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## Multi-grade teaching practices in Austrian and Finnish primary schools

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## ABSTRACT

This article describes the teaching strategies used in multi-grade classes in five small rural primary schools in Austria and Finland on the basis of the content analysis of transcribed teacher interviews. Two main types of strategies were identified: practices that (1) aim to reduce or (2) capitalize on students' heterogeneity. The results illustrate how differently multi-grade teaching can be realized and how it can effectively support individual student learning. The findings are discussed with regard to teacher education with the intention of increasing the awareness of the professional skills required in high-quality teaching practices in multi-grade teaching.

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## 1. Introduction

This article seeks to contribute to the discussion of rural education and teaching in multi-grade classes by reporting an investigation into the teaching strategies used by teachers of such classes in rural primary schools. The main focus is on small schools in Austria and Finland, defined in our study as schools with fewer than fifty students.<sup>1</sup> In general, small schools are rural primary schools. They usually employ two or three teachers who teach different grades in the same classroom; this is called multi-grade or multi-age teaching. Concern over the closure of small schools and the related reduction in multi-grade teaching has motivated research on the subject. The contributions in the edited volume on multi-grade teaching based on the "Second International Multi-grade Teaching Conference" showed that multi-grade teaching is common throughout the world, in both developed and developing countries (Cornish, 2006a). The conference was held in Bangkok in September 2004. Accordingly, the *International Journal of Educational Research* highlighted the importance of rural school studies by publishing a special issue on the topic in 2009 that included reviews of research on rural schools and their communities in Norway, Sweden, Finland, England, and Scotland. The review articles were, however, based on studies conducted ten years ago or more, and thus the need for new and diverse research is clear (Kvalsund & Hargreaves, 2009).

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<sup>1</sup> How a school is defined as small or big is a contested issue. Statistics Finland defines a small school as belonging to one of three categories based on the number of pupils attending: fewer than 20 pupils, fewer than 50 pupils, or fewer than 100 pupils (Tilastokeskus, 1991). In Austria, a small school usually refers to a school with multi-grade classes located in a peripheral rural area (Müller et al., 2011).

In the discussions about maintaining or closing small rural schools, pedagogical arguments have often been neglected, which have motivated our research interest in how teachers actually teach their multi-grade classes. It has been argued that multi-grade teaching has certain benefits, including student-centered learning and teaching processes, flexible teaching, a family-like and secure atmosphere, the ease of implementing innovative change, support for individual learning tempos, and flexible school-entry (e.g., [Kalaoja & Pietarinen, 2009](#)). However, multi-grade teaching can also be seen as especially challenging because of the widely varying needs of children of different ages. Despite its importance in primary education, there has been a lack of research on the practices used in multi-grade teaching. This article seeks to address this gap. Our research question “What kinds of teaching practices are used in multi-grade classes?” focuses on the *micro-level* of school pedagogy ([Fend, 2006](#)) with the aim of identifying the learning and teaching possibilities and resources that are supported or available in multi-grade classrooms. The study is based on empirical data consisting of narrative interviews of Austrian and Finnish primary school teachers. Austria and Finland are compatible case-studies for this internationally relevant topic because of the prevalence and the long tradition of multi-grade teaching in both countries. Their cultural differences with regard to basic education and teacher education support the cross-cultural analysis ([Lahelma and Gordon, 2010](#)), allowing us to uncover differences as well as similar patterns of multi-grade teaching practices across the two countries.

To understand education in multi-grade teaching, the definitions of multi-grade teaching proposed by [Cornish \(2006b\)](#) and [Kalaoja \(2006\)](#) are used as a theoretical framework. Based on the research results, we will additionally discuss how multi-grade teaching challenges teacher education, as both countries seem to have deficits with respect to professional training for multi-grade classes. We will also investigate whether the teaching practices used in multi-grade classes can be considered generalizable methods of dealing with heterogeneity and diversity.

## 2. Previous research and theoretical background

From a European perspective, there has been little research on teaching and learning in small rural schools over the last two decades ([Kvalsund & Hargreaves, 2009](#)), and information on the incidence of multi-grade teaching is difficult to find ([Mulryan-Kyne, 2007](#)). [Little \(2001\)](#) points out that most research on multi-grade teaching has focused on its impact on students' learning. The discussion of multi-grade teaching has often addressed the question of whether students' learning results are better in single-grade classes or in multi-grade classes, but studies have generally not found significant differences between these two forms (e.g., [Veenman, 1995](#); [Åberg-Bengtsson, 2009](#); [Lindström & Lindahl, 2011](#)).

According to [Hoffman \(2003\)](#), around the year 2000, the increased awareness of multi-age education as a child-centered strategy began to arouse interest in the practice throughout the United States as well as in many other countries. For example, in the Central-European German-speaking research area, multi-grade teaching has been investigated in recent years, especially from the point of view of school reform. The practice has been seen as a possibility to optimize the phase of school beginning, as multi-grade teaching enables flexible school entry and does not “dramatize” developmental differences between children ([Heinzel, 2007, p. 38](#)). Multi-grade classes may also reduce the problems associated with grade repetition for students who have not met achievement objectives. Because students do not have to change classes according to age group, their class communities remain in part the same, ensuring the continuity of social relations ([Kucharz & Wagener, 2009](#)). In 2009, a collaborative research project on small village schools entitled *Schule im alpinen Raum* (“Schools in Alpine regions”) was launched in Austria and Switzerland. The aim of the project is to clarify how Alpine schools (with multi-grade classes) can offer equitable educational opportunities. The empirical data are collected primarily through questionnaires and interviews with school leaders, teachers, students, and villagers ([Müller, Keller, Kerle, Raggl, & Steiner, 2011](#)). The results indicate that only a few of the small schools under investigation utilize the possibilities of heterogeneous multi-grade classes; instead, teaching is organized such that each grade works mainly on its own assignments ([Raggl, 2011](#)).

