; Richardson, 2003).

The overall aim of the doctoral dissertation is to investigate teachers' roles, instructional approaches and teaching practices during a period in which fundamental changes have taken place in Estonian society. To this end, the dissertation will examine the dissimilarities between primary school teachers when they use new possibilities (i.e., information and communication technology, constructivist approaches) in the instructional process, the differences between the preferences of kindergarten and primary school teachers in regard to instructional approaches and the dynamics in the profiles of teaching practices among teachers at first and second school levels. In addition, primary school student progress in language is analysed in relation to the teaching profiles, pedagogical knowledge and teaching experience of teachers.

1.1. The social-cultural circumstances and changes in the pedagogical context of Estonia

Many fundamental changes have taken place in the Estonian education system within recent decades. The values of the past – strictly controlled curricula, traditional and ideologised instruction, distributing factual knowledge from teachers to students – are being replaced with more progressive principles (see Ruus, 2004; Õun, Saar-Ugaste, & Niglas, 2008). In general, the transformation to a more democratic education is visible; a competence-based approach has been chosen as the key concept behind curricula; information and communication technology (ICT) is used to change learning from a reproductive to a productive activity; and consideration of student individuality is now stated (Ruus et al., 2008; see Tiigrihüpe Pluss, 2001). To these ends, the promotion of different cognitive and social competencies among students (e.g., critical thinking, a deepening understanding of topics, problem-solving and collaboration skills) and student-centeredness are favoured in official educational documents (Estonian National Development, 2005; Koolieelse lasteasutuse riiklik, 2008; Põhikooli ja gümnaasiumi, 2007; Teadmistepõhine Eesti, 2007) as well as in the actual work performed by teachers (Loogma, Ruus, Talts, & Poom-Valickis, 2009).

Much attention has been paid to the use of new learning environments and instructional tools (see Tiigrihüpe Pluss, 2001; E-õppe arengukava üldhariduses, 2006). Almost all educational institutions had already been provided with computers and internet connections by 2007 (Europe in figures, 2007; E-õppe arengukava üldhariduses, 2006). The use of ICT and access to information through ICT has been viewed as an opportunity to intensify student-centred teaching (Wang & Reeves, 2003; Tiigrihüpe Pluss, 2001; Teo, Chai, Hung, & Lee, 2008). According to constructivist approaches, the competence to search for and employ information is important for constructing new knowledge (Mayer, 2002; Nuthall, 2002). It is expected that all these principles are already being taken into use in primary school stages. However, research has revealed that the proportion of students using computers in subject classes is only 5–10% (Estonian National Development Plan, 2005), and teachers' skills and confidence in using ICT options in the instructional process is much lower than expected (Loogma et al., 2009).

In addition, the teacher training system in Estonia is currently being reformed. For instance, universities are providing (re)training for kindergarten and primary school teachers, an induction year for young teachers has been added and broad in-service training has been established in order to improve teachers' qualifications (European Commission, 2008/2009; Teadmistepõhine Eesti, 2007; Õpetajate koolituse raamnõuded, 2000). Also, new courses in education and psychology have been introduced to university curricula. On the other hand, as the majority of teachers in Estonian schools today studied and worked in Soviet Estonia (Loogma et al., 2009), their attitudes, beliefs and

behaviour have been influenced by the ideals of the Soviet authorities. Several authors have referred to the fact that the behaviour of teachers is being influenced by their previous experiences and beliefs (Georgiou & Tourva, 2007; Guskey, 2002; Tryggvason, 2009; Wang & Reeves, 2003). Thus, effective contemporary teaching in the changed social-cultural circumstances also presupposes that teachers change their attitudes, understanding and pedagogical knowledge (Säljö, 2003), and that their perceptions of their roles and preferences in terms of instructional approaches and teaching practices will also change.

1.2. Conceptions of the teacher's role, instructional approaches and teaching practices

Various concepts are used to describe the teacher's role, instructional approaches and teaching practices (see about the role: Biddle, 1998; Calderhead, 1996; see for the instructional approaches: Entwistle, 1998; Jarvis, 2002; Opdenakker & Van Damme, 2006). They are mostly hypothetical constructs that help explain different aspects of instruction. However, it can be assured that instructional approaches, teaching practices and teacher's roles are interrelated through teachers' habitual behaviour and the implementation of different activities (Jarvis, 2002). In this study, the *teacher's role* is considered as a behaviour and set of characteristic activities that appear in the immediate educational context (e.g., traditional, computer-aided instruction) as teachers perform different profession-related tasks (Biddle, 1998). When working with students, teachers fulfil various roles (e.g., distributor of knowledge, developer and supporter of students, collaborator and/or individualiser (see Blom et al., 2001; Volman, 2005).

Instructional approach has been defined as a construct that includes a set of integrated practices that teachers employ to enhance a certain type of teaching (Beder, Lipnevich, & Robinson-Geller, 2007). Instructional approaches are divided broadly into three types – traditional, cognitive-constructivist and social-constructivist – and are connected with theoretical conceptions of learning and teaching (Entwistle, 1998; Opdenakker & Van Damme, 2006; Shuell, 1996). In accordance with instructional approaches, teachers employ different *teaching practices* (e.g., comprehension, application) aimed at achieving different competencies in students (e.g., developing understanding, social skills, enhancing integration and the practical application of knowledge etc.; see den Brok, Bergen, Stahl, & Brekelmans, 2004; Ornstein, 1991).

