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**Sonja Laine**

**Finnish elementary school teachers' perspectives  
on gifted education**

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## **Finnish elementary school teachers' perspectives on gifted education**

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### **Abstract**

The main purpose of this doctoral thesis is to investigate Finnish elementary school teachers' perspectives on gifted education. In particular, teachers' conceptions of giftedness, their attitudes toward gifted education and the practices they are using to address gifted students' needs are examined. The thesis is intended to increase understanding of the current state of gifted education from the perspective of teachers in Finland, a context in which emphasis is on inclusion and differentiated teaching.

The thesis is comprised of four articles. The first analyzes the public discussion of giftedness in print media during the years 1992-2007 in order to enrich the view of the Finnish context by revealing different conceptions of giftedness and gifted students in that time period. The three other articles (II-IV) are based on survey data gathered from Finnish elementary school teachers (N=212) during the school year 2010-2011. The instrument used was a mixed questionnaire, including both qualitative and quantitative items. By mixing both qualitative and quantitative data and analysis methods the thesis thereby utilizes a mixed methods approach.

The results indicate that teachers' conceptions, even though simplistic, as well as their attitudes are in many ways supportive of the gifted and their education in general. In particular, teachers' attitudes toward differentiated teaching for the gifted were mainly positive, whereas they were mostly negative about acceleration and ability groupings. Furthermore, teachers' descriptions of their practices revealed that, even though they differentiate their teaching, they do not necessarily use evidence-based practices shown to be effective with gifted students. Together these findings suggest that the practical functionality of a differentiation paradigm might be questioned. The thesis also emphasizes that, in Finland, meeting the needs of gifted students depends heavily on individual teachers, which may lead to inequality in delivering quality education to the gifted.

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*Keywords:* elementary school teachers, giftedness, gifted students, gifted education, differentiated teaching

**Sonja Laine**

## **Suomalaisten luokanopettajien näkökulmia lahjakkaiden kasvatukseen**

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### **Tiivistelmä**

Tämän väitöskirjan päätavoitteena on selvittää suomalaisten luokanopettajien näkökulmia lahjakkaiden kasvatukseen. Tarkemmin sanottuna väitöskirjassa tutkitaan opettajien käsityksiä lahjakkuudesta, asenteita lahjakkaiden kasvatusta kohtaan ja lahjakkuuden tukemisessa käyttämiä menetelmiä. Tutkimus pyrkii näin ollen lisäämään ymmärrystä lahjakkaiden kasvatuksen nykytilasta Suomessa, koulujärjestelmässä, jossa inklusiota ja opetuksen eriyttämistä korostetaan.

Väitöskirja koostuu neljästä artikkelista. Ensimmäisessä artikkelissa analysoidaan Helsingin sanomissa ja Opettaja -lehdessä vuosina 1992-2007 käytyä lahjakkuuskeskustelua. Tavoitteena on rikastuttaa kuvaa Suomen kontekstista paljastamalla erilaisia lahjakkuuteen ja lahjakkaisiin oppilaisiin liitettäviä käsityksiä. Kolme muuta artikkelia (II-IV) pohjautuvat lukuvuoden 2010-2011 aikana suomalaisilta luokanopettajilta (N=212) kerättyyn aineistoon. Aineisto kerättiin kyselylomakkeella, joka piti sisällään sekä kvalitatiivisia että kvantitatiivisia osioita. Yhdistelemällä sekä kvalitatiivisia että kvantitatiivisia aineistoja ja analyysimenetelmiä tutkimus hyödyntää monimenetelmällistä lähestymistapaa.

Väitöskirjan tulokset tuovat esille, että opettajien käsitykset, vaikkakin pelkistettyjä, ja asenteet ovat monella tapaa suotuisia lahjakkaiden kasvatusta kohtaan. Erityisesti opettajien asenteet lahjakkaiden opetuksen eriyttämistä kohtaan olivat positiivisia, mutta he asennoituivat negatiivisesti lahjakkaiden ryhmittelyyn ja opetuksen nopeuttamiseen. Sen lisäksi opettajien kuvaukset omista lahjakkuuden tukemisen tavoista paljastivat, että opettajat käyttävät opetuksen eriyttämistä lahjakkuuden tukemisessa. Opettajat eivät kuitenkaan välttämättä käytä tutkimuksellisesti tehokkaiksi todettuja menetelmiä. Yhdessä tulokset indikoivat, että eriyttämispäädösten toimivuus käytännössä saattaa vaarantua erilaisista opettajiin liittyvistä tekijöistä kuten pelkistetyistä käsityksistä tai tehotuotteiden menetelmien käytöstä. Tutkimus vahvistaa näkökulmaa siitä, että lahjakkaiden tarpeisiin vastaaminen Suomessa riippuu opettajasta, mikä saattaa puolestaan johtaa epätasa-arvoiseen tilanteeseen lahjakkaiden keskuudessa.

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# List of original publications

This thesis is based on the following publications:

- I Laine, S. (2010). The Finnish public discussion of giftedness and gifted children. *High Ability Studies*, 21(1), 63–76. doi: 10.1080/13598139.2010.488092
- II Laine, S., Kuusisto, E., & Tirri, K. (2016). Finnish teachers' conceptions of giftedness. *Journal for the Education of the Gifted*, 39(2), 151–167. doi: 10.1177/0162353216640936
- III Laine, S., Hotulainen, R., & Tirri, K. (2016). Finnish elementary school teachers' attitudes toward gifted education: A latent profile analysis. Manuscript submitted for publication.
- IV Laine, S., & Tirri, K. (2015). How Finnish elementary school teachers meet the needs of their gifted students. *High Ability Studies*. Advance online publication. doi: 10.1080/13598139.2015.1108185

The publications are referred to in the text by their roman numerals.



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# 1 Introduction

This thesis is intended to shed light on the current state of gifted education in Finland. The main emphasis is on Finnish elementary school teachers' perspectives on gifted education. To define *perspective*, the meaning from the *Macmillan English Dictionary* (2002, p. 1057) was chosen: "a way of thinking about something." Teachers' perspectives were studied by examining their conceptions of giftedness, their attitudes to gifted education and the practices they are using to address gifted students' needs. First, however, cultural conceptions of giftedness and gifted students in the public discussion were examined as a preliminary step in order to enrich the view of the Finnish context and guide the design of the chosen research instrument.

Finnish classrooms are filled with different kinds of students in terms of cultural background and socio-economic status, and also with regard to abilities, readiness, interests, learning styles, strengths and weaknesses, to mention only some commonly used concepts illustrating dissimilarities among students. Differentiation is seen as an essential way of addressing these various educational needs in mixed ability classrooms (e.g., Tomlinson, 1999, 2001, 2005; Tomlinson & Imbeau, 2008; Tomlinson et al., 2003; Subban, 2006). The role of teachers in actualizing differentiation is crucial. It has even been claimed that "the classroom teacher is an irreplaceable leader in moving differentiation from an abstract idea on paper or in a professional development session to a fundamental way of life in the classroom" (Tomlinson & Imbeau, 2008, p. 9). However, educators are faced with a challenging task, because they are expected to meet the varied needs of diverse learners (Dixon, Yssel, McConnell, & Hardin, 2014; VanTassel-Baska & Stambaugh, 2005). Furthermore, there is indication that differentiation is perceived as one of the biggest pedagogical challenges that teachers face during their career (Atjonen et al., 2008).

One heterogeneous group of students needing differentiation in mixed ability classrooms is the gifted. In order to grow academically, gifted students, like all students, need the chance to work with tasks that are slightly too difficult for their current level of readiness (Tomlinson & Imbeau, 2008; see also Vygotsky, 1978). The essence of gifted education is to coordinate students' readiness with the complexity of the curriculum (Colangelo & Assouline, 2009). Differentiation is also a valid method for addressing the needs of the gifted (DeCorte, 2013; Latz, Speirs Neumeister, Adams, & Pierce, 2009). However, the needs of the gifted and other special student populations may be neglected unless all teachers are aware of these needs and have the skills to plan effective and suitable teaching for them (VanTassel-Baska & Stambaugh, 2005). Accordingly, differentiation can only be truly successful if teachers are well trained, motivated, and have

positive attitudes toward giftedness and gifted students (DeCorte, 2013). Unfortunately, there is evidence that most of the gifted children spend their school days in classrooms led by teachers who have no training in gifted education (Bangel, Moon, & Capobianco, 2010; Olthouse, 2014). Differentiation for the gifted seems to be only a promise, as practice is not often organized accordingly (e.g., Archambault et al., 2003; Hertberg-Davis, 2009; Latz et al., 2009; Westberg, Archambault, & Brown, 1997). Thus, it is not surprising that the way gifted students are treated in regular classrooms is of real concern to many professionals and advocates of gifted education (Johnsen, Haensley, Ryser, & Ford, 2002).

As mentioned, teachers have the most crucial role in implementing differentiation and supporting giftedness. They are the “key policymakers,” since “once the classroom door is closed, it is their decisions that determine what the class experiences” (Fulcher [1989], as cited in Ainscow, 2007, p. 149). What then affects how teachers work in a classroom? As Richardson (1996, p. 102) has pointed out, “[a]ttitudes and beliefs are important concepts in understanding teachers’ thought process, classroom practices, change and learning to teach.” In the field of gifted education research, teachers’ conceptions are considered important, given that conceptions can affect whether a teacher views a child as gifted or not (Hany, 1997) and whether gifted students’ needs are taken into consideration in the school setting (De Wet & Gubbins, 2011; Megay-Nespoli, 2001; Moon & Brighton, 2008). Similarly, teachers should have appropriate attitudes in order to address gifted students’ needs effectively (Cross, Cross, & Frazier, 2013; Jung, 2014; Troxclair, 2013).

Gifted education is a universal concern (Balchin, Hymer, & Matthews, 2009) as well as a national concern. The context for this thesis, Finland, represents an egalitarian culture in which the main educational principle has been to maintain equality by taking care of the weakest students, such as those with learning difficulties (Tirri & Kuusisto, 2013). However, when it comes to gifted education, reactions in egalitarian cultures range from hostility to, at best, support in mixed ability settings (Moon & Roselli, 2000). Furthermore, there is indication that egalitarian cultures do not meet the needs of gifted students very well (Persson, 1998); the reluctance has been especially apparent in the realm of intellectual giftedness (Persson, 2011). Gifted education has been a politically debated topic in Finland for decades, and different interest groups, such as politicians, educators, parents and researchers, have either advocated it or labeled it as elitist, unnecessary or contrary to egalitarian politics. Nevertheless, recent research that has taken into consideration public discussion of gifted education from the year 1992 to 2015 indicates that, in Finland, there is ongoing concern about how gifted students are acknowledged at school and calls for change toward better consideration of the gifted (Laine, 2016). However, ideas about why change is needed and how gifted education should best be carried out vary considerably

(Laine, 2016). Furthermore, American policy experts Finn and Wright (2015, p. 136) concluded after their visit to Finland that almost no one they met believed that Finland was doing a good job with its gifted students. In Finland, it appears that it depends on the particular teacher as to whether the needs of the gifted are met in school. Thus, an examination of Finnish teachers' perspectives on gifted education is both timely and important.

This thesis comprises four original articles (I-IV), each of which answers one of the research questions. The first question is "What is being discussed about giftedness and gifted children in the public discussion" (Article I). The question was answered by analyzing the public discussion of giftedness during the years 1992-2007 in two central Finnish publications: *Helsingin Sanomat* (Finland's newspaper with the widest circulation;  $N=193$  articles) and *Opettaja* (a periodical intended for teachers;  $N=138$  articles). Using qualitative content analysis, the aim was to expand the view of how giftedness is conceptualized in a Finnish context. Additionally, the results were used to guide the instrument design in the main research. Because of the teachers' critical role, the main research focuses particularly on their perspectives on gifted education. An electronic survey including both qualitative open questions and quantitative measures was used to reveal teachers' perspectives and answer the following research questions: What are Finnish elementary school teachers' primary conceptions of giftedness? (Article II); What are Finnish elementary school teachers' attitudes toward gifted education? (Article III); In what ways do Finnish elementary school teachers meet the needs of their gifted students? (Article IV). A total of 212 teachers from all over Finland returned the survey.

Even though the thesis was carried out in Finland, it contributes to the larger, international field of giftedness and gifted education research in which teachers' conceptions of giftedness and their attitudes to gifted education are being studied. This thesis introduces the views of both an egalitarian culture and the context of a differentiation paradigm (cf. Dai & Chen, 2013) to this field. Further, as more and more gifted students globally are studying in heterogeneous, mixed ability classrooms (Kerry & Kerry, 1997), in which differentiated teaching and instruction is called for (e.g., Tomlinson et al., 2003; Tomlinson, 1999, 2001), this thesis provides important new indications of teachers' attitudes toward differentiation of the gifted and how they address the needs of gifted students in their classrooms. This type of research is still scarce. In the present case, the conceptions, attitudes and practices were studied using the same participants, thereby allowing a more comprehensive picture of the teachers' perspectives to be drawn. Finally, this thesis begins with the examination of the public discussion of giftedness for the purpose of revealing cultural conceptions of giftedness in Finland. The study has significance *per se*, as it was one of the first to examine the content of the public discussion and the conceptions that exist in that discussion.

This thesis begins by presenting the theoretical framework for the research. One of the biggest challenges in the field, namely, how to define giftedness, is addressed and the theoretical framework for the present work situated among the liberal-oriented developmental models (Chapter 2). Thereafter, gifted education through different gifted education paradigms and differentiation is elaborated (Chapter 3). Next, the Finnish educational system, the context for this research, is described (Chapter 4). The educational system is first portrayed at the general level, and then analyzed more closely from the perspective of the gifted by using the four framework questions of an educational paradigm suggested by Dai and Chen (2013). Thereafter, the research design is presented. The aim of the research is defined, and the data, procedure and methods are described (Chapter 5). Finally, the results of the original articles are presented (Chapter 6), and the thesis concludes with a discussion of the main points (Chapter 7).

## 2 Defining giftedness

### 2.1 Challenges in defining giftedness

A passing glance into the relevant journals and handbooks for giftedness research shows that high ability can be counted among the dreaded “toothbrush concept.” It seems that everybody has a toothbrush, but nobody wants to use a toothbrush which belongs to somebody else. (Ziegler & Raul, 2000, p. 114)

How to define giftedness has been, and still is, one of the most puzzling questions in the field of giftedness and gifted education (Renzulli, 2002; Subotnik, Olszewski-Kubilus, & Worrell, 2011). Moreover, there is no consensus on a single definition (e.g., Balchin et al., 2009; Moon & Rosselli, 2000; Pfeiffer, 2002; Ziegler & Raul, 2000). It has been claimed that there is no coherent conceptual structure in theory and research and that theory and practice are unconnected (Ambrose, Van Tassel-Baska, Coleman, & Cross, 2010). Scholars do not even seem to agree on whether consensus is needed (Coleman, 2004; Cramond, 2004; Gagné, 2004). Some have even suggested that, from an educational perspective, the term should be banished forever (Borland, 2005). Nevertheless, for decades scholars have attempted to define giftedness. Numerous models and theories have been invented, and even entire books have been devoted to the topic (Phillipson & McCann, 2007; Sternberg & Davidson, 2005). Consequently, there are a great number of different conceptions of giftedness (Hany, 1993; Renzulli, 2002).

One way to organize the many definitions is to situate them along a continuum from conservative to liberal in which the determining factor is the restrictiveness of a definition (Renzulli, 2002). In conservative definitions, giftedness is equated with a high IQ and applies to only a very limited portion of a population. An example of a definition of this kind is Terman's (1926, p. 43): “the top 1% level in general intellectual ability, as measured by the Stanford-Binet Intelligence Scale or comparable instrument.” From this perspective, giftedness is seen as a generic and innate quality that needs to be recognized through some type of cognitive assessment (Subotnik et al., 2011). These conservative IQ-based definitions can be seen as traditional views of giftedness, as they dominated the early stages in the field. Even today some psychologists continue to follow these definitions by equating giftedness with a high IQ (Renzulli, 2002). Similarly, this meaning remains strongly in the minds of some lay people and educators (Borland, 2009; Subotnik et al., 2011). However, ideas such as “giftedness equals to high IQ” (Borland, 2009) or “one single test score tells all” (Worrell, 2009) are currently regarded as rather harmful myths in the field.