In Finland, most of the empirical research on pedagogy in small schools was conducted more than ten years ago by [Kalaoja](#), who has studied both teaching in rural schools and the relationships between schools and local communities ([Kalaoja & Pietarinen, 2009](#)). In the 2000s, a few dissertations on the topic were completed: [Karlberg-Granlund's \(2009\)](#) research focuses on the pedagogy, culture, and structure of village schools, while [Kilpeläinen \(2010\)](#) examines learning and growth environments in rural schools as described by teachers.

There have only been a few studies on the historical development of multi-grade teaching. [Kalaoja \(2006\)](#) investigates the different phases of multi-grade teaching in Finland since the end of the nineteenth century. He calls the first phase the “parallel curriculum”, in which a common theme was presented for all the grades but each grade was taught in turn. During the following phase, starting in the early 1950s, one important concept focused on decreasing the number of teaching groups in the classroom, which allowed the “alternating curriculum” system to be introduced: The curriculum was rotated, meaning that the entire class studied the syllabus of one grade for a year. In the next school year, they followed the syllabus for the other grade. This alternating curriculum has not been used in mathematics, Finnish or other languages. The most extensive change process in multi-grade teaching in Finland began in the 1970s, a phase that was characterized by the “spiral curriculum”—a concept strongly supported by the ideas of Jerome Bruner ([Bruner, 2006](#)). The theoretical precept was that the basic concepts of every subject should be taught in the lower grades, if possible, and then the subject matter should be deepened and expanded on in the upper grades. The aim was to take each student's level of development into account more carefully, similar to current theories of multi-age teaching. In our study, we are interested in whether and how the various curriculum forms studied by [Kalaoja \(2006\)](#) are still in use in multi-grade teaching.

Some of the definitions of multi-grade teaching proposed by [Cornish \(2006b\)](#) are comparable to those elaborated by [Kalaoja \(2006\)](#). Cornish's definition of "common timetable" resembles the parallel curriculum, and her concept of "curriculum rotation" is similar to the alternating curriculum. However, [Cornish \(2006b\)](#) identifies additional practices or strategies used in multi-grade classes. "Split timetable or subject stagger" means that, for example, in a class with two grades, the grades study different subjects; the teacher prepares two different lessons and alternates between the grades. "Common timetable" means that students in each grade can study the same subject at the same time, but on the basis of different instructions and activities for each grade. "Some whole-class teaching" refers to a practice in which the subject areas are the same for both grades and parts of lessons (often introductions and conclusions) are taught to all groups together. "Whole-class teaching for the whole period" means that the two grades are taught the same subject and content at the same time. [Cornish \(2006b\)](#) also describes "within-grade grouping", "cross-grade grouping", and "peer tutoring"; these are practices in which students help one another.

Based on the definitions of multi-grade class practices established by [Kalaoja \(2006\)](#) and [Cornish \(2006b\)](#), it can be concluded that the essential points in organizing the teaching of multi-grade classes seem to be the grouping of the students, the selection of the contents for different groups, and the preparation of activities and teaching materials. Conceptually, we define the term *teaching practice* as referring to all the practices teachers use for planning teaching and for instruction in multi-grade classes. It can be expected that the size of the class is also crucial—with very small classes, grouping is often not feasible. In addition, [Hoffman \(2002\)](#) emphasizes flexible grouping strategies as significant contributors to students' learning in multi-age classes. One can also assume that successful organization will be linked to the student-related social practices of the teachers and fairly distributed time management between the different groups of learners.

### 3. Austrian and Finnish small primary schools as the research context

The empirical part of this research is based on a study conducted in the context of Austrian and Finnish primary schools. Both countries feature nine years of compulsory basic education, preceded by one year of compulsory kindergarten in Austria and by one year of pre-primary education in Finland. Compulsory schooling starts at the age of six in Austria and at the age of seven in Finland. A specific feature of the Austrian education system is the four-year primary education structure (*Volksschule*) ([Austrian Federal Ministry of Education and Women's Affairs, 2015](#)). After completing these four years, students are assigned to three types of secondary level I schools (fifth–eighth grades): new secondary school (*Neue Mittelschule*), general secondary school, or academic secondary school. Secondary level I is followed by various options for secondary level II (ninth school year onward) in the Austrian education system. Finnish basic education consists of a nine-year comprehensive school ([Finnish Ministry of Education and Culture, 2015](#)). The first six years of comprehensive school are usually called "primary school" (the term used in this article), and grades seven to nine are referred to as "lower secondary school". In Finland, the school structure has been the same for all children during their first nine school years since the beginning of the 1970s, when the Finnish comprehensive school reform was enacted.

There are ongoing school reforms in both countries. The Austrian reform of implementing a new secondary school (*Neue Mittelschule*) for 10- to 14-year-olds to replace the previous secondary level I options that have separated students very early based on their levels of achievement ([Austrian Federal Ministry of Education and Women's Affairs, 2015](#)) is still going on. The individual demands of students are now emphasized; the aim of the *Neue Mittelschule* is to enhance equal opportunities for the further education of all children after the four years of primary schooling. In Finland, the most extensive educational innovation since the comprehensive school reform, the "tripartite supporting system", is currently underway, focusing on the implementation of the idea of inclusion ([Finnish National Board of Education, 2015](#)). The intention is that no student will be left behind, and that students in need of help will be supported in very early phases in their own school classes rather than in a separate special education group.