In this doctoral dissertation, the teacher's role, instructional approaches and teaching practices have been observed as tightly linked, but not coincident notions. They complement each other, and hence, the teachers fulfil different roles in the instructional process, which are connected to their instructional approaches and are expressed through different teaching activities.

1.3. Effective roles, approaches and practices in kindergarten and primary school education

Teachers use and modify different roles, instructional approaches and teaching practices according to the peculiarities of student developmental, school levels and learning environments. In kindergarten and primary school, teachers perform certain particular tasks and roles as described below.

Teachers' roles. In addition to the traditional roles of distributing knowledge to students, drilling and practicing and assessing the acquisition of knowledge via standardised tests (Bowe, 2004; Petersen, 2003; Volman; 2005, Walker, 1998), primary school teachers also develop students' physical, cognitive and social skills (Blom et al., 2001). They support the promotion of students' learning skills, independence and motivation. In using ICT, teachers implement some specific roles and activities. They act as tutors, guides and individualisers. Teachers plan student activities, give advice and instruct. As higher-level thinking skills (e.g., critical thinking and analysing) have not yet developed in the students, primary school teachers should help students in selecting relevant information. Although, teachers' traditional roles have always been and always will be teaching according to school levels and using practical tools, teachers are now required to fulfil supplementary roles. The instructional approaches and activities teachers use in the teaching process also determine these roles.

Instructional approaches. Specific instructional approaches have to vary according to the institution and the school levels involved. The advantages of the cognitive-constructivist and social-constructivist approaches as compared to the traditional perspective have been broadly stressed in the literature on primary education (Stipek, 2004; Stipek & Byler, 2004). The traditional approach primarily aims to develop academic skills, knowledge acquisition and memorisation. This approach originates from the direct transmission of information from teachers to students (Martinez, Sauleda, & Huber, 2001). The cognitive-constructivist approach emphasises the different cognitive skills students possess (e.g., understanding, constructing meaning, reasoning), and proceeds from the principle that teachers guide and support students (den Brok et al., 2004; Opdenakker & Van Damme, 2006). The social-constructivist approach focuses on collaborative learning and values the social experience in knowledge construction (Mayer, 2002; Nuthall, 2002). However, in comparison to kindergarten teachers, primary school teachers should focus on slightly different aspects when educating their students.

Students' general competencies, individual needs, self-regulation, as well as cognitive and social skills all progress in preschool, and this requires the application of various activities related to cognitive- and social-constructivist approaches. Although the child's pre-academic skills (e.g., speaking, listening and reading) are developing, kindergarten teachers should not focus on academic achievement and traditional teaching (Bracken & Fischel, 2006; Knight & Waxman, 1991; Perry, Donohue, & Weinstein, 2007).

On the contrary, cognitive performance and academic achievement becomes more important for students in the primary grades (O'Sullivan, 2006; Stipek et al., 1998), when children acquire basic knowledge and skills and their higher-level cognition is being built (Siegler, 2005; ten Dam & Volman, 2004; see also Vygotsky, 1934/1994). Therefore, the application of cognitive-constructivist as well as traditional approaches is appreciated. As the continual development of students' social and reflexive skills also increases in the primary grades, teachers should use more practices associated with the social-constructivist approach (Cremin, Burnard, & Craft, 2006).

Teaching practices. In accordance with curriculum requirements and the peculiarities of student development, practices that teachers use in the primary grades should support the learning of facts in students as well as the application of knowledge and skills (e.g., language competencies). The acquisition of facts and rules requires extensive memorisation and practice from students, and teaching practices that promote such rote learning (e.g., drill and practice, direct instruction; see Entwistle, 1998; Mayer, 2002; Siegler, 2005). In addition to promoting thinking skills in students (e.g., understanding, analysing and reasoning), the application of different comprehension practices (e.g., constructing new ideas, problem solving strategies) is also required (see Siegler, 2005). In order to encourage students to find meaningful links between academic learning, everyday life and experience, as well as to support their independence, teachers should use various applied, integrated and collaborative practices (Mayer, 2002; Nuthall, 2002). Moreover, it has been found that although applied and comprehension practices are used besides the promotion of basic skills and factual learning at the beginning of primary school, in higher grades the emphasis on these practices (i.e., application and comprehension) increases (Bloom, 1971; Cremin et al., 2006).

However, it has been found that apart from school level and student peculiarities, teachers' preferences for teaching practices are influenced by several personal factors. Thus, teachers' general pedagogical knowledge, fundamental beliefs and understanding of effective teaching, self-efficacy and education as well as curriculum aims and requirements all have a substantial impact on their perceptions of their role and preferred instructional approaches and teaching practices (Kyriacides, Campbell, & Christofidou, 2002; Lam & Kember, 2006; Loogma et al., 2009; Taimalu & Õim, 2005). Thus, this diversity in teaching also influences the child's development and academic success (Guskey, 2002; Richardson, 2003).

2. AIMS OF THE STUDY

The overall aim of the doctoral dissertation is to examine Estonian primary school teachers' perceptions of their roles, their preferences in terms of instructional approaches and teaching practices in the social-cultural context and local pedagogical circumstances. The social situation and education system in Estonia have undergone changes in recent decades. Although rapid changes towards democratisation have occurred, the diametrically opposing values of Soviet and progressive European pedagogy may still be simultaneously visible in teachers' beliefs, concepts and activities. We are still going through a period of change in which people of different ages, experience and educational backgrounds react differently. For example, teachers trained in the Soviet period may have adapted different behavioural patterns in comparison to teachers trained in the post-Soviet period. Proceeding from these assumptions, the research questions in the doctoral studies are as follows.