In liberal definitions, on the other hand, a more multifaceted approach to giftedness is expressed (Renzulli, 2002). In general, the more open the definition, the more liberal it seems. In these liberal types of definitions, the equation in which giftedness straightforwardly equals a high IQ is questioned. For example, Renzulli's well-known Three-Ring-Conception of giftedness defines the concept by above-average ability, task commitment and creativity (Renzulli, 2005). Gardner (1999, p. 33), in turn, defines intelligence (giftedness) as the "biopsychological potential to process information that can be activated in a cultural setting to solve problems or create products that are of value in a culture." Moreover, in liberal definitions and models, it is believed that there are many areas of giftedness, which cannot all be measured by cognitive ability tests (Renzulli, 2002; Gardner, 1999). More recently, Subotnik et al. (2011, p. 7) have proposed a comprehensive definition of giftedness:

Giftedness is the manifestation of performance or production that is clearly at the upper end of the distribution in a talent domain even relative to that of high-functioning individuals in that domain. Further, giftedness can be viewed as developmental, in that in the beginning the potential is the key variable; in later stages, achievement is the measure of giftedness; and in fully developed talents, eminence is the basis on which this label is granted. Psychosocial variables play an essential role in the manifestation of giftedness at every developmental stage. Both cognitive and psychosocial variables are malleable and need to be deliberately cultivated.

As the examples of liberal definitions indicate, there is still a great variety in the theories and definitions that can be categorized under the gifted label. Based on their review of different conceptions, Kaufman and Sternberg (2008) proposed four waves of conceptions: domain-general models, domain-specific models, system models and developmental models.

*Domain-general models* are those invented by pioneers in the field (Kaufman & Sternberg, 2008) and are related to the conservative definitions presented above. However, as stated above, not all researchers were comfortable equating giftedness with a high IQ, and thus *domain-specific models* were developed (Kaufman & Sternberg, 2008). For example, Gardner's (1983, 1999, 2004) well-known theory of Multiple Intelligences (MI) represents these domain-specific models. Gardner identified eight different kinds of intelligence: linguistic, logical-mathematical, musical, bodily-kinesthetic, spatial, interpersonal and intrapersonal, and later added naturalistic intelligence (Gardner, 1983, 1999). However, the proponents of domain-specific models only emphasize specific aptitude without including other psychological processes in their models (Kaufman & Sternberg, 2008). Thus, in the third wave, researchers invented *system*

*models* in which giftedness is seen as a system that is dependent on a “confluence of psychological processes operating together” (Kaufman & Sternberg, p. 76). A good example is Sternberg’s (2005) WICS model (Wisdom, Intelligence, Creativity, Synthesized). In the WICS model, wisdom, intelligence and creativity are considered essential for gifted leaders in the future, but without a synthesis of these three, a person can at most be good, but not great (Sternberg, 2005). Finally, *developmental models* emphasize the changing nature of giftedness. These are responses to overemphasis on the genetic determinants of giftedness (cf. domain-general models, conservative views) and broaden the system models by adding different external and internal factors that contribute to gifted behavior (Sternberg & Kaufman, 2008).

The theoretical framework for this thesis is based on the liberal definitions, and in particular on the developmental models described above. Hence, giftedness is not equated with a high IQ, and it is not regarded as an innate fixed quality. In the next section, the developmental view of giftedness is elaborated in more detail.

## **2.2 A developmental view of giftedness**

[Giftedness] is, rather, developmental — in some children and adults with high potential, at certain times, under certain circumstances, and with appropriate levels of support, time, effort, and personal investments and choices. (Reis & Renzulli, 2009, p. 235)

The developmental view of giftedness has been growing in popularity among researchers (Makel et al., 2015). In recent years, it has begun to appear in a number of theories and definitions of giftedness (e.g., Gagné, 2005, 2010; Subotnik et al., 2011) and is advocated by many scholars, for example, Reis and Renzulli (2009), cited above. It has been said that the idea of giftedness as a fixed state is one of the myths in the field (Reis & Renzulli, 2009). Instead, giftedness should be seen as potential that can be developed further with appropriate levels of intrapersonal and environmental factors (Gagné, 2005, 2010; Reis & Renzulli, 2009). This developmental view is seen as crucial from the perspective of gifted education. In particular, Dai (2011, p. 721) calls for gifted education that is developmentally responsive, which means that practice is “based on an understanding of giftedness not as fixed entity.”

From the developmental point of view, Gagné’s Differentiated Model of Giftedness and Talent (DMGT; first published in 1985) has been especially important, as it recognizes the dynamic nature of the development of giftedness (Sternberg, Jarvin, & Grigorenko, 2010). Early on, Gagné built ties between the innate versus the development views (Makel, Snyder, Thomas, Malone, & Puntallaz, 2015). Put differently, he acknowledged that natural abilities (“gifts”) are

not innate; they develop through processes of maturing and informal training, although an individual's genetic endowment has its own role in controlling the development (Gagné, 2010). Furthermore, only through intensive and systematic training can these natural abilities develop into talents in adulthood (Gagné, 2010). Other researchers have also taken this position in which they recognize the role of biology, but only as one part of a complex combination (Dai, 2011; Subotnik et al., 2011).

However, in order to develop giftedness to a high level of performance or to activate childhood potential, a person needs proper support, time, effort and personal investment (Gagné, 2005, 2010; Gardner, 1999; Reis & Renzulli, 2009). Thus, the developmental process is strongly affected by both intrapersonal and environmental factors (Gagné, 2005, 2010), which can either enhance or inhibit development (Subotnik et al., 2011). Motivation, mindset, task commitment, passion and interest, among other things, are personal variables that are believed to contribute to the development of giftedness (Dweck, 2006, 2009; Gagné, 2005, 2010; Subotnik et al., 2011). Culture, important persons and available provisions form the environmental context (Gagné, 2005, 2010) in which, in the best case, the development of giftedness is supported. Thus, from a practical point of view, schools and teachers have a crucial role in contributing to the process of developing giftedness.

In the developmental models, giftedness is also seen as domain-specific, meaning both that there are different domains in which giftedness can occur (e.g., Gagné, 2005, 2010; Gardner, 1983, 1999; Subotnik et al., 2011) and that these different domains have varying developmental trajectories (Subotnik et al., 2011). The domain-specific nature also means that the giftedness profile may be uneven. For example, children can simultaneously be gifted and have learning difficulties (these students are called twice-exceptional; see e.g., Moon, 2009; Nicpon, Allmon, Sieck, & Stinson, 2011; Reis & McCoach, 2002), or they can be gifted in some particular domain, such as the arts or sports, without having an exceptional overall IQ (Winner, 1996). It is in fact more usual that the profile of a gifted student is uneven (VanTassel-Baska, 2000). Acknowledging the domain-specific nature of giftedness is a critical element whenever education for the gifted is planned and differentiation is implemented in classrooms (Davis, Rimm, & Siegle, 2014; Gardner, 1999).

Given that the concept of giftedness is challenging and that there are numerous different theories and definitions, scholars need to specify what they mean by the term. Thus, for purposes of this thesis, *giftedness* is defined as follows:

1. domain-specific (e.g., Gagné, 2005, 2010; Gardner, 1999; Subotnik et al., 2011);
2. developmental in that, in the beginning stages, potential is the key variable; in later stages, achievement is a measure of giftedness (Subotnik et al., 2011, p. 7; see also Gagné, 2005, 2010); and

3. a probabilistic developmental outcome of complex, multilevel interactions of genetic, neural, behavioral and environmental factors (Dai, 2011, p. 721).

Accordingly, the *gifted* are a heterogeneous group of people, meaning, first, that they are a diverse group of individuals with varying potential and ability in one or many domains (Reis & Renzulli, 2009). Second, “not only do they come from every walk of life, every ethnic and socioeconomic group, and every nation, but also they exhibit an almost unlimited range of personal characteristics in temperament, risk-taking and conservatism, introversion and extraversion, reticence and flamboyance, and effort invested in reaching goals” (Neihart et al., 2002, p. 1; as cited in Reis & Renzulli, 2009), similar to other students.

### 2.3 Implicit theories of giftedness

When I use a word, it means just what I choose it to mean, neither more nor less. (Humpty Dumpty, in Carroll, 1946, p. 94)

One challenge in the field of giftedness and gifted education is that, in addition to the enormous number of theories and definitions, we all seem to have our own conceptions of giftedness. Sternberg and Zhang (1995) made a distinction between explicit and implicit theories of giftedness. Explicit theories are theories and definitions that are proposed by experts and based on scientifically tested data (Zhang & Sternberg, 1998), as presented above in sections 2.1 and 2.2. *Implicit theories*, on the other hand, are private or informal constructions that exist in the minds of individuals (Sternberg et al., 2010; Sternberg & Zhang, 1995; Zhang & Sternberg, 1998). It has been suggested that, even though both kinds of theories are needed, implicit theories may be more influential in practice and real-life situations (Sternberg & Zhang, 1995).

In the literature of teaching and teacher education, concepts, implicit theories, beliefs, conceptions, theories, understandings, opinions, perceptions and perspectives are all used to refer to the same construct, leading to a messy situation (Pajares, 1992). In the field of gifted education research, the most used concepts for this purpose are beliefs (e.g., De Wet & Gubbins, 2011; Megay-Nespoli, 2001), conceptions (e.g., Lee, 1999; Moon & Brighton, 2008; Olthouse, 2014; Schroth & Helfer, 2009) and perceptions (e.g., Copenhaver & McIntyre, 1992; Speirs Neumeister et al., 2007). In this thesis, the expression *conceptions of giftedness* has been chosen to refer to an individual's implicit theories of giftedness.

Furthermore, it is important to understand that conceptions of giftedness are dependent on cultural context. Cultural conceptions are meaningful because they affect which abilities are seen as gifts and which people are considered gifted (Freeman, 2005); thus, it is worthwhile to articulate the different conceptions of

giftedness within a particular culture (Taylor & Kokot, 2000). In this study, two sub-studies examined conceptions of giftedness in Finland. The first examined conceptions of giftedness in public discussions in the print media (Article I), and the second investigated elementary school teachers' conceptions (Article II). The next two sections summarize earlier relevant research.

### **2.3.1 Conceptions of giftedness in the public discussion**

Different expectations of schooling and education are encountered in the public discussion. Participants try to influence one another, as well as the actualization of education (Ahonen, 2008). Giftedness and gifted education are topics that have been widely discussed in the print media in Finland in recent decades. In the course of the discussion, different conceptions of giftedness have been shared. Furthermore, the discussion of giftedness is most often connected to children, and rarely to adults or the elderly (Simonton, 2008).

In general, articles published in the print media have the power to influence the views of many people, especially those who do not receive information about giftedness in other ways (Lewis & Karnes, 1997). The media are regarded as important places for advocacy and are deemed especially important whenever prevailing attitudes are in opposition to special education for the gifted (Moon & Rosselli, 2000). Clear information can often dispel myths, and understanding and support may increase as a result (Renzulli & Reis, 1991). In the worst situation, the media may give incorrect pictures of the gifted, who might be represented as geniuses, oddities or nerds (Baudson & Preckel, 2013; Meckstroth & Kearney, 2007) or in a generally negative way (Radford, 1998). Such images fall under what has been called the disharmony hypothesis, the idea that high ability comes at a cost to the gifted individual (Baudson & Preckel, 2013; Preckel, Baudson, Krolak-Schwerdt, & Glock, 2015). Moreover, the media are replete with stereotypes, sensationalism, and inaccuracies (Webb, Gore, Amend, & DeVries, 2007).

Despite the acknowledged importance of advocacy and accurate general knowledge about giftedness, there is an evident lacuna in research on conceptions of giftedness in the public discussion. In their study, Lewis and Karnes (1997) concentrated on media coverage of the gifted in the United States. They found the largest number of published articles in education-related magazines. They also acknowledged that the number of articles focusing on the needs of the gifted was diminishing (Karnes & Lewis, 1997; Lewis & Karnes, 1997). Portrayals of prodigies in the British print media have also been studied, by Radford (1998). Yet specific questions of what is discussed and what conceptions of giftedness are apparent have not been examined earlier. These are the first objectives of this thesis (Article I).

### 2.3.2 Teachers' conceptions of giftedness

Given the lack of consensus and also the fragmentation in the field, it is important to assess how those who are supposed to identify and consider gifted students' needs see giftedness. Teachers' conceptions are critical from a practical point of view, since teachers play a key role in recommending students for gifted programs (Copenhaver & McIntyre, 1992; Lee, 1999; Siegle, Moore, Mann, & Wilson, 2010; Baudson & Preckel, 2013), as well as in identifying and supporting gifted children in a normal classroom setting (Moon & Brighton, 2008; Persson, 1998). Teachers' conceptions can ultimately affect whether a student is considered gifted (Hany, 1997), since conceptions determine the criteria used to decide who is gifted (Sternberg & Zhang, 1998). Conceptions are also involved when teachers make decisions about instruction (Sternberg & Zhang, 1998). Thus, conceptions ultimately affect whether the needs of the gifted are taken into consideration in the school setting (Moon & Brighton, 2008; Megay-Nespoli, 2001; De Wet & Gubbins, 2011) and what teachers offer gifted students (Schroth & Helfer, 2009).

Given the importance of teachers, their conceptions of giftedness and especially their conceptions of the characteristics of gifted students have interested many researchers (e.g., Copenhaver & McIntyre, 1992; Lee, 1999; Moon & Brighton, 2008; Persson, 1998; Siegle, Moore, Mann, & Wilson, 2010; Speirs Neumeister et al., 2007). Both qualitative and quantitative methods have been used to investigate such conceptions, and descriptions of the gifted have mostly been the focus of the studies. For example, Lee (1999) conducted interviews with teachers ( $N=16$ ) and found that teachers mainly see giftedness through conceptions such as excellence, potential, rarity, noticeability, innate ability, motivation and asynchrony development. Endepohls-Ulpe and Ruf (2005) used both open-ended questions and a list of characteristics of the gifted, and found that the core of teachers' ( $N=392$ ) concepts lies in cognition. They found that teachers also saw the gifted through motivational characteristics, whereas social behavior and personality traits played a minor role. Their results indicated that there is a danger of overlooking gifted underachievers – gifted children with low achievement motivation and girls who are gifted (Endepohls-Ulpe & Ruf, 2005). In their study, Speirs Neumeister et al. (2007), using open-ended survey questions, found that teachers ( $N=27$ ) see gifted students as self-motivated and independent, learning easily, being creative, and having above-average understanding. However, the results also indicated that teachers' conceptions of giftedness and its characteristics are not well developed. This was especially evident in how giftedness was seen to manifest among minority or economically disadvantaged students (Speirs Neumeister et al., 2005).

Persson (1998) examined Swedish teachers' ( $N=232$ ) conceptual understanding of giftedness qualitatively. The results showed that teachers in that egalitarian context understood high ability as consisting of cognitive attributes, personal-

ity characteristics, precocity, social attributes, and classroom behavior (Persson, 1998). The results further indicated that teachers paid a great deal of attention to these social attributes, viewing the gifted as “paragons of virtue” (i.e., the harmony hypothesis; see Baudson & Preckel, 2013), meaning that such students were seen as leaders, role models and humanitarians. As a result, teachers perceived the gifted as a teaching resource (Persson, 1998). However, in Baudson’s and Preckel’s (2103) study, teachers’ ( $N=321$ ) implicit personal theories about the gifted were found to be more in line with the disharmony hypothesis; the gifted were seen as more introverted, less emotionally stable and less agreeable. In their study, Baudson and Preckel (2013) used eight different vignettes of the gifted. Other researchers have also used gifted profiles in examining teachers’ conceptions. For example, Siegle et al. (2010) developed eleven student profiles and asked teachers ( $N=385$ ) to rate how strongly they would recommend a given student for gifted and talented programs. They found that student interests, SES, and areas of academic strength had an effect on teachers’ perceptions (Siegle et al., 2010).