In the school year 2012–2013, there were 2735 (15.3%) multi-grade classes in Austria ([Statistik Austria, 2013a](#)) out of a total of 17 899 primary school classes ([Statistik Austria, 2013b](#)). In Finland, according to a survey conducted in Spring 2012, there were 2510 (16.4%) multi-grade classes out of 15 287 primary school classes ([Laitila & Wilén, 2014](#)). It is notable that in both countries the majority of multi-grade classes are in small primary schools, but some are also found in larger primary schools. There are two main reasons for multi-grade teaching in both countries ([Kalaoja & Pietarinen, 2009](#); [Müller et al., 2011](#)). (1) Multi-grade teaching is implemented in order to prevent schools from closing, as it enables the stabilization of learning-group sizes in rural areas in which birth rates have declined and out-migration has increased. (2) Multi-grade classes are also formed on the basis of pedagogical aims, with reference to the concept of multi-age teaching and especially its philosophical foundation: In multi-age classes, students are taught according to their developmental stage. Decisions about students' learning are not based on assumptions related to their age or grade, but rather on the learning support they individually require ([Cornish, 2006b](#); [Hoffman, 2002](#)). In Austria, such schools have been organized primarily in the context of Montessori pedagogy; this system was named after Maria Montessori, a reformist pedagogue who developed didactical ideas about learning in heterogeneous groups in the early 1900s ([Ludwig, 2004](#)).

The current challenges of school education and school reforms faced by Finland and Austria are comparable, involving the need for improvement in dealing with students' heterogeneity, more personal support for students, and more inclusive education. These reforms also require diversified teaching methods and specific teacher competences. Thus, our study of teaching practices in heterogeneous groups of multi-grade classes is a topical issue from the perspective of ongoing school

reforms; we seek to contribute to the understanding of the qualities and prerequisites for good teaching in heterogeneous student groups and the related requirements for professional teacher education.

With regard to teacher education, the education of primary school teachers in Austria is accomplished in teacher colleges (*Pädagogische Hochschule*). The Austrian teacher education system is currently undergoing reforms; starting in 2016, all aspiring teachers will require a master's degree. In Finland, all prospective primary school teachers are educated at universities and must complete master's degrees, a system that has been in place since the early 1970s. Overall, there is a lack of empirical evidence in research on multi-grade teaching regarding teaching quality and teacher education. At the same time, multi-grade teaching is gaining new importance in the context of future plans for small schools, alternative scholastic education, and reforms of educational systems, as well as for inclusive education in high-quality teacher training for the twenty-first century. Consequently, our project is targeted at investigating the strategies used to cope with diversity and inclusion from a comparative, bi-national perspective.

#### 4. Collecting and analyzing teacher narratives

Teacher interviews ( $n = 14$ ) were collected in three small Austrian rural schools in 2013 and in two small rural schools in northern Finland from 2010 to 2012. The Austrian schools were selected by first sending an email enquiry to 18 rural schools in one Austrian state. Two schools replied spontaneously, expressing interest in taking part in the research project. The other schools were contacted by telephone, and one additional school expressed its willingness to participate in the study. These three schools, located in different parts of the state, represent typical Austrian small rural schools: they are situated in the center of their small communities, not far from the church and the town hall. In two of the Austrian schools, there were two multi-grade classes and two class teachers, with about 25–30 students from preschool to the 4th grade (children five to ten years old). In the third school, all of its 11 students from preschool to the 4th grade formed one class with one teacher and a part-time teacher. In the Austrian schools, the data from teacher interviews ( $n = 7$ ) were collected during two school visits of 2–3 days. Additionally, a head teacher who regularly visits school lessons of her teaching force was also interviewed.

The two Finnish schools were chosen as representative of “typical” small Finnish schools, with three multi-grade teaching groups and three class teachers. There were about 40–45 students from preschool to the 6th grade in both schools (children six–twelve years old). Both schools were located about 15 km from the center of the municipality and also from the next nearest school. All teachers came from neighboring villages or towns. In one Finnish school, the data from teacher interviews ( $n = 4$ ) were collected during three school visits of 3–5 days. In the other Finnish school, data were collected during a one-day visit to the school ( $n = 3$ ). Teachers were interviewed during the school day and were also visited in their classrooms for one lesson. In the classroom visits, the following aspects were observed: the arrangement of the classroom, the teaching material, the grouping of students, teachers' utilization of time and how they shifted between different groups and stages, and students' peer interactions. In this article, we use only the data from teacher interviews to answer the research question; however, we recognize that the observation data have improved our understanding of the teaching practices described by the teachers.

The duration of the interviews varied between 25 and 40 min. In this article, the interviewed teachers are referred to with pseudonyms. The code A after the pseudonym denotes an Austrian teacher; the code F, a Finnish teacher. These codes are used when the nationalities are not specified in the context of the text. The data consist of 14 transcribed interviews of class teachers: five female Austrian teachers (Bettina, Julia, Ines, Karin, and Linda), five female Finnish teachers (Johanna, Leena, Maria, Noora, and Petra), two male Austrian teachers (Chris and Hans), and two male Finnish teachers (Lauri and Matias). Ines (A), Noora (F), Petra (F), and Lauri (F) can be considered beginning teachers: at the time of data collection, they were working in their first jobs as teachers, having graduated 1–3 years previously. Huberman (1989) calls this stage of a teacher's career the stage of coping or finding, where it is important to “survive” in the classroom. Julia (A), Johanna (F), Maria (F), and Matias (F) were in the stage of stabilizing (Huberman, 1989) in their teaching careers, having teaching experience of 4–7 years. Leena (F) and Bettina (A) began their teaching careers at the beginning of the 1990s; they were in the stage of experiment and active development (Huberman, 1989), like Chris (A), Hans (A), and Karin (A), who all had about ten years' experience with teaching. On the basis of Leena (F) and Bettina's (A) almost twenty years of teaching, they can be considered experienced teachers, as can Linda (A), who had taught for about thirty years.

Following the narrative approach (Riessman, 2008), we sought to study and understand the personal work and life of teachers through their narrative descriptions of these aspects (Elbaz-Luwisch, 2005). The important concepts in narrative inquiry are “story” and “narrative”; however, researchers in this field use these terms in different ways. In the study of literature, “story” is defined as a sub-concept of narrative (Riessman, 2008). “Story” can be understood as a narrative that has a plot and consists of sequenced courses of incidents. “Story” may refer also to narratives that have been obtained as research results. In line with the social scientist Riessman (2008, p. 7), we interpret the two concepts synonymously in this article. The aim was to listen to multi-grade class teachers' “voice” through their stories of experience and the “language of practice” (Gudmundsdottir, 2001, pp. 228–229). During the interviews, teachers were asked to elaborate on how they had begun their careers and to describe their work in their small schools and multi-grade classes. They were also asked to evaluate the advantages and disadvantages of multi-grade teaching and the use of peer learning in their teaching.