1. What roles do primary school teachers have in the information society (with its extensive use of ICT)?
2. Do teachers at different school levels differ in their instructional approaches and teaching practices?
3. Do teachers of different ages and teaching experience differ in their instructional approaches and teaching practices?
4. To what extent do teaching practices change over a one-year period (from grade 3 to 4)?
5. To what extent are teaching practices related to language achievements among students in primary school?

To answer these questions, three studies were carried out.

The general goal of *Study I* is to analyse how primary school teachers who extensively use computers in instruction perceive their role. The aim is to find out how using ICT influenced teachers' perceptions of their roles, which roles have diminished and which increased in comparison to traditional teaching. The impact of ICT on the instructional process as well as teachers' problems in using ICT were also discussed.

Study II aims to investigate the instructional approaches adopted by kindergarten and primary school teachers and their implementation through teaching practices. The study also examines the differences between teachers' preferences on the basis of institution and teaching experience, as well as subgroups of teachers with different profiles of instructional approaches.

Study III focuses on the dynamics of teachers' teaching practices over a one-year period. Based on longitudinal data, the comparison first examines how the use of teaching practices varies between two points in time (grade 3 and 4). Second, it investigates correlations between the use of different practices and teachers' self-reported pedagogical knowledge on the basis of age and experience. Third, an analysis of differences between the subgroups of teachers with different teaching practice profiles is carried out and these are tested for correlations with students' language test results.

3. METHODS

3.1. Participants

The samples in all three studies were drawn from larger projects. Five primary school teachers participated in Study I. These teachers used computers extensively with their students in subject classes. The sample in Study II consisted of 133 teachers (74 primary school teachers; 59 kindergarten teachers), who provided education to the same students over a period of several years. Forty-eight primary school teachers and 720 of their grade 3 and 4 students were included in the sample for Study III (longitudinal study) and were questioned or tested twice in autumn. The final data set for this study comprises 478 students who completed language tests, and 37 teachers who filled out questionnaires on two separate measurement occasions. A summary of the data from the teachers (Studies I–III) is presented in Table 1.

3.2. Instruments and data analyses

Different instruments and quantitative as well as qualitative methods of data analysis were used in the study in order to find typical patterns in the roles of primary school teachers who frequently used ICT (Study I); instructional approaches used by kindergarten and primary school teachers (Study II) and the dynamics in the teaching practices of primary school teachers (Study III).

In Study I, semi-structured interviews were conducted and analysed using the narrative perspective method of content analysis. An original *Teaching Practices Questionnaire* (TPQ) was developed for Study II and Study III based on earlier studies and theoretical considerations. The same research instrument (TPQ) was applied to different samples at different points in time (a complete questionnaire in Study II; part of the questionnaire in Study III). In addition, a *Teacher Pedagogical Knowledge Questionnaire* (TPKQ) and *Student Language Test* (SLT) were used in Study III.

Both, cross-sectional and longitudinal analyses were carried out. A variable-oriented approach to data analysis was used in Studies II and III to provide comparisons at group level. A person-oriented approach to data analysis was used to estimate differences across groups of teachers with different profiles of teaching practices in both studies. In the cross-sectional analyses (Study II), general trends were examined among teachers, as were groups of teachers with different profiles of instructional approaches. The longitudinal study (Study III) observed the dynamics in primary school teachers' teaching practices. A detailed overview of the instruments and data analyses used in the studies is provided in Table 1.

Table 1. Overview of data on teachers, instruments and data analyses in Studies I–III

Study	N[1]	Teaching experience	Instruments	Type of study	Data analyses[2]
I	5 PST	3.5 to 37	Semi-structured interview	Qualitative study	Narrative logic (Content analysis)
II	74 PST 59 KT	0.5 to 45 0.5 to 26	Teaching Practices Questionnaire	Cross-sectional quantitative study Person-oriented study	Rep. Measures ANOVA Two-way ANOVA Cluster analysis (Ward's) CFA Kruskal-Wallis test
III	48 PST	1 to 39	Teaching Practices Questionnaire Teacher Pedagogical Knowledge Questionnaire Student Language Test	Longitudinal quantitative study Person-oriented study	Rep. Measures ANOVA ANCOVA Correlation (R) Cluster analysis (Ward's) CFA Kruskal-Wallis test

Note[1]: PST – primary school teachers; KT – kindergarten teachers
Note[2]: CFA – Configural Frequency Analysis

4. RESULTS AND DISCUSSIONS

The doctoral studies showed that teachers perform various roles and implement different instructional approaches and teaching practices in the instructional process to develop different competencies in their students.

The results of Study I indicated that the primary school teachers chose their roles when using ICT according to what they would like to achieve, which tasks they were performing and which student skills they were developing. First, teachers considered their main task as providing students with good knowledge and improving their learning results. This is in accordance with the expectations of the Estonian education system where student academic achievement is a high priority (see Põhikooli ja gümnaasiumi, 2005). To achieve these ends, teachers performed traditional roles: distributor of knowledge, instructor, assistant, assessor, observer and developer of students. In contrast to earlier studies (Lehtinen, 2003; Säljö, 2003; Tella, 1997), Study I showed that the use of ICT did not reduce the provider of knowledge role. On the contrary, teachers found that it is better to distribute knowledge to students via ICT.