In this thesis, the second objective (Article II) is to examine elementary school teachers’ primary conceptions of giftedness. In line with the theoretical background of the thesis, attention is also paid to teachers’ conceptions of the nature of giftedness. One popular theory is Dweck’s (2000, 2006, 2009) theory of mindsets. Mindsets are beliefs that people have about basic qualities and abilities. People with a growth mindset believe that basic qualities and abilities are malleable and can be changed (Dweck, 2000, 2006). With this mindset, ability is seen as something that grows incrementally over time and with the right opportunities to learn (Mathews & Folsom, 2009). Conversely, people with a fixed mindset believe that basic qualities and abilities are static and cannot be changed (Dweck, 2000, 2006, 2009). With this mindset, some students are categorized as inherently smart, while some are not (Mathews & Folsom, 2009). In general, educators are believed to play a crucial role in orienting students toward the idea of increasing their abilities through effort (Dweck, 2009), i.e., to promote a growth mindset. A growth mindset is considered helpful for all students, just as a fixed mindset is thought to leave students vulnerable to negative feedback and lead to an avoidance of challenging learning opportunities (Dweck, 2000). A growth mindset helps students take risks and see possible failures as learning opportunities (Dweck, 2000). As Dweck (2009, p. 188) has stated, “The great teachers believe in the growth of the intellect and talent, and they are fascinated with the process of learning.” Most of the earlier mindset studies have concentrated on the mindsets of students (Dweck, 2000). However, in some studies, based on the theory of social representation of intelligence, teachers’ views on the malleability of academic competence have been examined (Kärkkäinen, 2011; Kärkkäinen & Rätty, 2010). The results have indicated that Finnish teachers’ and parents’ views on the malleability of a child’s academic competence

tended to follow a self-serving attribution pattern: children who were believed to be doing well at school were perceived to have more stable competencies, whereas children who were not doing so well were seen as capable of improvement (Kärkkäinen, 2011; Kärkkäinen & Rätty, 2010). These results indicate that teachers' conceptions might be fixed, especially toward high-achieving gifted students.

Despite the moderate interest in teachers' conceptions of giftedness and the gifted, a clear picture is still missing (Moon et al., 2008). Moreover, most research has concentrated on characteristics of the gifted, whereas teachers' general conceptions of giftedness and its definitions have not been widely studied. Thus, more work is needed on how teachers conceptualize the idea. The theories of giftedness are also connected with the time and the culture (Taylor & Kokot, 2000; Phillipson, 2007). In view of these factors, it is important, first, to examine teachers' conceptions from time to time, since teachers' attitudes should change and develop along with the times and with changes in theory and research. Second, conceptions within a particular culture should also be examined (e.g., Freeman, 2005; Moon & Rosselli, 2000; Taylor & Kokot, 2000). Yet earlier research on Finnish teachers' conceptions of giftedness is scarce.

## 3 Gifted education

### 3.1 Issues of definition

In this thesis, *gifted education* is used as an umbrella term to refer to all of the practices used to support students' giftedness in the general formal school system. Thus, the thesis does not focus on education in music institutes or sports clubs, for example. The main focus is on gifted education at the comprehensive school level, particularly on class teachers' attitudes and practices in elementary school. Gifted education appears in two separate articles in this thesis: Article III, in which teachers' attitudes to gifted education were examined, and Article IV, in which practices used by teachers to address gifted students' needs were studied.

Internationally, there is a wide range of templates both for identifying and for educating gifted children (Freeman, 2005; see also Dai & Chen, 2013). The essence of gifted education and its practices is to coordinate students' readiness with the complexity of the curriculum (Colangelo & Assouline, 2009). Gifted education practices that receive the most research support are acceleration (Colangelo, Assouline, & Gross, 2004; Hattie, 2009; Robinson & Dailey, 2014; Robinson, Shore, & Ernesen, 2007) and various types of groupings (Kulik & Kulik, 1992; Robinson & Dailey, 2014; Robinson et al., 2007; Rogers, 2004, 2007). *Acceleration* can be defined as "an educational intervention that moves students through an educational program at a faster than usual rate or younger than typical age" (Colangelo et al., 2004, p. 5). It includes various options, such as single-subject acceleration, grade-skipping and early school entrance (Colangelo et al., 2004). *Grouping* refers to placing gifted students in groups based on their ability or performance (Rogers, 2007). There are multiple opportunities for grouping, varying from full-time ability groups to flexible in-class groups (Rogers, 2007).

However, since gifted students spend most of their time in regular mixed-ability classrooms, differentiation is important and forms the core of gifted education. Accordingly, it is one of the most widespread teaching strategies for gifted students (Kerry & Kerry, 1997). *Differentiation* is a pedagogical strategy to address students' diverse needs, interests and abilities. It is an approach to teaching whereby teachers proactively modify curricula, teaching methods, resources, learning activities and students' products (Tomlinson et al., 2003) in accordance with students' readiness, interests and learning profiles (Tomlinson, 1999). In a differentiated classroom, teachers start at the point where the students are (Tomlinson, 1999) and assist every student's learning process in a way appropriate to that student's level (Dixon et al., 2014; Tomlinson, 1999). The purpose is to maximize the individual's learning opportunities (Tomlinson et al., 2003), growth and successes (Dixon et al., 2014).

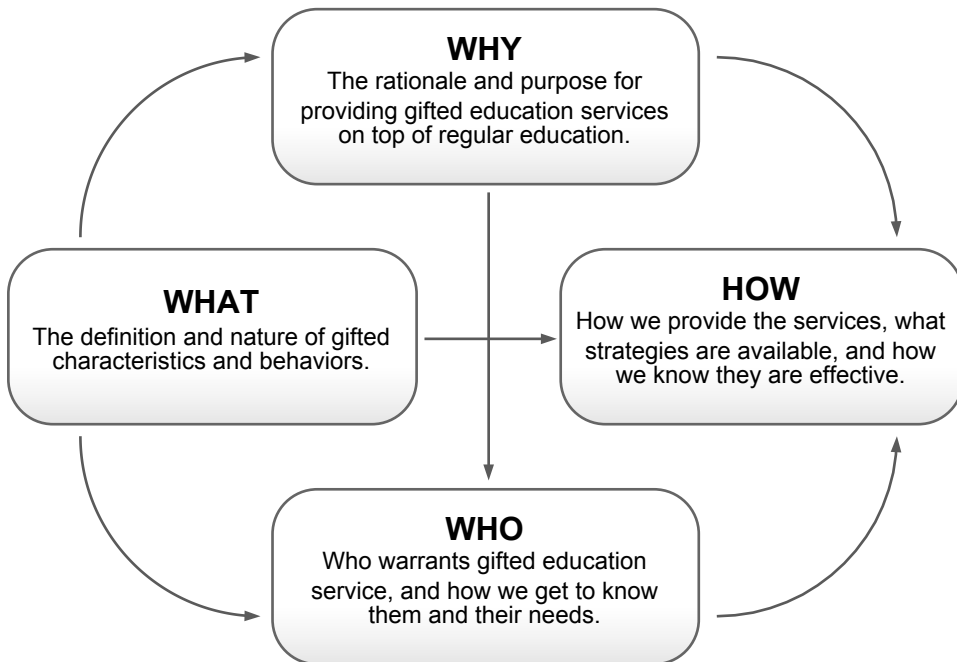
### 3.2 Gifted education paradigms

What unifies our field is a fundamental concern over our most able and promising children on various fronts of human endeavor. What “divides” us ... are our beliefs about the nature of giftedness as well as our values, goals, and priorities of gifted education. (Dai, 2011, p. 721)

In their article, Dai and Chen (2013) present three paradigms of gifted education: the *gifted child paradigm*, the *talent development paradigm* and the *differentiation paradigm*. Paradigms are defined as any human practice “to the extent that it has a coherent set of assumptions, goals, and procedures agreed by a group or community of practitioners as standard of practice” (Dai & Chen, 2013, p. 152). A paradigm of educational practice is defined in a framework of the questions *what, why, who* and *how* (Dai & Chen, 2013; see Figure 1).

All paradigms are based on different views of giftedness (*what*), purposes of gifted education (*why*), who are supported and based on what information (*who*), and which educational strategies are chosen (*how*) (Dai & Chen, 2013). In the *gifted child paradigm*, giftedness is seen traditionally as a hereditary quality equated with a high IQ, and gifted children and adults are considered to be qualitatively different from everyone else (Dai & Chen, 2013). The purpose of gifted education is to serve gifted children. Historically, in this paradigm various kinds of IQ tests have been used as criteria for identifying the gifted. Currently, there is more flexibility than before, with different kinds of achievement tests and rating scales being used. In this paradigm, strategies for serving gifted children are pull-out programs and programs intended to enhance creativity, leadership, and higher-order thinking. (Dai & Chen, 2013)

In the *talent development paradigm*, giftedness is seen as more malleable, a set of developing cognitive and non-cognitive capabilities and potentials (Dai & Chen, 2013). The paradigm assumes that there is a broad psychosocial base for giftedness and talent. However, the paradigm does not exclude the possibility that general intelligence plays a role in talent development. The purpose of gifted education is to cultivate a diverse range of strengths and interests and help students achieve excellence in whatever field they choose. Thus, this paradigm targets an inclusive and heterogeneous group of individuals. Varying sets of criteria for cognitive and non-cognitive aptitudes in a particular line of talent development are considered crucial in identification, and both formal selection and self-selection can be used. The main gifted education method is enrichment, which offers a wide range of interest-based learning experiences and in-depth domain experiences. (Dai & Chen, 2013)



**Figure 1.** Components and relationships of a paradigmatic approach to gifted education (Adapted from Dai & Chen, 2013, p. 153)

In the *differentiation paradigm*, there is no particular definition of giftedness; instead, giftedness is regarded from the perspective of a mismatch between the student and the curriculum (Dai & Chen, 2013). Furthermore, differences in the learning curve are regarded as subject-specific and open to change. The purpose is to avoid concerns of equity and to match services with students’ specific strengths, interests and learning styles. Thus, the purpose of identification is not to establish gifted status for some children or separate them into some particular course of learning activity. Instead, the aim is to diagnose students’ learning needs, especially those which are unmet, and meet those needs by finding an appropriate curriculum and suitable instruction. Differentiation can be actualized both in qualitative and quantitative ways. Differentiation in qualitative ways means that separate provisions for the gifted should be guaranteed, since regular classrooms do not offer these modifications or the adaptations necessary for gifted students’ curriculum and instruction. Differentiation in quantitative ways, on the other hand, means that, since there is no unique curriculum or pedagogy that works only for the gifted, gifted students’ placement should be in regular classrooms in which the curriculum level and pace are adapted to meet their needs. (Dai & Chen, 2013)

The research context of this thesis, Finland, can be best situated under the last-mentioned differentiation paradigm (see also McClarty, 2016). The four questions posed by the paradigms – *what*, *why*, *who* and *how* – are used later to

describe the Finnish context from the perspective of gifted education (section 4.2.). But first, given Finland's prevailing paradigm, differentiation for the gifted is described in more detail.

### **3.3 Differentiation for the gifted**

They are teachers who strive to do whatever it takes to ensure that struggling and advanced learners, students with varied cultural heritage, and children with different background experiences all grow as much as they possibly can each day, each week, and throughout the year. (Tomlinson, 1999, p. 2)

Differentiated teaching and instruction for the gifted means that teachers modify educational content, process and products (Tomlinson, 1999) to be more appropriate for gifted students' needs, learning profiles and interests. Differentiation offers gifted students specific ways to learn as deeply and as quickly as possible (Tomlinson, 1999).

In practice, teachers should include, for example, more challenging learning activities, offer varied, supplementary and more advanced materials and resources, allow greater depth of inquiry, promote independence, support opportunities for developing interests, use rich and multilayered questions, offer chances to develop advanced products, encourage higher-level thinking and use problem-based learning (e.g., Archambault et al., 1993; Bangel et al., 2010; Phillips & Lindsey, 2006; Robinson et al., 2007; Tomlinson, 1999, 2001, 2005; Tomlinson et al., 2003; Treffinger, Nassab, & Selby, 2009; VanTassel-Baska & Brown, 2007; VanTassel-Baska & Johnsen, 2007). In carrying out differentiation, teachers can use flexible groupings (Robinson et al., 2007; Tomlinson, 2001; VanTassel-Baska & Brown, 2007), which are known to be effective especially if the instruction, materials and assignments are also differentiated to meet the needs of the group (Rogers, 2007). Additionally, one central form of differentiation is to adjust the pace of learning. Sometimes gifted students are allowed to move quickly through familiar or minimally challenging content (Rogers, 2007; Tomlinson, 2001, 2005), and sometimes they are allowed to use more time to study a topic in depth (Tomlinson, 2001, 2005).

Although as mentioned, differentiation is an essential way of addressing the needs of the gifted (DeCorte, 2013; Latz et al., 2009), unfortunately, there is evidence that this is often an empty promise. Research has indicated that teachers do not implement differentiation on a regular basis (Archambault, et al., 1993; Latz et al., 2009; Westberg et al., 1997; Westberg, Archambault, Dobyms, & Slavin, 1993; Westberg & Daoust, 2003). There are also indications that gifted students are not necessarily included in a group that needs differentiation (Hertberg-Davis, 2009) and that teachers' focus is on struggling students

(Brighton, Hertberg, Moon, Tomlinson, & Callahan, 2005). In addition, differentiation is often used in limited and ineffective ways (cf. Stradling & Saunders, 1993; Tomlinson et al., 2003), and the activities offered are often more improvisational and reactive than pre-planned and proactive (Tomlinson, 1999; Tomlinson et al., 2003). Earlier research in the Finnish context has found that teachers' main differentiation practices for the gifted included special learning materials, using the gifted as teachers' assistants, and allowing the gifted to choose their own assignments (Tirri & Uusikylä, 1994). Another Finnish study found that Finnish teachers wanted to promote the social skills of the highly able, use them as good examples for the less talented students, and were doubtful about the value of isolating the gifted (Ojanen & Freeman, 1994). Differentiation, in general, has been found to be the second greatest pedagogical problem that Finnish elementary school teachers have faced during their career; only student misbehavior was ranked more often as a greater problem (Atjonen et al., 2008).

Barriers that might hinder teachers' differentiation practices include teachers' conflicting beliefs about the meaning of differentiation and the nature of schooling, insufficient depth of content knowledge, and shallow pedagogical understanding (Hertberg-Davis & Brighton, 2006). Teachers' limited classroom management skills are also reported as one of the most common concerns whenever educators attempt differentiation (Tomlinson, 2001; VanTassel-Baska & Stambaugh, 2005). Teachers might feel uncomfortable when their students are working on different assignments, tasks, and content levels (VanTassel-Baska & Stambaugh, 2005). The fear of losing control can even stop teachers' attempts at differentiation (Tomlinson, 2001). Teachers might also have misunderstandings about differentiation, such as believing that it is a form of scaffolding for struggling learners or that it is primarily a group work strategy or that it is about providing entertaining choices rather than a thoughtful curriculum (Hertberg-Davis, 2009). These misunderstandings can lead to practices that are not recommended, such as using gifted students in heterogeneous groups to insure that work gets done or to help other children, as well as sacrificing high-level content for fun-filled activities (Hertberg-Davis, 2009). Teachers might also have a "one-size-fits-all" attitude or may not see the reasons that differentiation is needed and thus do not realize the challenging process of differentiation (Dixon et al., 2014). Other factors, such as the highly time consuming nature of implementing differentiation (Hertberg-Davis, 2009; VanTassel-Baska & Stambaugh, 2005), the difficulty of finding and utilizing resources (VanTassel-Baska & Stambaugh, 2005), limited educational funding (Davalos & Griffin, 1999) and lack of administrative support (VanTassel-Baska & Stambaugh, 2005) are often described as challenges that may hinder differentiated teaching for the gifted. As is apparent, differentiation is a challenge for both schools and teachers. Accordingly, for many professionals and advocates of gifted education, how gifted students are handled in regular classrooms is a serious concern (Johnsen et al., 2002).

### 3.4 Teachers' attitudes toward gifted education

*Attitudes* can generally be understood as peoples' summary evaluations of objects (e.g., Ajzen, 2001; Ajzen & Fishbein, 2000; Bohner & Dickel, 2011). These evaluations can be done, for example, on a scale ranging from positive to negative, such as good/bad, harmful/beneficial, pleasant/unpleasant, or likable/unlikable (Ajzen, 2001). However, attitudes can also be defined as evaluative abstractions in which cognitive and affective reactions are integrated and summarized (Crano & Prislin, 2006). In one of the most popular attitude models, the expectancy-value model, the evaluative meaning of objects arises spontaneously and inevitably whenever we form beliefs about an object (Ajzen, 2001). Furthermore, attitudes are based on beliefs (alternatively referred to as conceptions) or at least beliefs (conceptions) are one possible influence on attitudes (Ajzen, 2001).