The interviews were recorded on digital recorders and transcribed; the theory supported analysis was based on the method of content analysis (Neuendorf, 2002; Riessman, 2008). We began by reading the teacher narratives and differentiating episodes in which teachers described their various teaching practices and principles, often illustrating them

with teaching situations from their own classes (Riessman, 2008). The episodes were then organized under different themes and sub-themes using a computer-assisted qualitative data analysis program called NVivo10, software that supports qualitative and mixed-methods research (Bazeley, 2007). The following three main categories were identified: (1) student group formation and subject organizing, (2) peer tutoring, and (3) differentiation. Each main category was split into various sub-categories to which the analyzed episodes were then assigned. In the following paragraphs, these main categories and sub-categories are described in more detail.

The following sub-categories of the first main category *student group formation and subject organizing* are primarily based on the definitions of multi-grade practices proposed by Kalaoja (2006) and Cornish (2006b):

- *parallel curriculum*: students share the same themes or subjects but study the syllabus of their grade; each grade is taught in turn,
- *curriculum rotation*: an entire class studies the curriculum of one grade for one year; in the next school year, they follow the syllabus of the other grade; grades are taught together,
- *curriculum alignment and spiral curriculum*: similar topics are identified in different grade curricula; students share the same themes or subjects; the basic concepts or ideas that are taught in the lower grades are deepened and expanded on in the upper grades,
- *subject stagger*: grades study different subjects; each grade is taught in turn,
- *whole-class teaching*: grades study and are taught the same subject at the same time and use the same material.

As noted above, all these definitions implicate student grouping as the key point in organizing teaching in a multi-grade class. The data for the second main category of *peer tutoring* was further divided into the following two sub-categories: *spontaneous peer tutoring*, and *guided peer tutoring as a teaching strategy*.

The teachers in our study stressed the significance of differentiation in their teaching, and therefore *differentiation* was added to the main categories as well. The concept of differentiation is broad, including internal and external differentiation, among other aspects (Scholz, 2010). In internal differentiation, developmental differences and differences in background among individual students are taken into account. External differentiation refers to the different forms of schools and the division of students into groups based on their levels of achievement. We consider differentiation to be data-based, as the teachers' ideas and descriptions of differentiation generally referred to taking account of the needs of different learners in their classes. The episodes concerning differentiation were classified into the following sub-categories: *giving different assignments*, *giving remedial education*, *using personal work plans*, and *integrating students with special needs*.

In the following section, the research results are presented based on the categories described above, along with examples from the teacher interviews.

## 5. Results

The teaching practices in the multi-grade classes in our study varied widely and were linked to teacher personality, subjects, and teaching situations. Identifying the most common practice is therefore not possible; thus, any strategy that was used by more than one teacher in both countries is reported as a commonality.

### 5.1. Student group formations and subject organizing

Based on our data, there are some common practices in Austrian and Finnish multi-grade classes. The subjects of Science, religion, and art were taught as *whole-class teaching*, using the same teaching material for all grades. Three Finnish teachers also used the whole-class teaching method in the upper grades (grades 3–6) in the subjects of geography, biology, and history (history was taught only in grades 5–6), employing *curriculum rotation*. For example, in a geography lesson in a Finnish multi-grade class with grades 3 and 4, the entire class was studying the curriculum for the fourth grade; next year, they will follow the third grade's curriculum. This organization may cause difficulties for students who begin to study for example geography with the material for the higher grade, as Johanna (F) noted. In such situations, the teacher needs to identify knowledge gaps that may hinder the students' understanding of the subject material, as the teaching material in textbooks is arranged in an inductive or hierarchical manner (i.e., from near to far and from smaller details to increasing unity).

The dominant practice in teaching mathematics and (native) language in both countries (used by all teachers except one Austrian and two Finnish teachers) was the *parallel curriculum*, meaning that both grades are taught the same subject but have different assignments. While the teacher is explaining a new task to one grade, the other grade is working silently on assignments adjusted to their group level. Most Finnish teachers found mathematics and language to be the most challenging subjects. Because these subjects are considered important (Johanna (F), Lauri (F)), it can be assumed that teachers are under pressure to teach them well. Most Austrian teachers used "work plans" to organize their teaching in these subjects, as Julia (A) explained: "I have been working five years with work plans in which the students have one week to work on the plan... This has involved German and mathematics lessons." The challenge of parallel curricula is to keep all students busy, especially those who are working silently; this concern was expressed by both beginner and experienced teachers. Using a parallel curriculum may lead to more disruptive behavior from students who become frustrated due to boredom, lack

of independent work skills, and the need to wait for the teacher's guidance (Cornish, 2006b). Karin (A) and Noora (F) noted that there is always waiting time, often "lost time" for one group when the teacher is teaching something new to the other group. Karin (A) referred in particular to the first- and second-graders and described the independent initiative of third- and fourth-graders in such situations: "Third- and fourth-graders are already pretty independent and simply work ahead." In contrast to all the other teachers except one Austrian teacher in this study, Noora (F) taught mathematics and Finnish using the *subject-stagger technique* (teaching two different subjects concurrently), justifying this approach with the belief that it is easier to study mathematics independently.

The Finnish teachers in our study described their efforts to use *curriculum alignment* instead of parallel curricula by searching for common topics for different grades, thus in line with the ideas of *spiral curriculum*. For example, Petra (F) said that she has analysed the curricula and textbooks for both grades (grades 3 and 4) in her class, looking for common topics in different subjects. When she does not find one, she develops it herself. Overall, Petra finds the possibility of teaching all subjects to be an "enormous wealth of opportunities" with excellent potential to connect subjects and integrate different learning goals and themes.