Second, teachers saw their role as motivating students and individualising learning according to their developmental peculiarities. They emphasised that these roles are easier to fulfil using ICT. This is in line with earlier studies (Atjonen, 2003; Barajas, Kikis, & Scheuermann, 2003). Third, the teachers did not pay that much attention to the development of students' social skills and the use of group work due to ICT. In reality, the development of social competencies is a high priority in the early years (Blom et al., 2001; Hativa, 1998), and computers offer good opportunities for this development. The fact that the teachers in Study I did not emphasise this aspect may mean that they lack the necessary skills to organise group work using ICT.

It should be noted that to improve instruction using ICT, the teachers performed some additional roles connected to choosing materials and facilitating student learning. Teachers acted as experts and developers of study materials, and facilitators and supporters of students. They also did extra work (e.g., planning activities, searching and assessing the quality of materials) and confronted specific problems (i.e., higher demands on teachers' competencies; less face-to-face communication). Nevertheless, the primary school teachers in Study I found that introducing ICT into their teaching had not brought about any essential changes to the nature of the teacher role – only the proportions between different roles related to instructional activities and tasks changed. This is in contrast with earlier studies (Wang, 2002; Wang & Reeves, 2003), which have shown that the use of ICT diminishes the traditional roles of teachers.

The results of Study II showed that teachers' instructional approaches and teaching practices varied according to institution (either kindergarten or school) and previous teaching experience. As opposed to earlier studies (e.g., Cremin et al., 2006; Kikas, Peets, Palu, & Afanasjev, 2009; Stipek, 2004), the results of Study II showed a general low preference among teachers for rote-learning

practices compared to comprehension, application and individualisation practices. A preference for rote-learning practices represented support for the traditional approach to teaching, and a preference for comprehension, application and individualisation practices expressed support for the cognitive-constructivist approach. However, primary school teachers emphasised support for rote-learning practices more than kindergarten teachers. This can be explained by the fact that primary school teachers feel responsible for their students' academic results, the curricula in Estonia is overloaded (Põhikooli ja gümnaasiumi, 2007; Ruus, 2004) and by teachers' previous models of effective teaching.

When comparing teachers' instructional approaches on the basis of their experience, it was revealed that beginners took student individuality into account less and promoted their independence less than more competent teachers. This is in line with earlier studies (Joram, 2007; Shoham, Penso, & Shiloah, 2003) and confirmed the idea that teaching in accordance with student peculiarities increases with practice.

In addition, seven different patterns of instructional approaches were found among teachers. Patterns similar to constructivist approaches existed among kindergarten teachers, while patterns analogous to both, traditional and constructivist approaches, were more common among primary school teachers. While kindergarten teachers should focus more on the development of the child's personality and general competencies, they used more cognitive-constructivist and generally constructivist teaching practices. By comparison, feeling responsible for the academic achievement of their students and a belief in formal teaching may explain why primary school teachers prefer a more traditional approach. However, profiles particularly related to social-constructivist approaches were not found in Study II. This can be explained by considering the teachers' previous experience (Ruus et al., 2008) and/or the principles of recent educational documents (see Koolieelse lasteasutuse riiklik, 2008; Põhikooli ja gümnaasiumi, 2007).

Some distinctions in profiles were also revealed on the basis of the experience of teachers. The most experienced teachers dominated the cluster that highly valued all teaching practices, and less experienced teachers in the cluster with low preference for all practices. This result is in line with earlier studies and may be related to teachers' self-efficacy beliefs (Kyriacides et al., 2002; Taimalu & Õim, 2005). More experienced teachers may also have had more experience with how to support the multifaceted development of students.

Study III indicated that there was a correlation between language achievement in students and teachers' teaching practices related to their pedagogical knowledge and changes in teaching profiles. As in Study II, the teachers in Study III preferred rote-learning practices less frequently than comprehension and application practices. However, their repertoire of teaching practices differed between grade 3 and grade 4. In particular, the use of rote-learning practices increased and application practices decreased in grade 4. As language

16

teaching at second school level is largely based on grammar rules and syntactic knowledge (Cain & Oakill, 2007; Siegler, 2005), it requires intensive memorisation and retrieval from students. Therefore, teachers might replace time-consuming application practices with simpler mechanical acquisition (see Bloom, 1971; Cremin et al., 2006; Mayer, 2002).

Some correlations were found between teachers' teaching practices and their self-reported pedagogical knowledge. Knowledge of child development correlated significantly with application practices in grade 3 and with rote-learning practices in grade 4; knowledge of instruction correlated to application practices in grade 3. These results confirmed the findings of earlier studies (Dembo & Gibson, 1985; Gee, Boberg, & Gabel, 1996; Kyriacides et al., 2002). The teachers' confidence in their knowledge correlated with a readiness to use more complex practices, and more experienced teachers presented greater confidence in their knowledge of instruction. But no significant correlations were found between teaching experience and teaching practices. This is contrary to earlier studies (Schepens, Aeltermann, & Van Keer, 2007; Taimalu & Õim, 2005).

Five clusters of teachers were found with different profiles of teaching practices. A large number of teachers remained in the same profile group for two consecutive years. This confirmed that teachers tend to be quite stable in their classroom practice preferences (Georgiou & Tourva, 2007; Guskey, 2002; Tryggvason, 2009). In addition, it was found that the students of teachers with different teaching profiles differed in terms of their language test results. The highest scores were obtained by the students of teachers who preferred all teaching practices or combined rote-learning and comprehension practices. Some correlations were also revealed between the dynamics of teachers' teaching profiles and their students' language achievement in grade 3 and grade 4. There were more students in the classes of teachers with a stable Combined-average profile, who scored consistently poorly in language tests in both grades than could have been expected by chance. More students than could have been expected by chance were found with scores that fell from average in grade 3 to low in grade 4, in the classes of teachers with an unstable profile, changing from a Comprehension-application to a Combined-average profile.