Similar to conceptions, teachers' attitudes toward the gifted are highly relevant from a practical point of view (Preckel et al., 2015). It has been argued that teachers need to have appropriate attitudes to the gifted in order to assess their needs accurately (Lassig, 2003; Troxclair, 2013) and to ensure that appropriate opportunities and educational interventions are offered (Jung, 2014). Consequently, teachers' attitudes to gifted education have sparked the interest of many researchers (e.g., Bégin & Gagné, 1994, 1995; Cramond & Martin, 1987; Cross et al., 2013; Gross, 1994; Jung, 2014; Lassig, 2009; McCoach & Siegle, 2007; Tallent-Runnels, Tirri, & Adams, 2000; Tirri, Tallent-Runnels, Adams, Yuen, & Lau, 2002; Tirri & Uusikylä, 1994; Troxclair, 2013). However, evidence suggests that teachers' attitudes toward the gifted and their education vary.

Earlier research has indicated that teachers mostly have positive and supportive attitudes to recognizing and supporting gifted students in general (e.g., Lassig, 2009; McCoach & Siegle, 2007; Troxclair, 2013; Watts, 2006). However, it has been found that teachers' attitudes are often negative to acceleration (Lassig, 2009; Troxclair, 2013) or at most neutral (McCoach & Siegle, 2007). Attitudes to grouping are similar, with both negative (Troxclair, 2013) and ambivalent (Lassig, 2009; Watts, 2006) attitudes reported. Research on teachers' attitudes toward differentiation for the gifted is scarce. Megay-Nespoli's (2001) study on pre-service teachers indicated that teachers have moderately positive attitudes toward differentiation of the gifted. Likewise, it has been found that among pre-service teachers, there is agreement that individual differences should be taken into account in teaching (Moon, Callahan, & Tomlinson, 1999). It has also been acknowledged that there seems to be great variance in teachers' attitudes, meaning that, while some teachers have very positive attitudes, others have very negative attitudes (McCoach & Siegle, 2007). This observation calls for more person-centered approaches in assessing teachers' attitudes (McCoach & Siegle, 2007). In their study, Cross, Cross, and Frazier (2013) found three clusters of attitudes from teachers' and students' responses to an attitude scale using cluster analysis:

“non-supporters,” “supporters” and “conflicted gifted.” Non-supporters showed little agreement about the needs of gifted students, for example, strongly opposing gifted education and seeing it as elitist. Supporters acknowledged the needs of the gifted and keenly supported gifted education. The conflicted gifted disagreed about gifted education, recognizing the needs of gifted students, but also showing opposition to gifted education (Cross et al., 2013).

Previous research has also examined possible predictors of teachers’ attitudes. Most often the research has indicated that teachers with more knowledge of gifted children (e.g., Copenhaver & McIntyre, 1992; Jones & Shouthern, 1992; Morris, 1987) and with experience working with the gifted (Bégin & Gagné, 1995; Copenhaver & McIntyre, 1992; Townsend & Patrick, 1993) have more positive attitudes. In a recent study (Jung, 2014) carried out among pre-service teachers ( $N=241$ ) in Australia, it was found that contact with gifted persons and older ages predicted more positive attitudes toward special provisions for the gifted. Conversely, lack of experience with an advanced curriculum in regular classrooms and younger age predicted special provisions for the gifted being seen as elitist (Jung, 2014). However, divergent findings have also been reported (Bégin & Gagné, 1994, 1995; McCoach & Siegle, 2007). For example, in their study, McCoach and Siegle (2007) did not find any connections between teacher training and teachers’ ( $N=262$ ) attitudes. However, they found that special education teachers tended to have slightly more negative attitudes toward support and acceleration of the gifted than regular teachers (McCoach & Siegle, 2007).

There are also a few studies in which Finnish teachers’ attitudes toward gifted education have been examined. Tirri and Uusikylä (1994) looked at how teachers ( $N=393$ ) perceived gifted education and found that Finnish elementary school teachers favored differentiation in regular classrooms and were more negative toward the idea of separate schools and classes than secondary school teachers. Ojanen and Freeman (1994) examined and compared the attitudes and experiences of head teachers, class teachers and highly able students toward gifted education in Finland and Great Britain. They found that Finnish teachers preferred to keep highly able students in normal class routines and with other students (Ojanen & Freeman, 1994). Later research has produced similar results (Tallent-Runnels et al., 2000; Tirri et al., 2002). Compared to their American counterparts, Finnish teachers were more concerned about the negative side effects of special classes and other special arrangements outside of the regular classrooms (Tallent-Runnels et al., 2000). Comparison research has also revealed that the most discriminating items between Finnish, American and Hong Kong teachers were the following: “there are no gifted children in our school”; “the gifted should spend their spare time helping those who progress less rapidly”; and “all children are gifted” (Tirri et al., 2002, p. 121). Finnish teachers disagreed strongly with the first item, showed opposing attitudes toward the second, and agreed most with the last (Tirri et al., 2002). Altogether these results

suggest that there is some consistency in how teachers in Finland apparently prefer keeping gifted students in regular classrooms with other students.

However, ideas indicated by the last-mentioned study, such as “all children are gifted” and “the gifted should act as teachers’ helpers,” are harmful myths and can hamper appropriate education of the gifted. Furthermore, myths such as “the gifted can make it without special attention” (Davalos & Griffin, 1999; De Corte, 2013) or “high-ability students do not face problems and challenges” (Moon, 2009) can harm differentiation. These myths are closely related to the idea that gifted students will be successful in life whatever their school experiences are; this in turn can lead to educational faculty shirking responsibility for taking care of these students’ needs (Moon, 2009). Related to the above is a myth in which giftedness is equated with effortless, superior performance or creative production (Subotnik et al., 2011). The idea of effortlessness is harmful, because it masks the enormous time commitment and dedication that the gifted have invested in their own development (Subotnik et al., 2011). In reality, gifted students need support and challenges in order to develop their potential (Gagné, 2010; Reis & Renzulli, 2009). They need to learn to work toward their goals (Dweck, 2009), because motivation and effort are the most influential factors leading to a high level of performance (Reis & Renzulli, 2009). Accordingly, schools and teachers should also address gifted students’ psychosocial skills, such as persistence and effort (Subotnik, Olszewski-Kubilus, & Worell, 2012).

## 4 Gifted education in Finland

### 4.1 The educational system in Finland

The chief aim of the Finnish educational system is to provide all citizens with equal access to education (Halinen & Järvinen, 2008). The right to free pre-school and basic education is guaranteed to all residents of Finland (Halinen & Järvinen, 2008), and this includes a free daily meal and all learning materials. The Finnish educational system as a whole includes three levels: 9 years of basic education (comprehensive school), post-comprehensive education in vocational training or upper-secondary education, and tertiary education at polytechnics and universities (Halinen & Järvinen, 2008). Before beginning their basic education, children normally attend pre-school, which has been obligatory since 2015. This thesis concentrates on the first level of the educational system, namely, comprehensive school, and in particular, on the elementary school level, meaning the grades from first to sixth, where students' ages normally range from 7 to 12 years old. Teachers in elementary schools are responsible for teaching all school subjects with the exception of foreign languages. Finnish elementary school teachers are highly educated. They all have master's degrees in education, indicating that they have attended a university for academic professional training (Sahlberg, 2015; Tirri, 2014). During the last decade, teacher education in Finland has become increasingly research-based (Tirri, 2014).

Finland is one of the Nordic welfare states in which equality and inclusiveness are central values in educational policy (Arnesen, Mietola, & Lahelma, 2007; Takala, Pirttimaa, & Törmänen, 2009). In reality, more emphasis has been directed toward equality of educational outcomes than to the pursuit of individual excellence (Hotulainen & Schofield, 2003). According to the egalitarian ethos, the main emphasis has been to take care of students with learning disabilities (Tirri & Kuusisto, 2013), and the largest share of support has been directed to their needs (Kumpulainen & Lankinen, 2012; Niemi, 2012). Solidarity has been one of the key concepts both in social policy and in education (Aro, Rinne, & Kivirauma, 2002). However, since the 1990s, educational policy has undergone radical change in Finland (Rinne, 2000), and more emphasis has been put on individuality and freedom of choice (Tirri, 1997; Tirri & Kuusisto, 2013). The importance of taking students' individual needs and abilities into account has been acknowledged in the Finnish Constitution (731/1999). The Basic Education Act (628/1998) also specifies that student' ages and requirements must be taken into consideration when instruction is arranged. The idea of individualism has also been emphasized in teachers' professional codes of ethics since the end of the 1990s (Tirri & Kuusisto, 2013). These codes emphasize accepting the individual worth and uniqueness of all learners (Trade Union of Education in Fin-

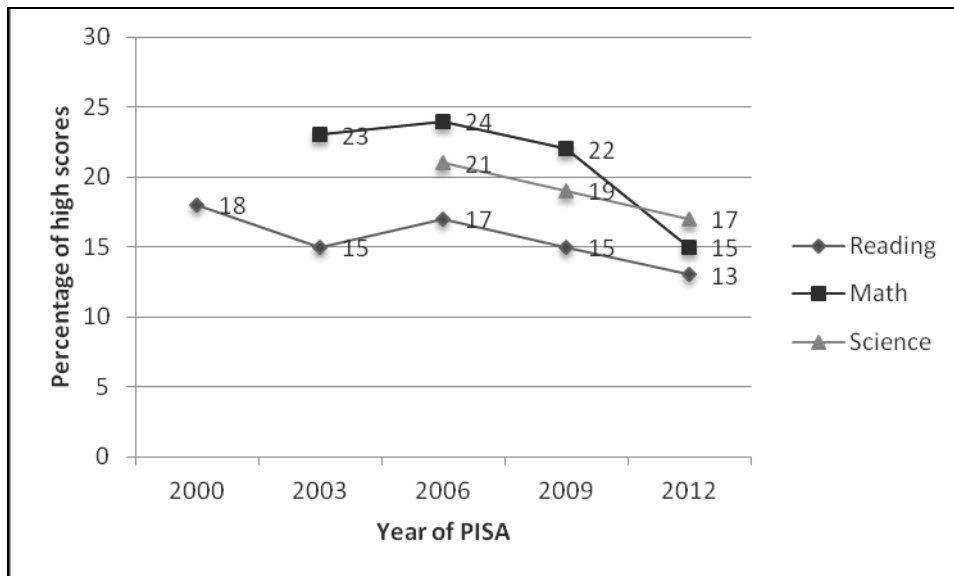
land, 2010). These ideas of solidarity on the one hand and individuality on the other are often debated in the public discussion in Finland.

Finland is, moreover, one of the 92 countries that signed the UNESCO Salamanca Statement (1994). The statement deals with inclusion, which has been the goal of education reformers for decades and encouraged through legislation internationally for over 20 years (MacFarlane & Woolfson, 2013). Influences of the statement can be found in the Finnish Basic Education Act and the National Core Curricula since 2004 (Halinen & Järvinen, 2008). Initially, inclusion was used to refer to an attempt to create equality of education for students with disabilities by integrating them into mainstream schools (Allday, Neilsen-Gatti, & Hudson, 2013). Conversely, when understood more broadly, inclusion is defined as non-discriminatory education for all that aims to resist all kinds of discrimination (Saloviita, 2015; UNESCO, 2009). Thus, the focus is on diversity and how schools respond to the diversity of all students (Ainscow et al., 2006) while supporting every child to learn successfully (Halinen & Järvinen, 2008). This broad definition is important from the perspective of gifted students (Smith, 2006). However, in Finland, inclusion has been often associated only with the special needs' students and how to organize their education (Halinen & Järvinen, 2008), which is evident in other contexts as well.

The Finnish comprehensive school system has received world attention since its great success in international learning outcome comparisons, such as the OECD Program for International Student Assessment (PISA). On the PISA tests, Finnish ninth-grade students delivered excellent results in reading, mathematics, science and problem solving in 2000, 2003, 2006 and 2009. However, PISA 2012 revealed that the achievement outcomes of Finnish students have begun to decline (Kupari et al., 2013), and the change from the year 2001 to the year 2012 is notable (Hautamäki et al., 2013). This decline can be seen at both ends of the spectrum: there are more students in two of the lowest levels (1 and below 1) and fewer students in two of the highest levels (5 and 6) (Hautamäki et al., 2015). Thus, even though the relative number of students with high scores is still one of the best in the world (Finn & Wright, 2015), the decline is alarming. The decline in the percentages of high scores is illustrated in Figure 2; as can be observed, the decline is evident in all subjects measured by PISA, but is especially sharp in math.

Generally, this falling off in achievement has been found in other measures as well (Hautamäki et al., 2015). It has been suggested that the main reason has to do with changes in attitudes connected to larger changes in society for which schools have not yet found effective strategies (Hautamäki et al., 2013). It has also been pointed out that the role of schools in the lives of young people has changed, becoming only one environment among many for young people's development (Hautamäki et al., 2013). Furthermore, it has been questioned whether there are the possibilities or even the will in schools to create situations in

which students are expected to move out of their comfort zones and beyond that which is already known (Hautamäki et al., 2015), which are the bases of all learning (cf. Vygotsky, 1978). Nevertheless, these results indicate, among other things, that schools have not been able to support high achievement properly. When actions for remedying this educational decline are planned, this aspect should not be forgotten.



**Figure 2.** Percentages of Finnish students making high scores on PISA (Arinen & Karjalainen, 2006; Kupari et al., 2013; Kupari et al., 2004; Sulkunen et al., 2009; Välijärvi et al., 2001)

## 4.2 The Finnish gifted education paradigm

In this section, the Finnish system is evaluated from the perspective of gifted education paradigms (Dai & Chen, 2013; see chapter 3.2). The National Core Curriculum has served as the main source of information for this section. In conducting the research for this thesis, I have used both the National Core Curriculum 2004 (Finnish National Board of Education [FNBE], 2004) and the Amendments and Additions to the National Core Curriculum for Basic Education 2010 (FNBE, 2011). The former was taken into use in schools in August 2006, while the latter was implemented in January 2011. In the Amendments and Additions 2010 (FNBE, 2011), substantial changes were made, especially to sections dealing with support for learning and schooling, and support relating to teaching arrangements. One of the biggest changes was the elevation of differentiation to a central position. In 2004, differentiation was mentioned only once in the curriculum (FNBE, 2004, p. 24), which states: “remedial instruction is one form of differentiation, where individual tasks, use of time, and support are its

characteristics.” In contrast, the 2010 document (FNBE, 2011, p. 9) contains a large section in which differentiation is identified as “the central way to acknowledge the needs of the class and students’ differences.” Differentiation is not a new concept in Finnish schools, but the examples above illustrate that the history of the concept in Finnish curricula is relatively brief.

As discussed in the previous section, whenever different gifted education paradigms are considered, Finland falls under the differentiation paradigm. Below, the Finnish education system is described in more detail by means of the four education paradigm questions posed by Dai and Chen (2013): what, who, how, and why.

**What:** There is no formal definition of giftedness or identification criteria in Finland (Mönks & Pflüger, 2005). The word “gifted” or its synonyms are not used in any educational documents currently in effect (FNBE, 2004, 2010). However, the Amendments and Additions (FNBE, 2011, p. 9) states that attention should be given to students’ different learning styles and their working rhythms, to their readiness and topics of interest, as well as to their emotional needs connected with self-confidence and motivation. (FNBE, 2011, p. 9)

**Who:** According to the Amendments and Additions (FNBE, 2011), teachers are responsible for diagnosing the needs of individual students. Teachers need to understand the processes of learning and growth, and they need to monitor and evaluate students’ development and learning. Cooperation with other teachers, personnel, specialists and parents is believed to support differentiation. (FNBE, 2011)

**How:** Differentiation is defined as a core strategy in all teaching in order to take into account the needs of all learning groups and students’ differences (FNBE, 2011). Furthermore, differentiation is seen as a method with which 1) proper challenges and feelings of success can be produced, and 2) possibilities to develop and learn according to a student’s individual strengths are offered (FNBE, 2011, p. 9). Furthermore, in Finland, differentiation is carried out in quantitatively different ways (Dai & Chen, 2013), meaning that gifted students are studying in regular mixed ability classrooms with their peers, and not in separate programs developed specifically for them. The idea behind this is that there is no unique curriculum or pedagogy that works exclusively for the gifted (Dai & Chen, 2013).