## 5.2. Peer tutoring

According to Cornish (2006b), peer tutoring is common in multi-grade classrooms. We identified two forms: When children help one another unprompted, we call this *spontaneous peer tutoring*. Peer tutoring as a reaction to the teacher's guidance is called *guided peer tutoring*. The teachers in both countries in our study described their students as helpful and cooperative; they often referred to situations in which upper-grade students spontaneously helped the younger ones, regarding this help-giving as very important: "What I find particularly charming is that the older students learn how to mix gently with the younger students, always standing by them and helping them, and I find that this is worth its weight in gold" (Bettina (A)). Lower-grade students clearly benefit from the help of upper-grade students. These situations can be seen as reciprocal processes of social learning, in which one learns to ask for help and others learn to give help (cf. Zins, Bloodworth, Weissberg, & Walberg, 2007; Wagener, 2014). Linda (A) clarified this experience as a significant advantage of a small school:

However, spontaneous cross-grade help is not guaranteed. Johanna (F) had not noticed any spontaneous helping between students of different grades in her class, but she did observe helping among students of the same grade, for example, a student helping a classmate who had asked for assistance. Hans (A) also emphasized the fact that it is more often the students in the same grade who help one another. Nevertheless, he added that in "free work" phases during the lesson, the students do help other students across the grades: "Thus, when they have something together or when they have a free work period, they do some things together and help each other; that happens more often." This statement indicates that cross-age helping requires a specific learning environment that can be developed through a reduction of teacher control of the learning situation (as in free work) or through teacher structuring (such as cross-age grouping).

Teachers in both countries used *guided peer tutoring* as a teaching strategy, but their motives varied. Maria (F) said that she asks children who are "geniuses in some area" to tell other students about their special interests. Karin (A) explained that she uses peer tutoring as an "extra exercise"; students who have completed their tasks may help the others. Matias (F) has tested peer tutoring in his class by explicitly encouraging students in the higher grade (grade six) to teach students in the lower grade (grade five). He believes that there are many more opportunities to develop and utilize peer grouping in his teaching. Petra (F) said that in addition to asking the upper-grade students (grade four) to help the younger ones (grade three), she sometimes also mixes grades for certain tasks.

## 5.3. Differentiating

Teachers in both countries reported that one of their most important and challenging tasks is how to meet the needs of different learners in their classes. They also emphasized that one advantage of small schools is that they know all the children, all their strengths and weaknesses; this helps them plan their teaching in the longer term, as Hans (A) described: "You must differentiate, naturally . . . In a small school [this is] more possible than in a big one . . . I know the students relatively well, I know their difficulties . . . in mastering the learning material during the first or second [school] year."

The teachers found that the differences between the learners in their classes were so numerous that individual differentiation was essential. Lauri (F) mentioned the difficulties of differentiating the talented students and *giving them extra assignments* during lessons "in midstream". He noted that he "must begin to give the better [students] more challenges because of their frustration with tasks that are too easy." These extra tasks can be found in prepared material, or teachers may prepare them themselves (Lauri). Maria (F) emphasized that in her teaching, a personal approach means that she tries to "teach the child, not the big group". She explained how she helps the slower students with different learning aids and materials. Leena (F), however, emphasized that individual differentiation is needed even when there is only a single grade in the classroom. She compared her current teaching with her experience in an urban school where she had taught 30 students in the same grade: "Actually, I had 30 different learners . . . The situation here is not much different."

The Austrian teachers regarded *work plans* as a very helpful teaching practice for differentiation in multi-grade classes. The teachers explained that they prepare plans that may include different tasks in different subjects, to be completed using different methods and materials (such as textbooks, learning games, and computer learning programs). Students can choose

the order in which they do their tasks; the important thing is that the tasks are completed by the deadline. Thus, work plans include elements of free work and station work (Skiera, 2003, p. 384). 'Free work' is a core element of the Montessori pedagogy (Montessori, 1972). The children can choose with whom, with which assignments and with which pace they work. The aim is that children learn to take responsibility for their learning processes and to foster individual interest and self-regulation. Adults (teachers) are responsible for choosing materials. During the phase of free work teachers are available for students and give them advice how to work out their assignments. Hans (A) explained that more complex tasks are done together with the teacher, but usually the exercises are completed independently according to the student's own pace and chosen order. He had also developed more differentiated work plans by adding extra assignments to the students who manage their assignments quicker than others. Bettina (A) explained that the majority of the students in her class are able to monitor their learning process but that she also evaluates the work plans to see "how far the students are and which problems they have". That gives her information which learning exercises are still needed to master those problems. Teachers in Austria have implemented work plans for years as an alternative to parallel curricula, as Linda (A) explained: "The parallel curriculum was established in Austria forty years ago but it's now... no longer the case, because one makes a week plan or a day plan, which is totally different. And the children know exactly what to do today or this week and are able to start the work at their individual tempo without wasting time." Using personal work plans may cultivate students' individual responsibility for learning, as Hargreaves (2001) suggests. Julia (A) had learned the concept of work plans from a colleague in her first teaching job. In her experience, using work plans develops her students' independence and reduces their need for the teacher's help.

The Finnish teachers emphasized the significance of *remedial education* as a form of complementary teaching in order to individually support different levels and types of learners. Remedial education was provided according to the needs of their students. The teachers expressed their satisfaction with and appreciation for this possibility. Remedial education was given before or after the school day or sometimes during breaks. (There was a 15-minute break between 45-minute lessons in the Finnish primary schools.) Remedial teaching is seen as a "trademark" of the Finnish school system (Kupiainen, Hautamäki, & Karjalainen, 2009, p. 15). It is offered to any student with learning or adjusting problems and is arranged within or alongside the regular classroom education (as seen with the Finnish teachers in this study), in special education classes, or in schools for special needs students.