This finding shows that combinations of teaching practices and their frequent use play a role in student language development.

5

5. GENERAL DISCUSSION

Changes in the social-cultural situation establish the context for changes in education (i.e., pedagogical context; see Säljö, 2003; also Ruus, 2004). The education system in Estonia is influenced by values from the Soviet authorities in the past (e.g., traditional or even authoritarian instruction, good factual knowledge), as well as progressive European trends (e.g., constructivist teaching, developing problem-solving and critical thinking skills; see Ruus et al., 2008). These principally different values and social factors along with local peculiarities are expressed in teachers' roles, instructional approaches and teaching practices.

New technological opportunities have brought changes to physical and social learning environments (Davis, 2004; Säljö, 2003). Teachers' perceptions of their teaching activities and problems have changed today, as computers and the Internet have become an everyday part of the education of young people, and indeed their entire lives. Thus, the integration of ICT into instruction has generated extra work and higher demands on teachers. Moreover, there has been a shift in terms of which roles teachers spend a greater percentage of their time on in order to fulfil the instructional process. The roles that primary school teachers in the present study performed in these new conditions may be divided into three groups. First, traditional roles, which are the same in traditional as well as computer-aided instruction (e.g., distributor of knowledge, instructor, assessor). The teachers fulfilled these roles in order to provide students with a good education. Second, the roles those are easier to fulfil when using ICT (e.g., individualiser, motivator). The teachers performed these roles in order to consider the students' peculiarities. Third, the new roles emerged mainly due to using ICT (e.g., expert, a developer of study materials). Some roles – collaborator/partner and tutor for colleagues – are typical of computer-aided constructivist instruction (Petersen, 2003). These roles have diminished the central authority of teachers and increased the participation of both students and teachers in the instructional process. Primary school teachers in Study I did not associate the implementation of these roles with traditional teaching.

Apart from social circumstances, teachers' behaviour and understanding are influenced by general beliefs about effective teaching in society. Student cognitive development and academic achievement have been highlighted in most of the educational regulations, including curriculum requirements (e.g., Estonian National Development, 2005; Põhikooli ja gümnaasiumi, 2007). To perform to these expectations, teachers used various teaching practices that proceed from different instructional approaches. However, as in other democratic countries (see Brophy, 2001; Wells, 2002), the emphasis in education has been shifted more towards constructivist principles while traditional principles have lost their dominance in the last decade. The findings of Studies II and III confirmed this. Teachers valued the cognitive-constructivist approach and teaching practices that promote comprehension and application

skills the most. In previous studies it was found that these practices positively influence student cognitive performance as they presuppose the active (re)construction and deep processing of knowledge (Bryant, Burchinal, Lau, & Sparling, 1994; Kikas, 2003; Stipek, 2004). However, the teachers' preference for rote-learning practices was generally low in comparison to other practices. As the doctoral study obtained similar results using two different samples at three different points in time (in Studies II and III), it may be argued that these findings represent particular tendencies in Estonian primary school teachers' teaching practices (but see Kikas et al., 2009 for primary school teachers' math lessons). Instead of simple memorising and retrieval, the teachers emphasised student understanding, knowledge construction, explaining ideas, and searching and constructing new strategies for problem solving. However, the preference for traditional practices among teachers varied according to institution, educational level and teachers' profiles, but not teaching experience. In particular, greater support was given by primary school teachers who outnumbered kindergarten teachers; and by fourth grade teachers who outnumbered third grade teachers. As the child grows, the teachers' responsibility for academic achievement in their students enhances their use of rote-learning practices.

The social-constructivist principles were less valued by teachers. Various reasons may be found to explain this finding. First, the topic of the implementation of social-constructivist principles at the kindergarten and primary school levels has been dealt with differently by different researchers. Some studies have shown (Azmitia, 1996; Ota, Berdondini, & Kutnick, 2007) that the use of social-constructivist principles is not appropriate at this age. However, other studies have indicated that social-constructivist teaching has an important role in student academic achievement and later progress (Bryant et al., 1994; Perry et al., 2007). Such inconsistent findings may be misleading for teachers. Second, as social-constructivist principles have for a long time been less valued in Estonia and underestimated also in recent educational documents (see Koolieelse lasteasutuse riiklik, 2008; Põhikooli ja gümnaasiumi, 2007), many teachers seem to overlook them. Third, although the development of social competencies in students is important in primary grades (Blom et al., 2001; Hativa, 1998; Põhikooli ja gümnaasiumi, 2007), the transition from traditional teaching to social-constructivist teaching requires major changes in teachers' pedagogical knowledge and the concepts of learning and teaching. As many teachers were unfamiliar with the social-constructivist approach, they did not value it. However, current pre- and in-service training at universities may help teachers acquire these social-constructivist principles. Even more, teacher training should not be confined only to pedagogy, didactics (e.g., teaching methods, instructional approaches) or subject matter. It should incorporate social-cultural and institutional issues (see Simola, 2008).

