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In Teachers We Trust – the Finnish Way to Teach and Learn

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In Teachers We Trust

The Finnish Way to Teach and Learn

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Introduction

Over the past 15 years, Finland has performed very well on international student achievement tests. Although Finland's results have slightly deteriorated from those at the beginning of the 21st century, Finnish students still perform very well in all comparative international surveys such as PISA, TIMSS and ICCS (e.g., Martin, Mullis, Foy, & Hooper, 2016; Mullis, Martin, Foy, & Hooper, 2016; Mullis, Martin, Foy, & Hooper, 2017; OECD, 2016; Schulz et al., 2017). For instance, according to the latest PISA results in 2015, Finnish 15-year-olds were third among all OECD countries in science and second in literacy (OECD, 2016). Finnish students also performed very well in the International Civic and Citizenship Education Study (ICCS) in 2016 (Schulz et al., 2017). Furthermore, the differences in results between different schools or areas as well as between the highest and lowest performers are relatively small in Finland. In sum, the Finnish school system seems to perform very well both in terms of quality as well as equity and equality.

Finland's consistently high results in these comparative studies have naturally created international interest in the Finnish education and school system. Although there are no solid, proven reasons, some of the hypotheses suggested for Finland's high success rate are, for instance, the appreciation of education, highly qualified teachers, the teachers' high degree of work ethic and autonomy, as well as the popularity of the teaching profession and teacher education (e.g., Määttä, Uusiautti, & Paksuniemi, 2013; Niemi, 2017; Niemi, Toom, & Kallioniemi, 2016; Tuovinen, 2008; Välijärvi et al., 2007). In this article, we are going discuss Finnish teachers, their work, and education. We will focus on the teacher's role as a trusted professional, the popularity of teaching as a profession, and then funnel the discussion towards teacher education and training. First, however, we will start with a brief introduction to the Finnish school system.

Finnish School System in Brief

A characteristic of Finnish schools, according to international surveys, is their equal quality: the differences in learning results between various parts of Finland or between different schools are very small (OECD, 2016). One factor explaining this may be the fact that the school system is the same throughout the whole country. The current *peruskoulu* (comprehensive school) system was born in the late 1960s and early 70s; before that, Finland

had a parallel school system, dividing students into grammar schools and civic schools after folk school (e.g., Sahlberg, 2010). Furthermore, Finland has very few private schools, and most of them follow the national framework curricula (FNAE, 2014a; FNAE, 2015). One of the basic principles of Finnish education is that all pupils and students must have the same educational opportunities available to them, irrespective of their ethnic origin, social background, wealth, or where they live. Also, all schools follow a national core curriculum, which includes the objectives and core contents of different subjects. Thus, practically speaking, the goals and contents of education are very much the same to all students in Finland. Nevertheless, the education providers, usually the local education authorities and the schools themselves, draw up their own curricula within the framework of the national core curriculum, which also allows some local characteristics and emphases in the curricula.

Finnish children start school at the age of 7, an older age than children in most countries. Before actual school, there is pre-primary education for one year, from age 6 to 7, which since 2015 has been compulsory in the same way as basic education. Pre-primary education is usually organized in conjunction with daycare centers and kindergartens, and its main goals are to prepare children for school life in terms of fostering their cooperative and social skills (FNAE, 2014b).

Compulsory education, also known as basic education (or, earlier, comprehensive school), lasts for nine years, from age 7 to 16 (see Figure 1). Basic education has its national framework curriculum that all schools in Finland follow (FNAE, 2014a). Contrary to many school systems around the world, there is no streaming in Finnish basic education. The goals and learning expectations are the same for all students in basic education, and those who struggle with their studies will have more support in terms of special education, for instance. The idea of recognizing special learning needs as early as possible is to offer all students similar opportunities for education. Consequently, the achievement gap between high and low achievers has clearly decreased since the abolition of all ability streaming in the mid-1980s (Sahlberg, 2011).

In most cases, basic education is divided into two stages: The first six years, Grades 1-6, are called primary school. After Grade 6, students go to their local lower secondary school (Grades 7-9). In recent years, as new schools have been planned and built, joint comprehensive schools (Grades 1-9) have become more and more common. At the end of Grade 9, students get their school-leaving certificate and their compulsory education is then completed.