Both Finnish and Austrian teachers are challenged by students who need special education but are *integrated* into regular classes. In Austria, a practice with two teachers working together in an inclusive class is currently favored. The size of an inclusive class is usually smaller than regular classes in order to enable differentiation. However, the minimum size for such a class is 20 students. Consequently, the three inclusive classes in this study had exceptional conditions. Leena (F) referred to the ongoing Finnish school reform, in which one underlying concept is that all students with special needs should be integrated into their "corner" schools (local village schools in rural areas). Leena remarked that this system has already been implemented at her school: "It [the reform] was already present in our school before anyone began to talk about it. Parents want their children to go to a corner school, and I currently have students integrated in my own class, and it works well because we have, of course, different work for others and diverse learners are already accepted." However, inclusion creates extra work for teachers; for example, Leena has to prepare separate assignments for specific students. She considers the situation from the perspective of the student and finds that the benefits of integration are so significant for the students that she is committed to it: "Of course, it [inclusion] is more work for me, but when you see the benefits for the student—that they are in their own community with their friends and don't have to leave their town to go to another school—you are really happy to give them that." Bettina (A) reported a parallel situation in her school and described her willingness to integrate a student with special needs into her class. In contrast to the Austrian two-teacher option in integrated classes, Finnish teachers work together with "school assistants" who can serve as personal assistants for students with special difficulties. Additionally, students in both Austria and Finland get extra help from visiting special education teachers. The special education teacher visits the school weekly and provides private instruction for students with learning difficulties.

## 6. Conclusions

The aim of our study was to gain insight into instructional practices in multi-grade classes in order to obtain a better understanding of learning and teaching possibilities in such settings. As data, we used interview responses collected from 14 teachers in Austrian and Finnish small primary schools. Austria and Finland were chosen due to their similarities in terms of multi-grade teaching traditions and small schools and their differences in approaches with regard to teacher education. The research results reveal that in both countries diverse teaching practices are used in multi-grade classes in small schools. Two main strategies can be identified. One strategy involves reducing or overcoming the heterogeneity of students as much as possible through teaching practices such as parallel curricula, curriculum rotation, and whole-class teaching. In such practices, the teacher either teaches one heterogeneous group, with the same teaching content and assignments for all students, or works with a age homogeneous group while the other group (or groups) works silently on their own assignments. A different approach uses practices that capitalize on the heterogeneity of the students but also reduce teaching demands, such as peer tutoring, personal work plans, or free work. These techniques we regard as optimal didactical solutions for multi-grade teaching for several reasons: They are grounded on the idea that heterogeneity is normal and that the search for homogeneity is a false friend for instruction; they focus on the perspective of individual children

instead of groups; they support peer learning and foster cognitive as well as social development; and they emphasize subjective learning processes and goals as sampling criteria rather than objective aspects such as age or grade. Moreover, the data show the teachers' desire to organize their teaching in a workable way with different teaching groups and the integration of various subjects. The teachers also sought to support different learners through forms of differentiation and individualized learning guides such as work plans or differentiated assignments.

As mentioned above, it is impossible to identify a most common practice in multi-grade teaching from our study. A similar result has been found in earlier studies (Little, 2001; Lindström & Lindahl, 2011). One reason for the wide range of practices could be the lack of multi-grade teaching options in textbooks and curricula, as well as in teacher education (Little, 2001). Thus, the teachers in our study may have developed their personal teaching styles primarily in practical situations in their own classes or with the help of their colleagues. Researchers have referred to this type of problem in terms of a divide between theory and practice, thereby raising doubts about the effectiveness of teacher education in general and suggesting that new and promising views of learning and teaching could better serve schools (Korthagen, 2010).

In addition to teaching practices that favour individual work on the part of students, we suggest that whole-group practices are needed to strengthen the social cohesion of the students and to support the cooperation of students in different grades. The spiral curriculum is one possibility for such a practice, not only because of its social advantages but also because of its potential to activate and utilize the readiness and range of knowledge of different types of learners. As Bruner's (2006) hermeneutical theories highlight, this method can range from intuitive to more formal structures. The results of our research indicate that curriculum alignment using the spiral curriculum was not prevalent in the teaching practices described. However, one cannot realistically expect individual teachers to adapt the available teaching material for that purpose, in addition to all their other work (Little, 2001). Thus, it is necessary to investigate the ideas underlying the spiral curriculum and how they can be integrated into the level of core curricula. This would potentially inspire textbook authors and other actors to produce new teaching materials and tasks based on the precepts of the spiral curriculum.

There are some limitations of our study. Firstly, our sample size was small, and the teachers were from a very specific group, namely teachers in small rural schools at the primary school level. Based on our research, we cannot assume that their teaching practices are representative for multi-grade classes. However, the cross-cultural analysis (Lahelma and Gordon, 2010) of the data collected in two countries, in the differing cultural contexts of Austria and Finland, helps to increase our theoretical understanding of multi-grade teaching, and we have discovered similar patterns of multi-grade teaching practices across the two countries. Further studies utilizing different types of data—for example, a complementary video study—will be required to test the validity of the patterns. Moreover, there is a need for research that deepens the understanding of high-quality teaching practices in multi-grade classes that can be linked to empirical research findings on teaching such as clear structure, individual learning support, formative feedback, adaptive teaching, or professional classroom management (Hattie, 2009). Like Hahn and Berthold (2010), we suggest that another crucial indicator of high quality in multi-grade teaching relates to practices that utilize the heterogeneity of the multi-grade classes instead of neglecting or even ignoring it. Secondly, the study is restricted to the teachers' perspectives. In the next step, it would be advisable to relate teaching practices to students' learning in multi-grade classes. For example, the social advantages of peer tutoring for students seem to be obvious, but more knowledge is needed with regard to how these practices support learning and help students to construct knowledge together with their peers (see, e.g., Parr & Townsend, 2002). In addition, more research on different group formations is required in order to identify their "social pedagogic" potential and to investigate their role in educational settings (Blatchford, Kutnick, Baines, & Galton, 2003). For example, the flexible grouping strategies used in multi-age classes may be an effective way to meet the instructional needs of students and encourage their collaborative work (Hoffman, 2002).