Teacher preferences in terms of classroom activities (e.g., planning and arrangement of instruction, choice of teaching practices) also depend on many personal factors. For example, teachers' own beliefs, self-evaluations,

knowledge of pedagogy and teaching experience all have an impact on the instructional process and thereby on student achievement. Study III examined how teachers' teaching practices are related to their pedagogical knowledge, and how their teaching practice profiles are associated with student language achievement. As mentioned above, teachers' preferences for comprehension and application practices were generally higher than for rote-learning practices. However, better results in language achievement tests were obtained by students whose teachers used all types of teaching practices intensively or combined rote-learning practices with comprehension practices. As at the primary school level, the acquisition of vocabulary, grammar rules and definitions is expected, active memorisation and retrieval is required (Cremin et al., 2006; O'Sullivan, 2006). To develop student language skills, the teachers used rote-learning practices – meaningful drill and practice and factual questioning. The lowest scores were obtained by students whose teachers demonstrated average use of all teaching practices and who rated their knowledge of child development the lowest. The reason for this may be the teachers' unconscious choice of teaching practices. Thus, the study showed that intensive implementation of a reasonable combination of different teaching practices is required from teachers to develop language competencies in students.

5.1. Limitations

These doctoral studies have some limitations, primarily connected to the method adopted.

First, no alternative measurement techniques were used and data collection was limited to self-reported oral or written questionnaires. In Study I, an interview was carried out, and in Studies II and III, self-reported questionnaires were used. Therefore, teachers could answer in accordance with their beliefs rather than their practices, and this might have influenced the results. Therefore, the criteria of the self-evaluation approach were considered in developing the questionnaires for Studies II and III (Kyriacides et al., 2002), and the students' language tests were used to validate the teachers' responses in Study III. However, the direct observation of teachers' behaviour has not been used. In future studies, alternative methods (e.g., direct observation, intervention, or combining interview and questionnaires) should be included to obtain more elaborate and adequate information about teachers' actual behaviour.

Second, the samples in the studies were quite small, especially in the clusters in Studies II and III. This makes it difficult to make wider conclusions and broad generalisations about the daily work of Estonian kindergarten and primary school teachers in schools. This must be kept in mind when generalising the results of the studies.

5.2. Strengths

Despite the limitations, several strengths of the doctoral studies should also be highlighted.

First, all the results of the studies were examined in the social-cultural conditions and pedagogical context of Estonia. Official documents describing recent reforms in the education system of Estonia were used to establish a framework for studying trends in teachers' roles, instructional approaches and teaching practices.

Second, the methodology of the study is diverse. General trends as well as groups of teachers and single teachers were surveyed; both cross-sectional and longitudinal studies were designed and different methodologies (quantitative and qualitative) were used. In particular, a semi-structured interview was conducted in Study I, and the narrative logic of content analysis was used. In Studies II and III several statistical analyses were carried out. Furthermore, the doctoral study showed that to obtain more comprehensive information about both, variable- and person-oriented approaches, data analysis should be used (Studies II and III). The variable-oriented approach made it possible to make comparisons at the group level; the person-oriented research made it possible to find specific patterns in groups and distinguish significant subgroups of individuals. These analyses made it possible to obtain different but complementary information.

Third, in relation to the implementation of teaching practices, student progress in language learning was studied. In using teaching practices as they relate to instructional approaches, it provides a new dimension to the investigation of teachers' approaches and student achievement.

5.3. Conclusions

The results of the doctoral dissertation have both theoretical and practical importance. On theoretical and methodological levels, the following conclusions may be drawn from the results.

1. The social-cultural network, curriculum requirements and pedagogical context establish new frameworks and offer possibilities that require new competencies and activities from teachers. Studies I–II indicated that in the changed educational conditions, teachers fulfil some new roles, perceive higher demands and apply progressive instructional approaches and practices to their teaching. However, if teachers are directed by curriculum requirements and social expectations, they may take these principles more into account than student peculiarities and holistic development.

2. One longitudinal study was carried out (Study III), where the same subjects were questioned on two separate occasions in consecutive years.

This made it possible to examine the dynamics of teachers' knowledge, their teaching practices and language achievement in their students. The analyses of teachers' teaching profiles by repeated assessment made it possible to identify sensible implications about the dynamics in teachers' perceptions of their behaviour. Also, more and less effective profiles of teaching practices were found that encourage (or even constrain) primary school student language achievement.

On the practical level, the conclusions that are of interest to teachers and teacher educators are as follows.

1. The tendency to value traditional teachers' roles, instructional approaches and practices less was visible in Studies I–III. Emphasis is placed on cognitive-constructivist principles and traditional instruction is lesser appreciated approach in kindergarten as well as in primary school education. However, the application of traditional teaching and rote-learning practices is appreciated for the cognitive (including language) development of students and their academic achievement (Study III).

2. To apply information and communication technology (ICT) in teaching, primary school teachers see themselves mainly as individualisers, facilitators, motivators and experts in producing study materials (Study I). However, the traditional role of the teacher as a provider of knowledge remains important as well. This guarantees a good grounding in knowledge for the students and high outcomes in standardised achievement tests.

3. As the application of ICT has highlighted several problems and extra difficulties; for example, in planning and arranging activities, and searching and assessing the quality of materials (Study I), teachers need methodological support as well as pre- and in-service training introducing the main principles of evaluating educational study materials.

4. Social-constructivist teaching is the least valued approach among primary school and kindergarten teachers (Study II; see also Study I for group work). However, several application practices are appreciated for promoting social-constructivist teaching and supporting social develop-ment in students (also in computer-aided instruction). Teachers need training that introduces the application of social-constructivist principles in teaching (e.g., workshops, teaching examples).