The school-leaving certificate and its GPA functions as an admissions tool for further education. The grades in students' school-leaving certificate, as in all their school reports, are based on their teachers' assessments—there are no external examinations in basic education in Finland. After basic education, students apply to either upper secondary schools (the Finnish equivalent of senior high schools) or other schools such as vocational schools (see Figure 1). Approximately half of each age cohort go to upper secondary school, which is academic in its orientation. Towards the end of their upper secondary studies, students take their Matriculation Examination, which is the only external, high-stakes examination in the Finnish school system (Sahlberg, 2007). Although the Matriculation Examination gives eligibility for higher education, it does not guarantee it, as admission to universities and universities of applied sciences is rather competitive. So far, admission has generally been based on different combinations of Matriculation Examination results, school-leaving grades, and entrance examinations drawn by the universities themselves. However, according to the

Ministry of Education and Culture, the importance of the Matriculation Examination results is likely to increase in the future. Students can apply for university education also after vocational education: The underlying idea is that no educational pathway should result in a dead-end situation where students' prior choices would prevent their eligibility for higher education (see Figure 1).

Basic education in Finland is nonselective—schools do not select their students. Every student is allocated a place in a nearby school, but they can also choose another school with some restrictions. Moreover, tuition at all levels, from pre-primary level to higher education, is free. In pre-primary and basic education, textbooks and daily hot meals are free for every student, as well as transport to school for students living further away. In upper secondary school, students and their families purchase the textbooks and pay for possible travel costs, but tuition and meals are provided for everyone. All these measures enhance equal opportunity to education for everyone.