Despite the shortcomings of our research, the results identify certain challenges in teacher education. Thus far, teachers have only been marginally—if at all—prepared for multi-grade teaching, a criticism that has arisen in other studies as well (Kline, White, & Lock, 2013; Raggl, 2011). We, therefore, suggest that teacher educators and researchers should become more aware of high-quality teaching practices in multi-grade teaching, such as the professional use of individual work plans, peer tutoring or spiral curriculum. Such practices demand optimal planning and instruction on the part of teachers and require that students receive individual feedback and learning support. We expect that good multi-grade teaching practices such as those suggested above would serve single-grade classes equally well, since every class is characterized by heterogeneity (e.g., with regard to age, gender, interests, aptitudes, and experiences). One task of teacher education should be to raise awareness of the potential and effectiveness of multi-grade teaching and to cultivate it in the curriculum (Mulryan-Kyne, 2007). This would not only enrich our understanding of good practices in multi-grade teaching, but would also help teachers to choose and develop teaching practices that contribute to and optimize students' learning in their heterogeneous classes.

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## References

- Åberg-Bengtsson, L. (2009). The smaller the better? A review of research on small rural schools in Sweden. *International Journal of Educational Research*, 48(2), 100–108. <http://dx.doi.org/10.1016/j.ijer.2009.02.007>.
- Austrian Federal Ministry of Education and Women's Affairs (2015). The Austrian Education System. Retrieved from January 22, 2015, from <https://www.bmbf.gv.at/en/fr/school/schools.html>.
- Bazeley, P. (2007). *Qualitative data analysis with NVivo*. Los Angeles: Sage.
- Blatchford, P., Kutnick, P., Baines, E., & Galton, M. (2003). Toward a social pedagogy of classroom group work. *International Journal of Educational Research*, 39(1–2), 153–172.
- Bruner, J. (2006). Science education and teachers. In J. S. Bruner (Ed.), *In search of pedagogy. Volume II. The selected works of Jerome S. Bruner* (pp. 150–174). London: Routledge.
- Cornish, L. (2006a). In L. Cornish (Ed.), *Reaching EFA through multi-grade teaching*. Armidale Armidale, Australia: Kardoorair Press.
- Cornish, L. (2006b). What is multi-grade teaching? In L. Cornish (Ed.), *Reaching EFA through multi-grade teaching* (pp. 9–26). Armidale, Australia: Kardoorair Press.
- Elbaz-Luwisch, F. (2005). *Teachers' voices: storytelling and possibility*. Greenwich, CT: Information Age.
- Fend, H. (2006). *Neue Theorie der Schule. [A new theory of schooling]*. Berlin: VS Verlag für Sozialwissenschaften.
- Finnish Ministry of Education and Culture (2015). Education System in Finland. Retrieved from January 22, 2015, from <http://www.minedu.fi/OPM/Koulutus/koulutusjaerjestelmae/index.html?lang=en>.
- Finnish National Board of Education (2015). Basic education: amendments and additions. Retrieved January 22, 2015, from [http://www.oph.fi/download/132551\\_amendments\\_and\\_additions\\_to\\_national\\_core\\_curriculum\\_basic\\_education.pdf](http://www.oph.fi/download/132551_amendments_and_additions_to_national_core_curriculum_basic_education.pdf).
- Gudmundsdottir, S. (2001). Narrative research in school practice, In V. Richardson (Ed.), *Handbook of research in teaching* (pp. 226–240). 4th ed. Washington, D.C: American Educational Association.
- Hahn, H., & Berthold, B. (2010). Lehren und Lernen in altersgemischten Gruppen—fachdidaktische Perspektiven im Kontext pädagogischer Überlegungen. Eine Einführung in die Thematik [Teaching and learning in the mixed-age groups - subject didactic perspectives in the context of pedagogical considerations. Introduction to the theme]. In H. Hahn, & B. Berthold (Eds.), *Altersmischung als Lernressource [Multi-age classrooms as a learning resource]* Baltmannsweiler: Schneider Verlag Hohengehren 5–16, Entwicklungslinien der Grundschulpädagogik Band 7.
- Hargreaves, E. (2001). Assessment for learning in the multigrade classroom. *International Journal of Educational Development*, 21, 553–560.
- Hattie, J. (2009). *Visible learning: a synthesis of over 800 meta-analyses relating to achievement*. London: Routledge.
- Heinzel, F. (2007). Altersstufen, Altersmischung und Generationenbeziehungen in der Grundschule [Age groups, mixed ages, and intergenerational relations in primary school]. In H. de Boer, K. Burk, & F. Heinzel (Eds.), *Lehren und Lernen in jahrgangsgemischten Klassen [Teaching and learning in multi-grade classes]* (pp. 32–43). Frankfurt am Main: Grundschulverband-Arbeitskreis Grundschule.
- Hoffman, J. (2002). Flexible grouping strategies in the multiage classroom. *Theory into Practice*, 41(1), 47–52.
- Hoffman, J. (2003). Multiage teachers' beliefs and practices. *Journal of Research in Childhood Education*, 18(1), 5–17.
- Huberman, M. A. (1989). The professional life cycle of teachers. *Teachers College Record*, 91(1), 31–57.
- Kalaoja, E. (2006). Change and innovation in multi-grade teaching in Finland. In L. Cornish (Ed.), *Reaching EFA through multi-grade teaching* (pp. 215–228). Armidale, Australia: Kardoorair Press.
- Kalaoja, E., & Pietarinen, J. (2009). Small rural schools in Finland: a pedagogically valuable part of the school network. *International Journal of Educational Research*, 48(2), 109–116. <http://dx.doi.org/10.1016/j.ijer.2009.02.003>.