There are also other educational possibilities for gifted students, such as early entrance to school, grade skipping and summer camps (Mönks & Pflüger, 2005; Tirri & Kuusisto, 2013). In Finland, a child can start comprehensive school at the age of 6, one year earlier than usual, if the child is ready according to psychological and/or medical tests (Basic Education Act, 628/1998, section 27). Parents who believe that their child is ready for school earlier are responsible for arranging and paying for the tests that ensure this readiness. In some cases, it is possible to skip a grade if a pupil has already mastered the content of a particular

year. However, the existence of these options does not guarantee their regular use in practice. Furthermore, some of the larger cities offer the possibility for students to apply to schools with weighted curriculum education or bilingual instruction. A weighted curriculum is not formally called gifted education, but it offers interested students the chance to study a subject 1-2 lesson hours more per week than other students. Students are chosen based on aptitude tests. At the elementary school level, subjects such as music, the visual arts, languages, sports or dance are offered.

*Why:* The reason behind the differentiation paradigm in Finland is related to values of equality and inclusiveness. Owing to the egalitarian context, all forms of differentiating educational tracks and streaming by ability are abandoned (Aro et al., 2002). Although the importance of addressing students' individual needs is recognized in Finland (see section 4.1.), support for the gifted must be done primarily in regular classrooms in a formal comprehensive school, which is a place for all children.

However, the interesting question is whether or not the differentiation paradigm has practical validity. According to Dai and Chen (2013), practical success or failure depends on the general socio-cultural context – local, state, and national policy, and professional development, to mention only some of the reasons. Furthermore, a paradigm operates on a general, theoretical level, from which specific practical implementations or models can be derived (Dai & Chen, 2013). Furthermore, on a more general level, some scholars maintain that in the field of gifted education there little to connect theory with practice, indicating that practice is only rarely based on theory (Ambrose et al., 2010). Considering all the information, teachers have the main responsibility for gifted education in Finland. However, it is noteworthy that there is no mandatory training in gifted education for teachers. Because universities are allowed to determine the details of their own curricula, including in teacher education (Sahlberg, 2015), the way the programs are handled will vary from one university to the next. Moreover, there is great dissonance between the socio-cultural context and teacher education, which can affect how the gifted are viewed and supported, and whether the differentiation paradigm works in practice. Thus, Finland serves as an interesting context to examine teachers' perspectives on gifted education.

## 5 Aim and methods

### 5.1 Aim of the thesis

This thesis is based on four original publications (Articles I-IV). The principal aim is to investigate Finnish elementary school teachers' perspectives on gifted education. Specifically, teachers' perspectives are studied here by examining their conceptions of giftedness (Article II), their attitudes to gifted education (Article III) and their gifted education practices (Article IV). In addition, a preliminary study of the public discussion of gifted education (Article I) was carried out in order to obtain an indication of cultural conceptions in Finland and to guide the construction of the research instruments of the main study.

The thesis objective was approached by means of the following research questions and their sub-questions:

1. What is being discussed about giftedness and gifted children in the public discussion? (Article I)
  - What are the main conceptions of giftedness and gifted children in the discussion?
  - Is there a lack of information or are there misunderstandings in the discussion?
2. What are Finnish elementary school teachers' primary conceptions of giftedness? (Article II)
  - Do Finnish teachers understand giftedness as a fixed or malleable quality?
3. What are Finnish elementary school teachers' attitudes toward gifted education? (Article III)
  - Can we identify diverging attitude profiles of teachers?
  - Can we find variables that explain teachers' belonging to a certain profile?
4. In what ways do Finnish elementary school teachers meet the needs of their gifted students? (Article IV)

## 5.2 Overview of the research design

This thesis utilizes a mixed methods research design to explore teachers' perspectives on gifted education. Table 1 summarizes this design.

**Table 1.** Summary of the research design

Article	Main research question	Data	Data specification	Data analysis
I	What is being discussed about giftedness and gifted children in the public discussion?	Public discussion data	<i>Opettaja</i> : 138 articles (137 pages) <i>HS</i> : 193 articles (243 pages) <sup>1</sup>	Content analysis: Inductive approach
II <sup>2</sup>	What are Finnish elementary school teachers' primary conceptions of giftedness?	Survey data: Part 1 (background information) + Part 2 (open-ended definitions of giftedness)	<i>N</i> =212 elementary school teachers	Content analysis: Inductive approach
III	What are Finnish elementary school teachers' attitudes toward gifted education?	Survey data: Part 1 + Part 4 (attitude measures)	<i>N</i> =212 elementary school teachers	Factor analysis, Latent profile analysis, ANOVA, Kruskal-Wallis test
IV	In what ways do Finnish elementary school teachers meet the needs of their gifted students?	Survey data: Part 1 + Part 3 (descriptions of practices)	<i>N</i> =202 elementary school teachers (10 teachers did not describe practices)	Content analysis: Deductive + inductive approaches

Mixed methods research can be seen as a third research movement (Johnson & Onwuegbuzie, 2004; Johnson, & Onwuegbuzie, & Turner, 2007) in addition to the two traditional ones, quantitative and qualitative. In mixed methods research, both quantitative and qualitative approaches are regarded as important and useful (Johnson & Onwuegbuzie, 2004); the approach can be considered a synthesis that includes ideas from both (Johnson et al., 2007). A mixed methods

<sup>1</sup> A4; font Times New Roman; font size 12; spacing 1.5

<sup>2</sup> Article II presents two independent studies (Study 1 and Study 2) in which Finnish teachers' conceptions were examined. Only Study 1 is based on data gathered for this thesis. Study 2 is a separate independent investigation based on its own data and procedures and thus is not described in this thesis. The results of Study 2 did not affect the results of this thesis.

approach allows researchers to mix and match design components in order to answer specific research questions (Johnson & Onwuegbuzie, 2004).

Three of the thesis articles (I, II, and IV) can be regarded as more qualitative and one as quantitative (III). However, mixing has been present throughout the thesis. First, the empirical part is based on two different datasets: public discussion data (Article I) and survey data from Finnish elementary school teachers (Articles II, III, and IV). Public discussion data were used as a preliminary study to illuminate the different conceptions in Finland and to guide the formation of the questionnaire used to gather the survey data. Second, the questionnaire contains both open-ended and closed-ended items and can thus be regarded as a “mixed questionnaire” (Johnson & Turner, 2003). Third, mixing has also occurred in data analysis, as qualitative data have been quantified. Fourth, in the final phase of the thesis, the results from all studies are integrated in order to form a coherent picture of Finnish teachers' perspectives on gifted education. Furthermore, by answering the research questions, the thesis contributes to the discussion on gifted education paradigms (Dai & Chen, 2013). Research questions 1 and 2 answer the paradigm question “what”; research question 3 answers “why” and “how”; research question 4 will reveal more specifically “how” teachers address gifted students' needs.

## 5.3 Procedure and data

### 5.3.1 Public discussion data

The main purpose of studying the public discussion was to obtain information about conceptions in the print media and consequently enrich the view of conceptions of giftedness in a Finnish context. As gifted education is both a societal and an educational issue, both aspects needed to be included in the data. Accordingly, articles from two important Finnish publications formed the dataset: *Helsingin Sanomat* (*HS*; the most widely read newspaper in Finland) represents the societal discourse, whereas *Opettaja* (“Teacher”, Finland's oldest weekly periodical for teachers) represents the educational discourse.

As many as three-fourths of the residents in the metropolitan area of Helsinki (the country's capital) and a quarter of all Finns read *Helsingin Sanomat*. When the research was conducted, the daily circulation from Monday to Saturday was approximately 440,000, and on Sundays 500,000 (Laine, 2010). At the same time, it was estimated that 173,000 people were reading *Opettaja* (Laine, 2010). The main readers of *Opettaja* are teachers who range from those in early childhood education to those in adult education.

### **Procedure**

Using the publications' electronic archives (www.opettaja.fi, www.hs.fi), all articles published between the years 1992 and 2007 were searched. The particular timeline was chosen to ensure that: 1) the data contain as many years before 2000 as after, and 2) the articles are available in the electronic archives. The search term used was *lahjak\**, which in Finland refers to both giftedness and talent. Owing to the large number of articles in HS, the search was limited to the domestic, editorial, and opinion sections, which were regarded as the main arenas for discussing giftedness and gifted education. Ultimately, the search term was found in 488 articles in *Opettaja* and in 1,098 articles in *HS*.

All of these articles were then reviewed one by one to apply the final inclusion criteria. These criteria were that 1) giftedness was the primary subject of the article, 2) giftedness was a collateral subject of the article generally or the article was related to education of the gifted, or 3) some statement about giftedness was made and the article was connected to the field of gifted education at the comprehensive school level or to the general policies of gifted education.

After applying the three criteria described above, 138 articles from *Opettaja* and 193 articles from *HS* (67% opinion, 24% domestic and 9% editorial) were included in the study. The articles chosen are described in more detail in the original publication (Article I).

### **5.3.2 Survey data**

The survey data were gathered during the school year 2010-2011 from Finnish elementary school teachers. The aim of the survey was to examine teachers' conceptions of giftedness, their attitudes toward gifted education and how they address gifted students' needs.

### **Procedure**

From the list<sup>3</sup> of all of Finland's municipalities which organize basic education ( $N=315$ ), municipalities were randomly selected to participate in the study. Stratified random sampling was used in order to obtain responses from all parts of Finland. Åland (Finland's sixth province) was not included, because of a language issue: there are no Finnish-language schools in Åland, where Swedish is the dominant language. From the remaining provinces<sup>4</sup> 50 percent of the municipalities were chosen randomly using a random number generator.

The next step was to verify whether the municipality still exists, as there are frequent changes to municipality structures in Finland, and then determine

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<sup>3</sup> Obtained from the Finnish National Board of Education.

<sup>4</sup> Provinces were abolished in the year 2010, and at the same time regional state administrative agencies were founded. In the abolishment, the former province of Western Finland was split into two: South-Western Finland and Central Finland, with the former province of Oulu being renamed Northern Finland. In other respects, the old provincial boundaries remain the same.

whether the municipality's main language was Finnish or Swedish. Accordingly, 1) if the municipality no longer existed, a new municipality was randomly chosen instead, and 2) if 60 percent or more of a municipality's residents were Swedish-speaking, then the municipality was not chosen because of the language issue, and a new municipality was randomly chosen instead. Finally, the sizes of the chosen municipalities were checked in order to make sure that they included cities of all sizes. It was discovered that none of the 8 urban cities (population over 100,000) appeared in the sample. Thus, another random sampling was carried out among these cities, and two urban areas were randomly selected.

An invitation to participate in the study was ultimately sent to a total of 161 education administrators in the chosen municipalities. Fifty-four municipalities responded positively and consented to be involved in the research. The administrators were asked to send the participation letter and a response request together with an Internet link to the questionnaire to all elementary school principals in their respective municipalities. The principals were asked to forward the survey link to the elementary school teachers in their school. The administrators received three reminders about the study. Participation was voluntary.

### ***Instrument***

The electronic questionnaire was constructed for the purpose of this research and included four parts (see Appendix 1). It was a *mixed questionnaire* (Johnson & Turner, 2003), including a mixture of both open- and closed-ended items.

The first part included information about the participants' background. More specifically, it included general variables (e.g., age, working experience and class size) and a question asking from which sources teachers obtained information about giftedness and gifted education. There were also ten background statements on a 9-point Likert-scale (from 1 = I totally disagree to 9 = I totally agree). The questionnaire's first part is utilized in Articles II, III and IV.

The second part of the questionnaire concerned conceptions of giftedness. In this portion, teachers were asked to write their own definition of giftedness, describe gifted students in different areas of giftedness, and rate how many students, from their perspective, could be regarded as gifted. The open-ended definitions of giftedness are analyzed in Article II. Questions 2 and 3 from this part of the questionnaire are not dealt with in this thesis. There were two reasons for using an open-ended question in examining conceptions of giftedness instead of, for example, a ready list of characteristics. The first reason is that implicit theories (conceptions) can be revealed by asking people questions about what they mean by giftedness (Sternberg & Zhang, 1995; Zhang & Sternberg, 1998). The second reason was based on the results of the preliminary research (Article I; see chapter 6.1), where it was found that no strict conceptions of giftedness were apparent, but rather there were many different views of giftedness.

The third part of the questionnaire focused on teachers' gifted education practices. First, teachers were asked how often they plan their teaching to take gifted students into account. Teachers had six options from which to choose, ranging from daily to never. The purpose of this question was to see whether addressing gifted students' needs was intentional and proactive. The second question was open-ended and asked teachers to list the different ways in which they address gifted students' needs. Article IV reports the results of these questions.

The fourth part of the questionnaire examined teachers' attitudes. This part comprises 50 items. The first 34 are from Gagné and Nadeau's (1991) widely-used instrument "Opinions about the gifted and their education," for which permission was asked and the instrument received from Gagné. As its original language was English, the items were translated into Finnish. Utilizing the language services of the University of Helsinki, a back translation was performed. Then, the back translation was compared with the original English version to check whether the meaning of the items had remained the same. The Gagné and Nadeau (1991) instrument is about general attitudes to the gifted and their education and about the specific practices that the instrument considers, which are acceleration and groupings. However, as presented in the theoretical part of this thesis, differentiation is the core strategy in gifted education internationally as well as in Finland, and thus 16 new items were generated based on the literature. These items dealt with attitudes to differentiating teaching for gifted students, gifted education in special groups, practical obstacles in differentiation, subject-based acceleration and starting school earlier. A 9-point Likert-scale (from 1 = I totally disagree to 9 = I totally agree) was used. Article III is based on this part.

During the process of constructing the questionnaire, the document was pilot-tested two times. First, participants in a doctoral seminar evaluated the paper version of the questionnaire. These participants were teachers, principals and other professionals in the area of education who were studying for a Ph.D. degree. They filled out the questionnaire after which any challenges were discussed and corrections later made. In the second pilot test, three elementary school teachers answered the electronic version of the questionnaire. After filling out the questionnaire, they were asked to give feedback. This phase also made it possible to see what kinds of answers the teachers gave to the open-ended questions. Again, minor changes were suggested and made before starting the main data gathering phase.

### ***Participants***

A total of 212 teachers, of whom the majority were female (77%), participated in the study. The age of respondents ranged from 25 to 64, while the mean was 44.09 ( $SD=9.28$ ). In this respect, the sample represents very well the total teacher population in Finland: 74 percent of elementary school and pre-school teach-

ers are female (Kumpulainen, 2011). Likewise, the age distribution reflected the national level. Approximately one-third were under 40 years of age (33%), one-third were between 40 and 49 (35%), and one-third were over 50 (32%) (Kumpulainen, 2011). In addition, most of the teachers were experienced ( $M=16.97$ ,  $SD=10.35$ ), having taught over 20 years ( $n=85$ , 40%), 10-19 years ( $n=71$ , 33%), or 5-9 years ( $n=29$ , 14%).

Participants came from a total of 44 municipalities, and all of Finland's six mainland administrative agencies: Southern Finland ( $n=62$ , 29%), Southwestern Finland ( $n=29$ , 14%), Western and Inland Finland ( $n=48$ , 23%), Eastern Finland ( $n=37$ , 17%), and Northern Finland and Lapland ( $n=36$ , 17%). Most of the teachers ( $n=112$ , 53%) worked in rural towns (population under 15,000), of which half worked in very small towns (population under 5,000). Thirty percent ( $n=64$ ) worked in medium-sized suburban towns (population from over 15,000 to under 100,000), and only 17 percent ( $n=36$ ) worked in larger urban centers (population over 100,000). There were also variations in the school and class sizes in which the teachers worked. School sizes ( $M=202.04$ ,  $SD=163.60$ ) varied from 17 to 720 students, showing that, while some teachers worked in very small schools, others worked in very large schools. Accordingly, the class sizes ( $M=17.88$ ,  $SD=5.16$ ) varied greatly, from 4 to 33 students. The mean class size was a bit smaller than the national mainland class size, which was 19.4 students in 2010 (Ministry of Education and Culture, 2014).

The teachers were asked to explain from where they had obtained information about the gifted and their education. The mean number of different sources of information was 3.33 ( $SD=1.68$ ), and the number ranged from 0 ( $n=7$ , 3%) to 7 ( $n=6$ , 3%) sources. As Table 2 illustrates, the most often used sources were literature, professional periodicals, electronic media and newspapers. Almost half of the teachers had participated in specialist lectures, but only one-third had participated in courses dealing with giftedness. Only a small minority had not received information from any source.