5. Participating in in-service training courses increases teachers' awareness of the pros and cons of different instructional approaches and teaching practices (Study II). Also, better theoretical knowledge encourages teachers to make conscious choices about the most appropriate approaches and practices for promoting student development.

6. The confidence that teachers have in their pedagogical knowledge relates to their readiness to use more complex teaching practices (Study III). Confidence may increase with practice. Therefore, beginning teachers

need greater support from university courses and mentors to deal with promoting different competencies in students (i.e., problem solving and constructing new ideas; identifying and applying skills).

7. The implementation of a variety of teaching practices, and altering them in accordance with the individual's cognitive development is effective in language teaching (Study III). In particular, meaningful rote learning and comprehension practices are effective for promoting grammar skills and reading comprehension of primary school students.

8. High quality psychological and methodological training may influence the knowledge of teachers, their educational preferences and their actual behaviour (Studies I–III). Designing curricula and in-service training courses according to teachers' needs is important. Teachers need courses on how to effectively adapt teaching to suit the developmental needs and peculiarities of their students, courses on how to use social-constructivist principles in primary education and courses on using case-based instruction (conducting and analysing workshops, and different teaching models and styles based on theoretical grounds; developing strategies for use in practice etc.).

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8

SUMMARY IN ESTONIAN

Õpetajate rollid, õpetamiskäsitlused ja -tegevused sotsiaal-kultuurilises kontekstis

Sotsiaal-kultuurilisel kontekstil on mõju indiviidi teadmistele, väärtushinnangutele, käitumisele. Sõltuvalt sotsiaalsetest tingimustest, aga ka pedagoogilistest teadmistest, oskustest, uskumustest ja õpetamiskäsitlustest loob õpetaja kitsama konteksti, kus toimub õppimine ja õpetamine. Koos ühiskondlike muutustega muutub pedagoogiline kontekst. Viimastel kümnenditel on Eesti hariduses leidnud aset mitmed muutused: avardunud on õpikeskkonna mõiste, kasutusele on võetud info- ja kommunikatsioonitehnoloogia (IKT) vahendid ning kogu õpetajakoolitus toimub kõrgkoolitasemel. Nõukogudeaegne reproduktiivne õpetamine on asendunud demokraatlike väärtustega: õpilaste eripära arvestamisega, kriitilise mõtlemise, probleemilahendamise ja sotsiaalsete oskuste arendamisega.

Doktoriväitekirja eesmärk oli välja selgitada Eesti klassiõpetajate ettekujutus oma rollist ja ülesannetest; õppeprotsessis kasutatavatest õpetamiskäsitlustest ja -tegevustest sotsiaal-kultuurilises kontekstis ja muutunud pedagoogilistes tingimustes. Selleks uuriti, milliseid rolle täidavad klassiõpetajad, kes kasutavad õppetöös IKT vahendeid; millised erinevused ilmnevad eri vanuses ja erineva õpetamiskogemusega õpetajate (koolieelse lasteasutuse ja klassiõpetajate) õpetamiskäsitlustes ja -tegevustes. Väitekirjas selgitati välja, kuivõrd muutuvad klassiõpetajate õpetamistegevused ja profiilid õpilase vanemaks saades ning millised seosed on õpetajate õpetamistegevuste ja pedagoogiliste teadmiste ning õpilaste emakeele tulemuste vahel. Doktoriöö koosnes kolmest uurimusest, mille peamised tulemused olid järgmised.

I uurimuses analüüsiti nende klassiõpetajate ettekujutust oma rollist, ülesannetest ja probleemidest, kes kasutasid õppetöös intensiivselt arvutit. Uuringust selgus, et õpetajad valisid rollid vastavalt sellele, milliseid ülesandeid nad õppeprotsessis täitsid ning milliste pädevuste arendamist pidasid õpilaste puhul oluliseks. Lisaks traditsioonilistele rollidele (nt teadmiste jagaja, juhendaja ja hindaja) täitsid õpetajad uusi rolle (nt õppematerjalide ekspert ja arendaja, õppeprotsessi lihtsustaja) ning rolle, mille täitmist IKT vahendite kasutamine lihtsustas (nt õppetöö individualiseerija, motiveerija). Õpetajad leidsid, et info- ja kommunikatsioonitehnoloogia kasutamine õppetöös ei ole muutnud õpetaja rolli põhiolemust, kuid on toonud kaasa uusi tegevusi, ülesandeid, probleeme ning muutnud proportsioone erinevate rollide vahel.

II uurimuses võrreldi koolieelse lasteasutuse õpetajate ja klassiõpetajate ning erineva õpetamiskogemusega ja erinevatesse profiiligruppidesse kuuluvate õpetajate õpetamiskäsitlusi ja -tegevusi. Kasutades variaabli- ja indiviidi-keskseid andmetöötlemise meetodeid, leiti nii üldised tendentsid kui ka erinevused õpetamistegevuste profiilides. Uuringust selgus, et kõige enam väärtustavad õpetajad kognitiiv-konstruktivistlikku õpetamist ja seda ise-loomustavaid tegevusi (nt arusaamist, teadmiste rakendamist, õpetamise

individualiseerimist). Seevastu mehaanilist õppimist toetavate tegevuste kasutamine oli vähene. Võrreldes erinevate institutsioonide ja staažigruppide õpetajate eelistusi, selgus, et klassiõpetajad väärtustasid teadmiste mehaanilist omandamist ja traditsioonilist õppimist rohkem kui koolieelse lasteasutuse õpetajad. Kogenumad õpetajad kasutasid aga rohkem individualiseerimist ja õpilaste iseseisvust toetavaid tegevusi. Õpetajate profiiligruppide võrdlusest selgus, et koolieelse lasteasutuse õpetajaid iseloomustas rohkem konstruktivistlik õpetamiskäsitlus; klassiõpetajaid traditsiooniline ja konstruktivistlik õpetamiskäsitlus. Uuringus osalenud õpetajate poolehoid sotsiaal-konstruktivistlikule õpetamisele oli madal nii kogu grupi tasandil kui ka erinevates profiiligruppides.