- Karlberg-Granlund, G. (2009). *Att förstå det stora i lilla. Byskolan som pedagogik, kultur och struktur [Understanding the great in the small: Pedagogy, culture, and the structure of the village school] (doctoral dissertation)*. Åbo: Åbo Akademis förlag.
- Kilpeläinen, R. (2010). *Kyläkoulu Suomessa [Small rural schools in Finland] (doctoral dissertation)*. Jyväskylä: WS Bookwell.
- Kline, J., White, S., & Lock, G. (2013). The rural practicum: preparing a quality teacher workforce for rural and regional Australia. *Journal of Research in Rural Education*, 28(3), 1–13.
- Korthagen, F. (2010). Situated learning theory and the pedagogy of teacher education: Towards an integrative view of teacher behavior and teacher learning. *Teaching and Teacher Education*, 26(1), 98–106.
- Kucharz, D., & Wagener, M. (2009). *Jahrgangsübergreifendes Lernen: Eine empirische Studie zu Lernen, Leistung und Interaktion von Kindern in der Schuleingangsphase [Multi-grade learning: an empirical study of the learning, performance, and interaction of children in the school-entry phase]*, 3rd ed. Baltmannsweiler: Schneider-Verl. Hohengehren.
- Kupiainen, S., Hautamäki, J., Karjalainen, T. (2009). The Finnish education system and PISA. Ministry of Education Publications Finland 2009: 46. Helsinki: Ministry of Education. Retrieved October 28, 2014, from [http://www.oxydiane.net/IMG/pdf\\_opm46](http://www.oxydiane.net/IMG/pdf_opm46).
- Kvalsund, R., & Hargreaves, L. (2009). Review of research in rural schools and their communities: analytical perspectives and a new agenda. *International Journal of Educational Research*, 48(2), 140–149. <http://dx.doi.org/10.1016/j.ijer.2009.02.002>.
- Lahelma, E., & Gordon, T. (2010). Comparative and cross-cultural ethnography. In J. Kauko, R. Rinne, & H. Kynkäänniemi (Eds.), *Restructuring the truth of schooling: Essays on discursive practices in sociology and the politics of education: a Festschrift for Hannu Simola* (pp. 93–107). Turku: Publications of the Finnish Educational Research Association.
- Laitila, T., & Wilén, L. (2014). Pieniä kouluja ja yhdysluokkia koskevan päätöksenteon ja kehittämisen tietopohja [Basic information of policymaking and developing concerning small schools and multi-grade classes]. *Kasvatus. The Finnish Journal of Education*, 45(3), 263–268.
- Lindström, E.-Å., & Lindahl, E. (2011). The effect of mixed-age classes in Sweden. *Scandinavian Journal of Educational Research*, 55(2), 121–144.
- Little, A. W. (2001). Multi-grade teaching: towards international research and policy agenda. *International Journal of Educational Development*, 21, 481–497.
- Ludwig, H. (2004). *Montessori-Schulen und ihre Didaktik [Montessori schools and their didactics] Basiswissen Grundschule Band 15*. Baltmannsweiler: Schneider Verlag Hohengehren.
- Montessori, M. (1972). *Das kreative Kind: der absorbierende Geist [The creative child]*. Freiburg: Herder.
- Schule im alpinen Raum [Schools in Alpine regions]. FokusBildungSchule Bd. 2. In R. Müller, A. Keller, U. Kerle, A. Raggl, & E. Steiner (Eds.). Innsbruck: Studien Verlag.
- Mulryan-Kyne, C. (2007). The preparation of teachers for multigrade teaching. *Teaching and Teacher Education*, 23(4), 501–514. <http://dx.doi.org/10.1016/j.tate.2006.12.003>.
- Neuendorf, K. A. (2002). *The content analysis guidebook*. Thousand Oaks: Sage.
- Parr, J. M., & Townsend, M. A. R. (2002). Environments, processes, and mechanisms in peer learning. *International Journal of Educational Research*, 37(5), 403–423.
- Raggl, A. (2011). Altersgemischter Unterricht in kleinen Schulen im alpinen Raum [Multi-age teaching in small schools in Alpine regions]. In R. Müller, A. Keller, U. Kerle, A. Raggl, & E. Steiner (Eds.), *Schule im alpinen Raum [Schools in Alpine regions]* (pp. 231–305). Innsbruck: Studien Verlag (FokusBildungSchule Bd. 2).
- Riessman, C. K. (2008). *Narrative methods for the human sciences*. Thousand Oaks: Sage.
- Scholz, I. (2010). *Pädagogische Differenzierung [Pedagogical differentiation]*. Göttingen: Vandenhoeck & Ruprecht.
- Skiera, E. (2003). *Reformpädagogik in Geschichte und Gegenwart [Progressive education in past and present]*. München: R. Oldenbourg Verlag.
- Statistik Austria (2013a). *Schulstatistik 2012/13 (Sonderauswertung) [School statistics 2012/2013: special evaluation]*.
- Statistik Austria (2013b). *Schulstatistik 2012/2013. Klassen an öffentlich en und privaten Schulen [School statistics 2012/2013: classes in public and private schools]*. Retrieved January 22, 2014, from <http://www.statistik.at>.

- Tilastokeskus (1991). *Oppilaitosluokitus ja—luettelo. Oppilaitostyyppiluokitus 31.12.1990. [Official statistics of Finland. Education and research. Educational institutions]. Koulutus ja tutkimus.* Helsinki: Tilastokeskus8.
- Veenman, S. (1995). Cognitive and noncognitive effects of multigrade and multi-age classes: A best-evidence synthesis. *Review of Educational Research*, 65 (4), 319–381.
- Wagener, M. (2014). *Gegenseitiges Helfen. Soziales Lernen im jahrgangsgemischten Unterricht [Mutual assistance: social learning in multi-age teaching].* Wiesbaden: Springer.
- Zins, J. E., Bloodworth, M. R., Weissberg, R. P., & Walberg, H. (2007). The scientific base linking social and emotional learning to school success. *Journal of Educational and Psychological Consultation*, 17(2&3), 191–210.