As indicated in Table 3, teachers had a neutral, even slightly negative, perception about their current knowledge base. Furthermore, they unanimously expressed the desire for more knowledge regarding giftedness, gifted students, and gifted education. They admitted to trying to address gifted students' needs in practice, but were not sure whether the methods they used were clear. The results indicated a neutral view of teachers' own giftedness, but stronger agreement on having gifted family members or gifted people in their vicinity. They strongly believed that the development of gifted education is an important goal for the future.

**Table 2.** Sources of information about the gifted and their education

Source	Frequency (N=212)	Percent
Literature	155	73
Professional periodicals	154	73
Electronic media (e.g., TV, the Internet)	111	52
Newspapers	108	51
Specialist lectures	92	43
Courses	68	32
Elsewhere	23	11
Nowhere	7	3

**Table 3.** Means and standard deviations of the 10 background statements<sup>5</sup>

Background item	Mean	SD
1. I have sufficient knowledge about giftedness and gifted students.	4.80	1.92
2. I have sufficient knowledge about gifted education.	4.35	1.80
3. I would like to receive more information about giftedness and gifted students.	6.97	1.81
4. I would like to receive more information about gifted education and supporting giftedness.	7.25	1.61
5. I try to address gifted students' needs in my teaching.	6.74	1.50
6. I have clear methods for working with gifted students.	5.46	1.77
7. I have experience in teaching the gifted.	5.76	2.14
8. I am gifted.	5.34	1.90
9. There are gifted persons in my family or vicinity.	6.83	1.97
10. The development of gifted education is an important goal for the future.	7.31	1.67

## 5.4 Data analysis

### 5.4.1 Content analysis

The main analytical method used in this thesis was content analysis, used in Articles I, II and IV (see Table 1). Content analysis is a method for evaluating text data (Hsieh & Shannon, 2005; Krippendorff, 2004) and making replicable and valid inferences from texts (Krippendorff, 2004). Furthermore, content analysis can be used either qualitatively or quantitatively (Elo & Kyngäs, 2008; Hsieh & Shannon, 2005). In this thesis, qualitative content analysis has been used, with the focus being on text content. Texts for qualitative analysis can be obtained from different sources, such as open-ended survey questions or print media (Hsieh & Shannon, 2005), both of which I have used in this thesis. The

<sup>5</sup> Scale: 9-point Likert-scale (1 = I totally disagree; 9 = I totally agree).

goal is to provide knowledge and understanding of the phenomenon under study. Qualitative content analysis can be further divided into different approaches. Hsieh and Shannon (2005), for example, present three approaches: conventional, direct, and summative content analysis. Some researchers, on the other hand, make a distinction between inductive and deductive approaches (Elo & Kyngäs, 2008; Mayring, 2000); both are used here.

### ***Inductive content analysis***

*Inductive approach* in content analysis is recommended if the field of study is fragmented or if there is not enough knowledge about the phenomenon (Lauri & Kyngäs, 2005). In the present thesis, the inductive approach was used in Articles I and II (see Table 1), in which different conceptions in the public discussion and among teachers were examined. The purpose of both of these studies was not to test any particular theory, but rather to expose different conceptions. Furthermore, another reason behind the decision to use this approach was the fragmentation of the field: as already noted, there are many different conceptualizations of giftedness.

With the inductive approach, categories are derived from the data (Elo & Kyngäs, 2008). The analysis starts by selecting the analytical unit (Elo & Kyngäs, 2008; Krippendorff, 2004; Weber, 1990). Depending on the research question, the unit can be a single word, for example, or a sentence or a larger theme (Elo & Kyngäs, 2008). The first phase of the inductive approach is open coding in which the units are simplified into codes; it continues as long as all aspects of the content are being described (Elo & Kyngäs, 2008). After open coding, categories are formed and grouped using reduction and abstraction, and eventually main categories are created. Each category is named based on characteristic words in its content. For example, the analysis process could progress through three stages: 1) simplified statements/codes grouped into sub-categories, 2) sub-categories grouped into higher categories, and 3) finally higher categories grouped into main categories. The process continues as far as it is needed and reasonable (Elo & Kyngäs, 2008). Next, examples of the inductive approach used in the thesis articles are given. The first two examples are from Article I (Table 4), and the last two examples are from Article II (Table 5).

**Table 4.** Examples of the inductive content analysis process in Article I

<b>Unit of analysis: Sentence</b>	<b>Simplified statement</b>	<b>Sub-category</b>	<b>Higher category</b>	<b>Main category</b>
Example 1: In order for abilities to blossom, a person needs enthusiasm, unlimited interest and motivation. (HS, October 30, 2006)	Need for enthusiasm	Development of giftedness requires motivation	Individual contributions	Learning and development process
	Need for interest			
	Need for motivation			
Example 2: In order to grow up talent, time, practice and studying are needed. (HS, May 5, 2003)	Need for practice	Development of giftedness requires hard work	Individual contributions	Learning and development process
	Need for studying			
	Need for time	Development of giftedness requires time	Other areas discussed	

**Table 5.** Examples of the inductive content analysis process in Article II

<b>Unit of analysis: Aggregate statement</b>	<b>Code</b>	<b>Sub-category</b>	<b>Main category</b>
Example 3: Giftedness is a natural ability in some specific area. Giftedness can occur in social skills, arts, sports, and, of course, in languages and mathematics. (Female, 32 years old)	Giftedness is a natural ability	Innate	Giftedness as a phenomenon
	Giftedness is domain-specific	Multidimensional	
	Different areas of giftedness		
Example 4: Giftedness means that you are interested and that you have the ability to learn new facts and skills fast and broadly. (Female, 30 years old)	Being interested	Motivational features	Characteristics of gifted persons
	Learning is fast	Cognitive features	

As presented in Table 4, the content analysis process in Article I included four phases. First, original sentences were reduced to simplified statements, which were then coded under sub-categories. In the third phase, sub-categories with similar topics were grouped into higher categories, and then ultimately, into main categories. In contrast, and as presented in Table 5, in Article II the content analysis process included only three phases. Teachers' aggregate statements were first reduced to codes. Then, codes with similar themes were grouped into sub-categories, and finally main categories were formed. The qualitative data were also quantified so that the sizes of the categories were calculated in order to assess how popular certain conceptions were, thereby revealing the primary conceptions.

### ***Deductive content analysis***

The *deductive approach*, on the other hand, is recommended if a study sets out to test a previous theory or compare categories in different time periods (Elo & Kyngäs, 2008). A deductive approach was used in Article IV, in which teachers' descriptions of their gifted education practices were examined. The first phase of deductive content analysis is to develop a categorization matrix, and then code the data according to the matrix. Categorization matrices are normally based on earlier theories, models or literature reviews, and can further be unconstrained or structured (Elo & Kyngäs, 2008). Here, based on the literature of gifted education practices, a structured coding category (see Appendix 2) was formed, which included five different categories: 1) differentiated materials and assignments, 2) differentiated instruction/teaching methods, 3) flexible groupings, 4) allowing and promoting independence in learning, and 5) adjusting the pace of learning. Teachers' descriptions of their practices were examined in light of this framework, and from every practice description, occurrences in all of the different categories were sought (see Table 6). Furthermore, the number of times the categories appeared was calculated.

When a structured categorization matrix is used, only the aspects that fit the matrix are chosen from the data. However, the data that do not fit the matrix can later be analyzed separately based on the principles of inductive content analysis (Elo & Kyngäs, 2008). Accordingly, in Article IV, after deductive coding, the remaining data were analyzed inductively to reveal other practices that did not fit the formulated coding category.

**Table 6.** Examples of the deductive content analysis process in Article IV

Unit of analysis:	Coding category				
	1	2	3	4	5
<b>Teachers' description of practices</b>					
Example 5: Different, more challenging assignments, grouping strategies (we have a resource teacher to whom I sometimes send my gifted students), and the possibility to study at one's own pace or choose one's own working method. (Female, 36 years old)	X		X	X	X
Example 6: I give them more challenging tasks. They can guide other students. They can choose tasks that please them when they have done all the other required tasks. (Female, 59 years old)	X			X	

### 5.4.2 Statistical analyses

Statistical analysis methods were used in analyzing teachers' attitudes (Article III). Since this was the first time the 34-item instrument "opinions about the gifted and their education" (Gagné & Nadeau, 1991) was used in Finland, *confirmatory factor analyses* (CFA) using Amos 22.0 software was conducted to measure the factorial validity of the instrument (Byrne, 2010).

However, due to an inadmissible solution (see more details in Article III), *exploratory factor analysis* (EFA) was conducted. All the items belonging to the original scale (34 items) along with 16 new items were included in the EFA. Both the Kaiser-Meyer-Olkin Measure (KMO=.722) and Bartlett's test of sphericity ( $\chi^2(1225)=3696, p=.000$ ) indicated that the data are sufficiently appropriate for EFA. Using oblique rotation (default delta), the initial analysis yielded 14 factors with eigenvalues greater than 1, which explained 67.72 percent of the total sample variation. However, examination of the scree plot suggested running an eight-factor solution (Costello & Osborne, 2005). After this analysis, it was decided to eliminate 14 items step-wise because they did not load at least .32 on any of the eight factors or they loaded equally on more than one factor (Tabachnick & Fidell, 2001). The eight-factor solution provided two large factors with an eigenvalue of 4.77 and 4.70 respectively, two factors with eigenvalues greater than 2.00, and four factors having eigenvalues greater than 1.25. The final eight-factor solution consisted of 36 items and explained 57.35 percent of the total variance.

To measure the internal consistency of the eight factors, *Cronbach's alpha* was used. Generally, values of alpha that are equal to or greater than .70 are regarded as reliable (Hair et al., 1998). However, in exploratory research, the threshold can decrease to .60 (Hair et al., 1998), and thus this was chosen as the lowest acceptable level in this research. Only five factors out of eight had an acceptable level of internal consistency for later statistical analyses.

To identify similar patterns of teachers' attitudes to gifted education, latent profile analysis (LPA) was used. LPA is a probabilistic or model-based technique that is an alternative to traditional cluster analysis (Tein, Coxe, & Cham, 2013). In LPA, the final number of latent classes is determined through comparison of posterior fit statistics, not prior to analysis. Here, Akaike's Information Criterion (AIC), Bayesian Information Criterion (BIC), sample adjusted BIC (SABIC), along with an Entropy measure and the Lo-Mendell-Rubin adjusted likelihood ratio test were used to find the best-fitting model.

To determine differences between the different LPA profiles and between the attitude profile and background variables,  $\chi^2$ -test, one-way analysis of variance (ANOVA), and Kruskal-Wallis tests were used.

## 6 Results

### 6.1 Conceptions of giftedness in the public discussion (Article I)

**Article I**, “*The Finnish public discussion of giftedness and gifted children*,” examined what is discussed about giftedness and gifted children in public discussions in the print media. The specific research questions were: What are the main conceptions of giftedness and gifted children in the public discussion, and is there a lack of information or are there misunderstandings?

Using inductive-oriented content analysis, a total of 331 articles (138 articles from *Opettaja* and 193 from *Helsingin Sanomat*) were analyzed. A total of 562 simplified statements of giftedness, and 370 simplified statements of gifted children were found. The results showed that the most often discussed topic in the print media was defining giftedness ( $n=268$  simplified statements). Within this topic, domains of giftedness, the prevalence of giftedness, and the challenges of defining giftedness were widely discussed. The learning and development process was the second most often discussed topic ( $n=127$ ), and both environmental and individual contributions were talked about. Hereditariness was mentioned only a few times. Moreover, intelligence ( $n=109$ ) and creativity ( $n=58$ ) were discussed along with giftedness. The findings indicated that public conceptions largely considered giftedness to be multidimensional (i.e., domain-specific) and developmental.

Discussion of gifted children concentrated on their problems both in and out of school ( $n=92$  simplified statements) and in social life in general ( $n=36$ ). Gifted students’ motivation and willpower ( $n=49$ ), their need for support ( $n=45$ ), and their learning and expertise ( $n=40$ ) were also widely recognized. In general, gifted students were discussed from various viewpoints, and the results thus indicated a heterogeneous view of the gifted.

The variety of conceptions of giftedness was extensive and indicated that, when talking about giftedness and gifted education, people are not necessarily talking about the same thing. Furthermore, the results did not support the impression that the media have incorrect views of the gifted, as only two clear misunderstandings were found: “all children are gifted” and “the gifted can succeed on their own.” However, the consequences of these two misunderstandings can be harmful, and thus the need for correcting them was recognized.

Finally, the discussion was viewed from the perspective of a lack of discussion, and three lacunae were identified. First, there is a need for more conversation about the different domains of giftedness and especially how giftedness appears in these areas. The analyzed discussion only generally pointed out that a person can be gifted in different domains. Second, more conversation is needed

about the twice-exceptional gifted, as well as low SES and minority students, since these topics did not appear in the discussion at all. Third, more articles for the public discussion are called for from researchers and educators.

## 6.2 Teachers' conceptions of giftedness (Article II)

**Article II**, "*Finnish teachers' conceptions of giftedness*," addressed two research questions: 1) What are Finnish teachers' primary conceptions of giftedness, and 2) do Finnish teachers understand giftedness as a fixed or a malleable quality? The article consists of two independent studies (Study 1 and Study 2), both of which examined teachers' conceptions. However, only Study 1 is based on the data gathered for the thesis, and thus only its results are summarized here (see also chapter 5.2).

A total of 586 quotations concerning giftedness were found. Through inductive-oriented content analysis, the quotations were first encoded under 75 different codes. These were then categorized into 11 sub-categories and 2 main categories: Giftedness as a phenomenon ( $n=322$  quotes, 161 teachers) and characteristics of the gifted ( $n=263$  quotes, 129 teachers).

Giftedness as a phenomenon was mostly seen as multidimensional ( $n=155$  quotes, 161 teachers), meaning that giftedness can occur in different areas and is more domain-specific than domain-general. Many teachers also viewed giftedness as difference from others ( $n=104$  quotes, 95 teachers), which indicated that they make comparisons with students' peers when identifying giftedness. Teachers often defined giftedness by means of characteristics of being gifted. The gifted were seen especially through cognitive features ( $n=128$  quotes, 92 teachers), although creative ( $n=63$  quotes, 52 teachers) and motivational ( $n=40$  quotes, 31 teachers) characteristics were regularly described.

Altogether, the results indicated that, in many ways, teachers' main conceptions were in line with earlier research and theories of giftedness. However, in their written statements, most teachers did not express their conceptions of the nature of giftedness. However, those who did describe it more often as innate ( $n=35$  quotes, 35 teachers) rather than developmental ( $n=15$  quotes, 11 teachers). It appears that when teachers are defining giftedness, only the visible and easily detectable characteristics are brought up.

## 6.3 Teachers' attitudes toward gifted education (Article III)

In **Article III**, "*Finnish elementary school teachers' attitudes toward gifted education: a latent profile analysis*," the main purpose was to explore 1) Finnish elementary school teachers' attitudes toward gifted education, 2) whether diverging attitude profiles can be identified, and 3) whether variables that explain teachers' belonging to a certain profile can be determined.

Based on explorative factor analysis (EFA) and calculations of Cronbach's alpha, five factors with acceptable internal consistency were found: 1) "Special support and social value" measured attitude toward the social value of the gifted; 2) "Elitism" measured attitudes from the perspective of elitism; 3) "Objections to support" measured opposition to gifted education; 4) "Support for differentiation" measured attitudes toward differentiation; and 5) "Practical obstacles to serving gifted learners" measured teachers' attitudes to possible obstacles in gifted education.

The results indicated that teachers were generally supportive of gifted education. The teachers saw the gifted as having social value, but also as needing special services (factor 1), and they did not oppose gifted education (factor 3). For example, teachers saw that schools are not adequately addressing gifted students' needs and that the gifted are not favored in schools. Teachers had neutral attitudes about the idea of elitism (factor 2), but their responses revealed that they did not support segregation of the gifted, as the gifted were seen to serve as intellectual stimulants for other children, while separation was believed only to increase labeling. Teachers' attitudes were supportive toward the differentiation of the gifted (factor 4), and they unanimously believed it to be teachers' responsibility to address gifted students' needs. However, the teachers saw gifted education as challenging in practice (factor 5), and classes that are too large in size together with lack of time were rated as the biggest challenges. The results further showed that the teachers' attitudes to acceleration were negative.