III uurimuses selgitati välja klassiõpetajate õpetamistegevuste dünaamika, õpetamistegevuste seosed hinnangutega oma pedagoogilistele teadmistele ning õpilaste emakeeletesti tulemustega. Variaabli- ja indiviidikesksete meetodite kasutamine võimaldas analüüsida erinevusi grupitasandil ja erinevates profiiligruppides. Sarnaselt II uurimusega kasutasid klassiõpetajad arusaamist ja teadmiste rakendamist rohkem kui mehaanilist õppimist arendavaid tegevusi. Õpetajate hinnangud oma pedagoogilistele teadmistele seostusid valmisolekuga kasutada kõrgema taseme õpetamistegevusi. Analüüsides erinevusi profiiligruppides, selgus, et suur osa klassiõpetajaist väärtustas kõrgelt kõikide õpetamistegevuste rakendamist või mehaanilise õppimise ja arusaamise kombineerimist. Nende õpetajate õpilased saavutasid emakeeletestides paremaid tulemusi. Madalaimad tulemused olid õpilastel, kelle õpetajad rakendasid kõiki õpetamistegevusi keskmisel tasemel. Nende õpetajate hinnangud oma teadmistele lapse arengust olid ka kõige madalamad.

Analüüsides muutusi õpetajate õpetamistegevuste profiilides, selgus, et paljud õpetajad liigitusid mõlemal aastal samasse profiiligruppi. Seosed ilmnesid õpetajate profiiligruppide dünaamika ning õpilaste 3. ja 4. klassi emakeeletesti tulemuste vahel. Madalamad emakeeletesti tulemused kui juhuslikult oodatud olid nendel õpilastel, kes õppisid stabiilse Kombineeritud-keskmise profiiliga õpetajate klassides. Õpilasi, kelle 4. klassi tulemus langes võrreldes 3. klassi tulemustega, õppis oluliselt rohkem kui juhuslikult oodatud nende õpetajate klassides, keda iseloomustas Arusaamise-rakendamise profiili muutus Kombineeritud-keskmiseks profiiliks.

Doktoriööst selgus, et koolieelse lasteasutuse ja põhikooli I–II kooliastme klassiõpetajad kasutavad õpetamistegevusi ning täidavad rolle, mis lähtuvad peamiselt kognitiiv-konstruktivistlikust õpetamiskäsitlusest. Õpetajate poolehoid traditsioonilisele õpetamisele oli oluliselt madalam ja sotsiaal-konstruktivistlikule õpetamisele oli madal. Uuringud näitasid, et toetada õpilaste arengut, on tähtis, et õpetaja täidaks erinevaid rolle ja kombineeriks õpetamist vastavalt kooliastmele ja õpilaste eripärale. Traditsiooniline õpetamine ja mehaanilised õpetamistegevused toetavad õpilaste kognitiivset (sh keelelist) arengut ja akadeemilisi saavutusi. Konstruktivistlik õpetamine on vajalik, arendamaks kõrgema taseme mõtlemisoskusi.

CURRICULUM VITAE

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Education

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Professional employment

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Scientific activity

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1984   Kohtla-Järve 1. Keskkool

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1996–2000   Tartu Hugo Treffneri Gümnaasium, eesti keele ja kirjanduse
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1989–1995   Lähte Ühisgümnaasium, eesti keele ja kirjanduse õpetaja

Teadustegevus

Teadustöö põhivaldkonnad:
– õpetajate õpetamiskäsitlused, õpetamisstiilid ja -tegevused, nende seosed
  õpilaste keelelise arenguga
– info- ja kommunikatsioonitehnoloogia (IKT) kasutamine õppeprotsessis
– IKT mõju õpetaja rollile ja koolikultuurile

DISSERTATIONES PEDAGOGICAE
UNIVERSITATIS TARTUENSIS

1. **Карлеп, Карл.** Обоснование содержания и методики обучения род- ному языку во вспомогательной школе. Tartu, 1993.
2. **Ots, Loone.** Mitmekultuurilise hariduse õppekomplekt eesti kirjanduse näitel. Tartu, 1999.
3. **Hiie Asser.** Varajane osaline ja täielik keeleimmersioon Eesti muukeelse hariduse mudelitena. Tartu, 2003.
4. **Piret Luik.** Õpitarkvara efektiivsed karakteristikud elektrooniliste õpikute ja drillprogrammide korral. Tartu, 2004.
5. **Merike Kull.** Perceived general and mental health, their socio-economic correlates and relationships with physical activity in fertility-aged women in Estonia. Tartu, 2006.
6. **Merle Taimalu.** Children's fears and coping strategies: a comparative perspective. Tartu, 2007.
7. **Anita Kärner.** Supervision and research training within the professional research community: Seeking new challenges of doctoral education in Estonia. Tartu, 2009.
8. **Marika Padrik.** Word-formation skill in Estonian children with specific language impairment. Tartu, 2010.