Using latent profile analysis (LPA), four diverging attitude profiles of the teachers were identified. These were called Opponents, Advocates, Antagonists to differentiation, and Neutrals. *Opponents* (8%) saw a risk of elitism in gifted education and found reasons to resist gifted education. However, they supported differentiation of the gifted. *Advocates* (18%) did not see a danger of elitism in gifted education or reasons to resist it. They also had a positive attitude toward differentiation. *Antagonists to differentiation* (5%) had a somewhat positive attitude toward gifted education in general, but a very negative attitude toward differentiation. *Neutrals* (69%) had scores close to mean on all scales: they did not support gifted education enthusiastically, but neither did they oppose it forcefully.

The final phase first explored whether there were any differences in gender, age, and years of teaching experience among teachers classified in the various profiles. One-way ANOVA revealed a statistically significant difference in years of teaching experience  $F(3, 204)=3.03, p=.021$ . Using Tukey's HSD (honest significant difference) test in pairwise comparison, a significant difference ( $p=.011$ ) was found between Opponents ( $M=11.76, SD=8.50$ ) and Antagonists to differentiation ( $M=24.50, SD=10.31$ ). No significant differences were found in age or gender among the profiles. Furthermore, statistically significant difference was found between teachers' self-perceptions as gifted ("I am gifted"; see

Appendix 1) and profile ( $\chi^2(3, 207)=8.906, p=.031$ ). Pairwise comparison revealed that Advocates (mean rank=125.83) rated their own giftedness higher than Antagonists to differentiation (mean rank=67.83). Significant difference was also found between the view that “the development of gifted education is an important goal for the future” and the profile type ( $\chi^2(3, 208)=19.412, p=.000$ ). The pairwise comparison showed that Opponents (mean rank=55.94) had the most negative attitude toward development of gifted education compared to Neutrals (mean rank=102.56,  $p=.012$ ), Advocates (mean rank=127.51,  $p=.000$ ), and Antagonists to differentiation (mean rank=129.85,  $p=.009$ ).

## 6.4 Teachers' gifted education practices (Article IV)

**Article IV**, “*How Finnish elementary school teachers meet the needs of their gifted students*,” examined teachers' gifted education practices. In this article, the number of participants was 202, as ten teachers did not answer the question targeting gifted education practices.

First, the frequency with which teachers took gifted students' needs into account in planning was examined. It was found that the most typical planning frequency was “at least once a week” ( $n=81, 40\%$ ). Twenty-three percent ( $n=46$ ) of the teachers reported their frequency to be “daily.” The remaining teachers did not plan regularly for the gifted: 23 percent ( $n=46$ ) reported frequency to be “at least once a month,” and 14 percent ( $n=29$ ) chose either “a few times per semester” or “very rarely.”

Second, teachers' answers were examined with deductive-oriented content analysis using the coding category constructed for this research (see Appendix 2). Almost all ( $n=189, 94\%$ ) teachers reported differentiation to be the method they used for taking gifted students' needs into account. Fourteen (7%) teachers mentioned differentiation only on a general level, whereas 175 (87%) described their differentiation practices in more detail. The main method used to differentiate was through separate assignments and materials ( $n=155, 77\%$ ). Teachers said, for example, that they assign more challenging and difficult tasks to the gifted, as well as give problem-solving assignments. Additional, deeper, and more challenging materials were also mentioned. The second method described ( $n=52, 26\%$ ) was allowing and promoting independence in learning. Among other things, these teachers allowed gifted students to work on independent projects and make independent choices in selecting their assignments. Other differentiation categories were not often addressed, as teachers only rarely talked about differentiated instruction ( $n=21, 10\%$ ), flexible groupings ( $n=14, 7\%$ ) or adjusting the pace of learning ( $n=10, 5\%$ ).

In their descriptions of practices, teachers explained those that did not fit the coding framework. These were called additional practices, and half of the teachers ( $n=105, 52\%$ ) referred to them. First, many teachers ( $n=62, 31\%$ ) referred to

extra work. It was more about giving gifted students additional assignments than about giving them qualitatively different assignments. Second, teachers ( $n=43$ , 21%) reported using a gifted student as an assistant. Gifted students were used to help and instruct other students and thus seen as a teachers' helping resource. Teachers also talked about encouraging gifted students ( $n=25$ , 12%), giving them opportunities to perform ( $n=9$ , 4%) and helping them identify their strengths ( $n=8$ , 4%). Finally, the "other" category ( $n=25$ , 13%) included practices that were vague or mentioned only once or twice.

## 7 Discussion

### 7.1 Integration of results and general discussion

The central aim of this thesis was to examine Finnish teachers' perspectives on gifted education. As a preliminary study, conceptions that exist in the public discussion in the print media in Finland were examined (Article 1). The objective was to obtain an initial picture of Finnish conceptions of giftedness. These results were further used to guide the formation of the survey instrument. The results showed that, in the print media, giftedness and gifted children were discussed from various viewpoints, and no established conceptions were found. In general, the conceptions that were identified showed that the Finnish idea of giftedness was primarily multidimensional and developmental. Gifted students were discussed as a heterogeneous group, and the problems they face in school and social life as well as their cognitive and motivational characteristics were discussed. Thus, from the perspective of conceptions, the discussion of giftedness and the gifted in Finnish print media was multifaceted. In addition, despite the egalitarian context and the absence of formal definitions of giftedness, the conceptions were in many ways in line with current theories of giftedness.

As discussed earlier, print media can have an effect on many peoples' views of giftedness, especially on those who do not obtain information from other sources (Lewis & Karnes, 1997). Interestingly, 73 percent ( $n=154$ ) of teachers who participated in the survey for this thesis reported acquiring information about giftedness from professional periodicals. Furthermore, half of the teachers ( $n=108$ , 51%) reported newspapers as a source of information. Thus, what is discussed in the print media is not meaningless. Especially in Finland, where there is not much information available on the gifted and their needs (cf. Hotulainen & Schofield, 2003) and where teachers do not receive mandatory training in gifted education, the media may play a crucial role. Furthermore, the fact that many teachers reported professional periodicals as a source of information indicates that professional periodicals should be seen as a relevant avenue for advocacy. Hence, researchers and educators interested in gifted education should be active in publishing articles in the print media.

Teachers' perspectives on giftedness and gifted education were first examined from the point of their conceptions (Article II). Teachers most often described giftedness as multidimensional, seeing it as occurring in different areas and being more domain-specific than domain-general. This result is in line with the results found in Article I. Furthermore, even though intelligence was frequently discussed along with giftedness in the print media, only six teachers used the concept of intelligence in their definitions. This result indicates that Finnish elementary school teachers do not equate straightforward giftedness with

general ability such as the *g* factor or IQ. Another interesting detail is that, parallel to Sternberg and Zhang's (1995) pentagonal implicit theory, teachers often defined giftedness by means of difference from others. In their theory, Sternberg and Zhang (1995) called this the "excellence criterion," which states that the individual is superior at something(s) relative to peers. Teachers also defined giftedness by describing gifted persons' features. Mirroring the results from earlier research (Endepohls-Ulpe, 2005; Persson, 1998; Speirs Neumeister et al., 2007), teachers most often used cognitive features to describe gifted persons followed by motivational and creative features.

Teachers rarely expressed their views of the nature of giftedness, which is surprising, since in the print media this was the second most frequent topic of discussion. However, the teachers who expressed their view more often regarded giftedness as an innate feature ( $n=35$ ) rather than a developmental one ( $n=11$ ). This finding is contrary to another Finnish study (reported in Article II), in which Dweck's (2000) instrument was utilized. That study indicated that over half of the Finnish teachers ( $N=463$ ) had a growth mindset (54%), signifying a belief that giftedness is malleable, 16 percent had a mixed mindset, and 30 percent had a fixed mindset (see Article II, Study 2). The difference might be due to the method used, since in the survey for this thesis, teachers defined giftedness only briefly and thus did not include their views on the matter. Nevertheless, this finding together with the teachers' frequent description of giftedness as multidimensional and their use of characteristics of the gifted indicate that teachers often define giftedness using visible and easily detectable features of giftedness and the gifted, suggesting that some teachers' conceptions of giftedness are quite simplistic.

Second, teachers' perspectives were examined from the point of their attitudes (Article III). The results revealed that teachers generally had a supportive attitude to gifted education: they mostly viewed the gifted as having social value and needing special services. Mirroring earlier Finnish research (Ojanen & Freeman, 1994; Tallent-Runnels et al., 2000; Tirri et al., 2002), teachers preferred to keep gifted students in regular classrooms with other students. Moreover, teachers were negative about acceleration (cf. Lassig, 2009; Troxclair, 2013). It was further found that teachers had positive attitudes toward the differentiation of the gifted. In this respect, these results are in line with the results of Megay-Nespoli (2001) and Moon et al. (1999), which indicated that pre-service teachers' attitudes to differentiation were positive. Teachers also held the strong opinion that it is their responsibility to differentiate teaching in a way that provides learning experiences for the gifted. However, as the results suggest, in practice attitudes to differentiation for the gifted were more skeptical. Teachers felt that lack of time and too-large class sizes hamper gifted education. Similar results have been obtained in studying the attitudes to inclusion of special educational needs (SEN) students in regular classrooms. These studies have indicated

that teachers' attitudes are generally positive toward the idea of the inclusion of SEN students (Allan, 2010; Avramidis, Bayliss, & Burden, 2000; Avramidis & Norwich, 2002; Moberg & Savolainen, 2003), yet in practice their attitudes about inclusion are more skeptical (De Boer et al., 2011; Farrell et al., 2007; Moberg & Savolainen, 2003).

As suggested by McCoach and Siegel (2007), there is a need for a more person-centered approach in assessing teachers' attitudes. In their research, McCoach and Siegel highlight the great variation among teachers' attitudes. In the present study, along with examining teachers' attitudes at the group level, latent profile analysis (LPA) was used to identify different attitude profiles. Four profiles were found. Most of the teachers belonged to the group called *Neutrals* (69%), having slightly positive attitudes toward gifted education in all the measured factors. *Advocates* (18%), on the other hand, had highly positive attitudes toward the gifted and their education. In total, 87 percent of the teachers in this study had at least a somewhat positive attitude toward both gifted education in general and differentiation of the gifted. The two other profiles, however, were somewhat more negative. The *Antagonists to differentiation* (5%) consisted of a group of teachers who had positive attitudes to gifted education in general, but were strongly against differentiated teaching for the gifted. Nevertheless, these teachers' positive attitudes to gifted education generally might indicate that it is not that they are against differentiation of the gifted, but rather against differentiation more broadly or that they do not feel that gifted education is the teachers' responsibility. Nevertheless, as the Finnish gifted education paradigm is differentiation, there is a danger that, with these teachers, the needs of gifted students are neglected in practice. *Opponents* (8%), in turn, were the only ones who saw a strong danger of elitism in gifted education, as well as other reasons for resisting it. However, their attitudes to differentiation were highly positive. The problem is that, while supporting the differentiation of the gifted, the strongly egalitarian emphasis might neglect such differentiation in practice.

Finally, teachers' gifted education practices were explored (Article IV). Along with the positive attitudes toward differentiation, most of the teachers described using differentiation practices. This indicates that, in Finland, teachers mostly see gifted students as a group needing differentiation. This is opposed to an earlier finding, which indicated that the gifted have not been included in this group (Hertberg-Davis, 2009). The results showed that teachers mostly used differentiated assignments and materials for teaching the gifted. Practices connected to promoting independence were also used by one-fourth of the teachers. Teachers did not widely describe practices which have been shown to be effective in current research, such as flexible groupings or adjusting the pace of learning. This might be connected to the fact that their attitudes to these practices were not positive. Furthermore, teachers described some additional practices, such as using gifted students as tutors or teacher's assistants, both of which are

problematic. First, not all the gifted enjoy tutoring, and second, that time could be used to develop the student's own potential (Siegle et al., 2010). All in all, the results from the used practices are strongly in line with earlier Finnish research (Tirri & Uusikylä, 1994), which demonstrates that, in this respect, not much change has taken place in the past twenty years.

Another aspect in the differentiation of the gifted, in addition to what is actually done, is the consistency and appropriateness of what is provided (Phillips & Lindsey, 2006; Rogers, 2007). It is widely seen that work, which is repetitive, additional, unrewarded, or unplanned presents inappropriate challenges (Phillips & Lindsey, 2006). The teachers surveyed in this thesis often described giving the gifted extra work and assignments or using them as an assistant. Adding this to the small number of teachers who planned their teaching to address gifted students' needs on a daily basis ( $n=46$ , 23%) raises concern that not all gifted students are being offered consistent and appropriate challenges, and thus the school environment might not be motivating for some. In the public discussion in the Finnish print media, the concern that schools are not adequately addressing gifted students' needs is regularly aired (Laine, 2016).

In summary, this thesis shows that Finnish teachers vary widely in their conceptions of giftedness. Despite the fact that no actual misconceptions were found among the teachers' definitions, their conceptions of giftedness were still quite simplistic. Finnish teachers had positive attitudes toward the differentiation of the gifted, and most of them also described the use of differentiated practices. However, they did not seem to use effective strategies described in the literature, perhaps because they had not been educated in how to address the gifted. This indicates the need for both pre- and in-service teacher education to include the gifted and gifted education in the teaching curricula. Given that most teachers already have positive attitudes to the gifted, their effective training could significantly improve gifted students' situation in schools. This would also address the need for education in this area expressed by the teachers.

Finally, the results of this thesis should be evaluated from the perspective of the Finnish gifted education paradigm, that is, the differentiation paradigm. As posited by Dai and Chen (2013), a paradigm operates on a general level by forming the foundations from which practical implementations can be derived. Thus, the differentiation paradigm might be valid theoretically, but not practically. This thesis illuminated teachers' perspectives with respect to the four paradigm questions "what" (Article II), "who" (Article II), "why" (Article III), and "how" (Articles III and IV), as summarized earlier in this chapter. Based on the results, three challenges in the paradigm's actualization in practice can be identified. First, in view of the many-sided conceptions both in the print media and in teachers' definitions, as well as teachers' simplistic conceptions and the lack of formal definitions and identification guidelines in the Finnish education system, a child may be viewed as gifted (and in need of differentiation) by one teacher,

but not by another. In the Finnish educational system, being classified as “gifted” is left so open that it is completely up to the teacher to identify whether a child needs a more challenging curriculum. Second, if a child is identified as gifted by the teacher, it is again case-sensitive as to whether and how the child’s needs are addressed in practice. This means that, while under one teacher the gifted receive pre-planned, appropriate, and consistent support, with other teachers they may not be supported at all or they are supported with inappropriate methods (e.g., merely assigned extra work or being used as teaching assistants). Unfortunately, this indicates that gifted students in Finland are not treated equally. Third, despite the positive attitudes to differentiation, there is a danger that teachers see differentiating the gifted as too challenging, owing to the practical issues. In order for differentiation to take place, teachers need education and support, to mention only some of the pre-requisites.

## **7.2 Quality assessment and limitations**

In this chapter, the quality of the thesis is assessed and its main limitations are discussed.

The thesis and its sub-studies followed the ethical guidelines of the Finnish Advisory Board on Research Integrity (2009). First, the autonomy of the research subjects was respected. The study was voluntary for teachers. The teachers were informed of the study, including its topic, purpose, method, and estimated time required to answer the questions. Second, the respondents’ autonomy was guaranteed in all phases, and respondents were treated respectfully in the research publications and in this thesis summary. Third, respondents’ privacy has been protected, and no personal information or indirect identifiers (e.g., workplace, school, or place of residence) that would make it possible to identify an individual have been disclosed. Finally, the ethical values of honesty and accuracy have been respected in all phases (Steneck, 2007).

In mixed methods research designs, one of the challenging questions has to do with what terminology (Lund, 2005; O’Cathain, 2010) and criteria (Bryman, Becker, & Sempik, 2008; O’Cathain, Murphy, & Nicholl, 2008) to use while assessing the quality of the research and its results. In general, however, it is considered appropriate for the researcher to use both traditional and alternative terminology and criteria in the assessment (Bryman et al., 2008). Accordingly, in this chapter, the different components are evaluated with more traditional component-specific evaluations of validity, reliability and trustworthiness along with more alternative criteria, such as transparency.

A critical aspect in the quality assessment of mixed methods research is the evaluation of data quality (O’Cathain, 2010). This assessment concerns the methods used in sampling the data as well as those used in analyzing the data (O’Cathain, 2010). Two different datasets were used in this research: public

discussion data (Article I) and survey data (Articles II-IV). The specific limitations in the public discussion data are mainly related to the use of secondary data (Johnson & Turner, 2003). First, the data may be incomplete due to selective reporting and recording (Johnson & Turner, 2003). However, in the present research, electronic archives were used in data gathering; these are regarded as a reliable source, meaning that the same search results could be attained if the same search terms were used. However, differences may occur owing to the subjectivity in selecting the final articles to be included. Second, as articles and newspapers represent only one type of official document, they might not apply to the general population (Johnson & Turner, 2003). It should be noted that the writers of the articles were already a select group in the sense that many of them were at least interested in gifted education in some way or had opinions about it. However, the writers represented many different interest groups, such as educational specialists, parents, students, and teachers, thus depicting many kinds of voices.

A specific limitation in the survey data is related to *sampling* and the small sample size. The relatively small sample size in this study might be due to the survey procedure used (see chapter 5.3.2). The purpose was to collect a representative sample of teachers' answers from all parts of Finland in order to assure broad national coverage. Moreover, the idea was that, if the questionnaire invitation came from the municipality level, teachers would consider answering more seriously. However, the final sample size of 212 teachers indicates that the chosen procedure was not effective in producing a large sample. Rather, it seems that the procedure was too multi-phased. Finally, answering the questionnaire was voluntary. It is known that, especially in mail surveys, the response rates can remain very low (Johnson & Turner, 2003).

When the sample size is low, the validity of the questionnaire results may be affected by *non-response bias*, in which respondents may differ from non-respondents in meaningful ways. In particular, this bias might affect the external validity of the responses (Tashakkori & Teddlie, 1998). In this thesis, the participants' general background variables (e.g., age, work experience) were in line with national level information on teachers (Kumpulainen, 2011), and in that sense, the sample was representative. Furthermore, the respondents came from all parts of Finland and from schools and municipalities of different sizes. Nevertheless, bias might arise from some other factor, for example, the attitude that those who had a positive view of gifted education or valued it as being important were more likely to answer than teachers with a more negative or an indifferent attitude. However, as the results from the latent profile analysis (LPA) indicated, not all teachers in this study were positive toward gifted education: some teachers evidently had more negative attitudes than others. Furthermore, the small sample size was a particular limitation in the quantitative analyses (Article III).

A critical aspect in assessing data quality is the *assessment of the instruments used*. The main instrument for this thesis was a mixed questionnaire (see chapter 5.3.2), which included both qualitative questions asking about teachers' conceptions and gifted education practices and quantitative scales that measure teachers' attitudes. First, the teachers were asked to define giftedness. The question posed revealed a wide variety in the responses, and thus worked well in giving a general picture of the teachers' conceptions. However, in the future, more in-depth observations and interviews are needed to understand teachers' viewpoints in a deeper manner and to ask more specific questions about their conceptions, for example, their beliefs about the malleability of giftedness.

Second, the thesis used self-reports to study attitudes and practices. A possible bias connected to this is called *response bias* in which there are different sets of biases that influence the answers so that the answer does not reveal a truthful reply. For example, respondents might have wanted to give a good impression of themselves or provide socially desirable responses. This is called a *social desirability bias* (SDB), which refers to "the tendency of some people to respond to the items more as a result of their social acceptability than their true feelings" (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003, p. 882). In this thesis, the SDB might have affected the teachers' answers about their attitudes and self-reported practices. In the literature, different strategies to prevent social desirability bias or coping with it have been suggested (e.g., Nederhof, 1985). For this research, a self-administered questionnaire (Nederhof, 1985) was used. The respondents filled out the questionnaire by themselves, and the researcher did not have any personal contact with them. Moreover, the respondents' anonymity was guaranteed at all stages of the research, and no sensitive personal data were gathered. Participating teachers were further assured that the researcher would not relay a particular teacher's answers to school principals or the municipality. Another related limitation is that the teachers' practices were examined by using their own descriptions. As the data here were the short answers the teachers produced, it may be that the teachers did not include all the practices they use, but only those that came to mind first. Another option would have been to ask the teachers to rate their usage on a scale of a wide selection of practices, which could have revealed a greater variety. Still, it seems likely that the practices mentioned first were probably those that the teachers used the most. Caution is also needed in interpreting these findings, as self-reported practices might not reflect the actual teaching behavior. In the future, more in-depth observations are needed to examine teachers' actual classroom behavior and differentiation practices.

Third, the questionnaire included quantitative scales to measure teachers' attitudes to gifted education. The attitude scale "opinions about the gifted and their education" (Gagné & Nadeau, 1991) was used as the main attitude measure in this thesis, chosen because it is the most widely used attitude measure in this field (e.g., Cross et al., 2013; Jung, 2014; Lassig, 2009; McCoach & Siegle,

2007; Troxclair, 2013; Watts, 2006). However, the attitude scale was limited, because it did not include items that would provide important information about the teachers' attitudes toward current and locally relevant topics, such as differentiation, which is the main gifted education practice in Finland. Accordingly, 16 new items were formed based on the literature. One limitation in this part is that the survey measured only a limited number of practical challenges. It would have been important to include other challenges as well or at least include an open option whereby the teachers could have described other obstacles.

Finally, there is a need to evaluate *analytical adequacy*, which refers to whether the methods used in the data analysis are adequate and done properly (O'Cathain, 2010). With open qualitative questions, the method of qualitative content analysis was used (Articles I, II and IV). To increase the trustworthiness of the analysis (Graneheim & Lundman, 2004), its procedures have been described in a detailed manner, both in the original publications and in this summary. A demonstration of the analysis processes and examples of the categorizations have been given for the purpose of assisting the reader. In all of the specific studies, the categories have been quantified in order to show the most discussed/presented conceptions/practices, and examples of the original answers have been included to give an impression of the nature of the data. In Article IV, inductive content analysis followed the deductive analysis, which was used to guarantee that all the teachers' different practices were included. This is a critical aspect of credibility, because no data were systematically excluded. Furthermore, in Articles II and III, interrater reliability (e.g., Kimberlin & Winterstein, 2008) was used to increase the reliability of categorization. The second author of Articles II and IV coded ten percent of the data, and the percentage of agreement and the intercoder reliabilities (ICR) using Cohen's kappa was calculated. The overall agreement rate in Article II was .93 and in Article III, .94, indicating 93 percent and 94 percent agreement. Cohen's kappa was calculated to be .789 in Article II and .841 in Article IV, and thus in both articles was higher than .6, which is considered a very good value (Cohen, 1960). These calculations indicate that there was sufficient agreement between the coders. Furthermore, the participants and their selection as well as the context of the Finnish school system have been described openly to readers. This is a critical aspect of transferability of results (Graneheim & Lundman, 2004). However, the decision on whether or not the results are transferable to another context is the reader's (Graneheim & Lundman, 2004).

The small sample size itself is a clear limitation in quantitative analysis. However, the data were appropriate for the executed factor analysis (see Article III, chapter 5.4.2). Furthermore, even though the main purpose of this thesis was not instrument development, it is important to note that the results from the attitude measures should be regarded as preliminary in a larger perspective. In the future, new data should be gathered for the purpose of confirming and determin-

ing the model fit of the factor structure found in the EFA using CFA. That would show whether or not the factor structure found here was specific only for this data or is something that works with different data as well. In this study, Cronbach's alpha was used to measure the internal consistency of those factors that were found based on the EFA (total of 8 factors). Only 5 factors of the total of 8 had an adequate internal consistency ( $>.6$ ; see Hair et al., 1998). Accordingly, factors that did not have high enough internal consistency were dropped and thus were left out of later statistical analyses (LPA). Furthermore, caution is needed in interpreting the findings from the LPA. The results should be regarded as illuminating the teachers' differences in this research, and not generalized to a bigger population. Once the instrument has been satisfactorily validated with new data and CFA, new LPA will give important indications about the attitude profiles of teachers on a more general level.

Finally, an important aspect of quality in mixed methods research is *transparency* (O'Cathain, 2010; Bryman et al., 2008), which concerns both the whole research design and its qualitative and quantitative parts. To increase the transparency of the thesis, the data gathering procedures, data and participants, and analysis methods and processes have been described in as much detail as possible. In qualitative parts, examples of the analysis processes and the original data have been given. Similarly, the quantitative scales and analysis methods used have been described in a detailed manner. Furthermore, in the thesis summary, before making meta-inferences, the results have been elaborated separately (see chapter 6), in order to make clear from which part of the data and using which methods the findings have emerged. This will allow the readers to assess the value of the research for their own purposes.

### 7.3 Concluding remarks

This doctoral thesis enriches the knowledge of Finnish teachers' perspectives on gifted education and provides up-to-date information about the gifted education practices of Finnish elementary school teachers. Even though the results indicate that, in many ways, teachers' conceptions and attitudes are favorable to the gifted and their education, the practical functionality of the differentiation paradigm might be questioned for several reasons, ranging from teachers' simplistic conceptions to the use of ineffective practices. This further highlights the situation in Finland, where meeting the needs of the gifted depends on the individual teacher; consequently, gifted students may not be treated equally.

Thus, on a larger scale, these results can be evaluated from the perspective of equality. First, equal opportunity becomes a reality only when students receive instruction appropriate to their varied readiness levels, interests, and learning preferences, which in turn will enable them to maximize their opportunities for growth (Tomlinson et al., 2003). This idea has been emphasized in the afore-

mentioned official documents (FNBE, 2004, 2011; the Finnish Constitution, 731/1999; the Basic Education Act, 628/1998). Similarly, it is acknowledged in the newest national curriculum (FNBE, 2014), according to which teaching and learning in schools should be organized from August 2016 onwards. In the new curriculum, differentiation is defined as the pedagogical basis of all teaching (FNBE, 2014). Furthermore, from the perspective of gifted education, the new curriculum specifies that teaching should be planned in a way that it is sufficiently challenging for all students. Despite the fact that the concept “gifted” is not used, the curriculum discusses “students with skills” and “students who learn rapidly.” Furthermore, it gives specific examples of how to differentiate teaching for these students, as illustrated by the following examples: “Students with skills in language are instructed toward more challenging tasks, materials and textual contexts,” and “students with skills are supported by offering them alternative working methods, such as different kinds of projects and problem-based inquiry tasks from the mathematical topics that they are interested in.” Even though the conception of giftedness represented in the curriculum is limited in many ways (giftedness is equated with skills and rapid learning), when examined against the theoretical framework of this thesis, in other words, against the developmental models, it is a great and concrete step toward building more supportive learning environments for gifted students. Consequently, the statement that educators can no longer choose whether to respond to the diverse needs of students, but only choose how to respond (Tomlinson et al., 2003), is even more valid.

However, from the equality perspective, it is critical that giftedness in the school world is seen from the viewpoint of potential as well. This means that along with supporting students with visible skills (cf. FNBE, 2014), teachers should create classroom contexts in which students can find their gifts and students with high learning potential are supported. Not all students have had a developmentally profitable context in their early years, and thus the school’s role becomes even more important. This is critical from the perspective of non-native speakers and twice-exceptional students as well. There is a danger that, if the school does not notice these students’ potential, they might eventually be completely overlooked.

The new curriculum and its initialization will serve as an interesting context for future studies. There is a need for more in-depth research that examines how differentiation is carried out in practice. We need to know more about the information on which teachers are basing their differentiation practices, what methods they are using, the quality of the practices they use, when those practices are used, and how students perceive the teaching they are receiving, to mention some of the intriguing questions. The stimulated recall interview method has great potential as a means of examining teachers’ practical knowledge about differentiation in general and about differentiated teaching for the gifted in particular. This method would also allow closer examination of the connections of

teachers' conceptions to their real life practices. In the larger field of gifted education, this kind of research on differentiation practices is extremely rare, and thus the need is evident.

In general, teacher education programs should endeavor to give teachers a vision of education for all, including the gifted, and teachers should be taught how to create real opportunities for learning for all students in their classrooms. Furthermore, policymakers and school principals have a critical role to play in building the structure that makes it easier for teachers to carry out the work of their profession in the best possible way. Taking the egalitarian context into account, however, there is a reason to assume that this will mean a long process in which prevailing conceptions and attitudes are challenged, both in practice and in policy. However, the intriguing question to ask is "How much better the Finnish school system could be if more effort was put into supporting students' giftedness?"



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## Appendixes

### Appendix 1: Questionnaire

#### Part 1: Background information

- Gender
- Age
- Work experience as an elementary school teacher
- Municipality
- School's name
- The number of students in your school
- The number of students in your class
- I have obtained information about giftedness from (check the appropriate boxes):

Courses	D
Specialist lectures	D
Literature	D
Professional periodicals	D
Newspapers	D
Electronic media (e.g., TV and the Internet)	D
Nowhere	D
Somewhere else	D

Please provide further details in the text box below if you chose the option "Somewhere else."

- Answer the following background statements by choosing the option that describes you best (1=I totally disagree; 5=I somewhat disagree/agree; 9=I totally agree)
  1. I have sufficient knowledge about giftedness and gifted students.
  2. I have sufficient knowledge about gifted education.
  3. I would like to receive more information about giftedness and gifted students.
  4. I would like to receive more information about gifted education and supporting giftedness.
  5. I try to address gifted students' needs in my teaching.
  6. I have clear methods for working with gifted students.
  7. I have experience in teaching the gifted.
  8. I am gifted.
  9. There are gifted persons in my family or vicinity.



#### Part 4: Attitudes

Answer the following statements by choosing the option that describes you best (1=I totally disagree; 5=I somewhat disagree/agree; 9=I totally agree)

Items 1 to 34: Gagné and Nadeau's (1991) instrument: "Opinions about the gifted and their education".

35. Starting school one year earlier could be beneficial for many gifted pupils.
36. The needs of the gifted can be addressed in normal classes through differentiation.
37. We should address more the giftedness of those children who simultaneously have learning difficulties and/or behavioral problems.
38. We need to address the needs of the gifted, but this can be done in normal heterogeneous classes.
39. Part-time acceleration, in which one subject is studied with older students, could be used with the gifted.
40. It is the teacher's responsibility to differentiate teaching in a way that provides the gifted students with learning experiences and challenges.
41. It is hard for teachers to identify giftedness among immigrant students.
42. It is hard for teachers to identify giftedness among students who have learning difficulties or behavioral problems.
43. Gifted education can also concern a child with learning difficulties.
44. Class sizes that are too large inhibit education of the gifted in regular classes.
45. It is hard for teachers to identify giftedness in children.
46. Gifted education is the teacher's responsibility.
47. Gifted education should be carried out within our current comprehensive school.
48. The lack of proper materials inhibits gifted education in regular classes.
49. Gifted education also involves immigrant students.
50. Teachers' lack of time and haste inhibit supporting giftedness in regular classes.

## **Appendix 2: Coding framework**

### **Coding category 1: Differentiated materials and assignments**

- Representative examples of practices under this category:
  - Using varied reading and resource materials
  - Using supplementary material
  - Searching for more knowledge
  - Allow student to work from a higher-grade level textbook or curriculum
  - Using different materials: videos, DVDs, games, puzzles, on-line activities and websites
  - Deeper, more complex and challenging assignments and activities
  - Rich and multiple-level questions
  - Open-ended questions/activities
  - Problem-solving assignments
  - Differentiated homework
  - NOT Included: If mentioned extra work/assignments

### **Coding category 2: Differentiated instruction/teaching methods**

- Representative examples of practices under this category:
  - More complex instruction
  - Personal guidance
  - Using different kinds of teaching methods and strategies

### **Coding category 3: Flexible groupings**

- Representative examples of practices under this category:
  - Grouping students into different groups or pairs based on their needs, abilities or interests
  - Flexible use of small teaching-learning groups in the classroom
  - Grouping students by ability across classrooms at the same grade level

### **Coding category 4: Allowing and promoting independence in learning**

- Representative examples of practices under this category:
  - Allowing and promoting independent choices of books, assignments, homework and working methods
  - Independent projects and studies
  - Students' active role in planning, executing and evaluating tasks, problems, products and learning activities
  - Students present and share their work to other students or to other audiences
  - Time available for students to pursue self-selected interest

**Coding category 5: Adjusting the pace of learning**

- Representative examples of practices under this category:
  - Gifted students move quickly through familiar or minimally challenging content
  - Curriculum compacting: Students who have already mastered basic skills do not need the same amount of practice materials as others, and can spend the time with learning more challenging and interesting material
  - Sometimes gifted students need more time to study a topic in depth