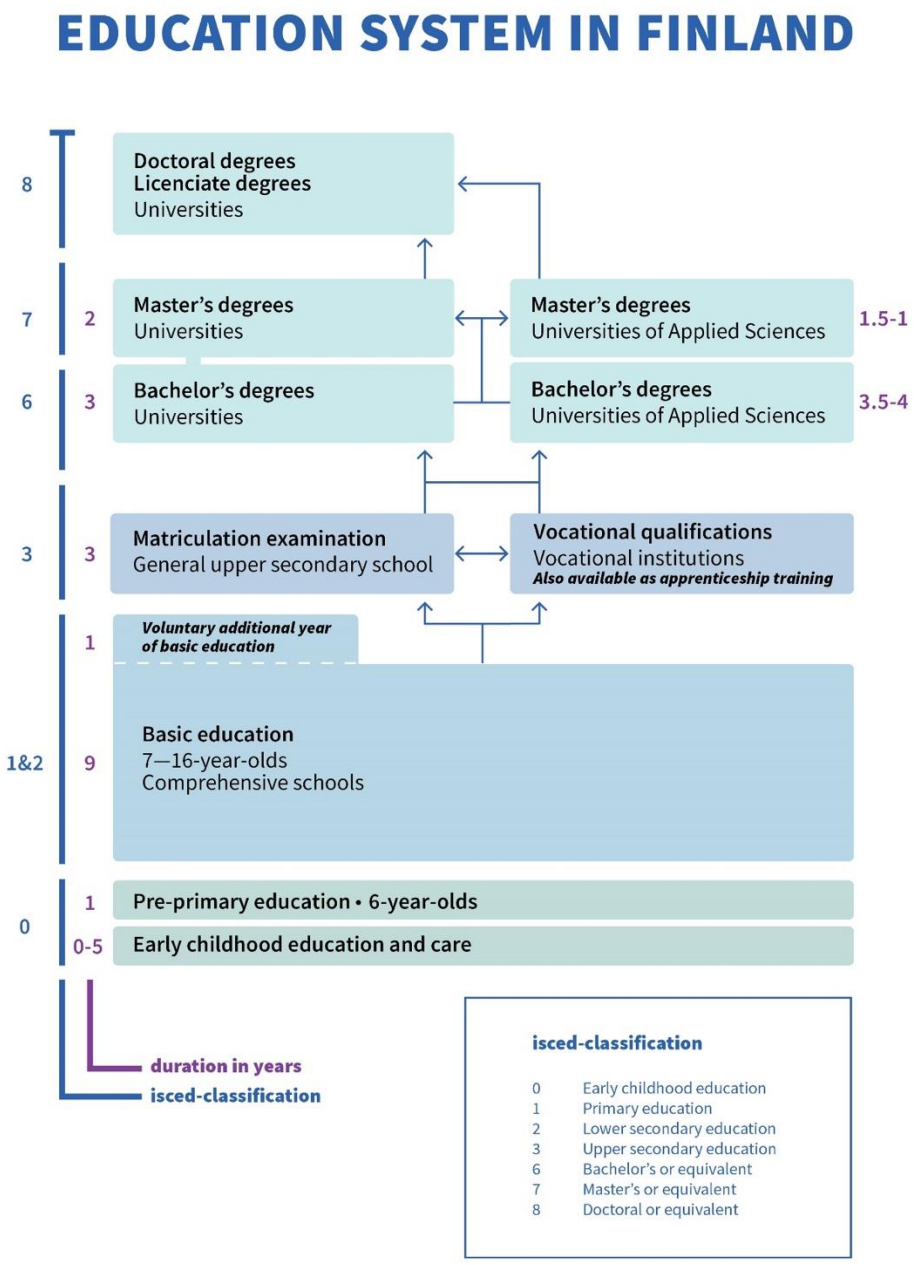

Figure 1. Education system in Finland.

Highly Qualified Teachers as Trusted Professionals

Education has historically been held in high regard in Finland. Perhaps because of the country and its history, education has been a major factor in determining social status: One's place in society has been secured by one's wit and will rather than by birth. Also, the teaching profession has been highly appreciated in Finland (e.g., Sahlberg, 2011). For instance, during the first decades of Finland's independence, having a teacher education resulted in an important position in the local community. Although the teacher's status as well as the respect towards teachers may have decreased over the years, the popularity of the teaching profession and teacher education has not. In fact, most teachers continue in the

teaching profession all through their working lives and quite independently take care of their professional development (Webb et al., 2004).

Consequently, one strong hypothesis for the Finnish "miracle" of education is highly qualified teachers (e.g., Niemi et al., 2016; Sahlberg, 2010). Since the 1970s, all qualified Finnish teachers—from primary school class teachers to upper secondary school subject teachers—must hold a master's degree. And they do: Nearly all Finnish teachers are fully qualified for their jobs (see Figure 2). This applies not only to the different school levels, but also to regional coverage. So far, the number of graduating and retiring teachers has been well balanced, due to well-functioning planning and needs analysis for teachers of various subjects carried out in universities and the educational agencies. However, there are a few subject teacher groups with surplus teachers (e.g., biology and history).

	Basic Education	Upper Secondary School
Principals	98,7% (+1,1%)	100%
Subject teachers	98,7% (+0,6%)	99,4%
Class and pre-primary teachers	96,3% (+1,5%)	
Special class teachers and special needs teachers	86,6% (+7,9%)	

Figure 2. Qualified teachers in Finnish schools in 2016 (based on Kumpulainen, 2017). The percentage in brackets refers to teachers with other teacher qualifications.

The high level of training is considered vital, as teachers in Finland are very autonomous professionally. Academic studies offer teachers a broad proficiency which can be seen as essential for a teacher in order to be able to cope with the challenges of modern education. Comprehensive and versatile studies refine teachers' thinking and strengthen their logical and pedagogical reasoning, as well as foster flexibility when facing various kinds of situations in a school context (e.g., Tirri, 2016; Toom & Husu, 2016). As readiness for lifelong learning is created in preschool and the first grades of basic education, a time when children's perceptions of their own abilities and learning begin to shape, it is of utmost importance that this process will be scaffolded by competent teachers. In addition, qualified teachers are equipped with skills to detect the challenges of learning, which should be detected as early as possible. In short, the professional skills and qualifications of teachers are decisive for successful education, especially in order to guarantee the equality of education.

Not only are nearly all teachers qualified for their work, but they are also trusted as professionals in their work. Accordingly, perhaps the biggest incentive or reward in the teaching profession is teacher autonomy: Each teacher has a great deal of pedagogical freedom to plan and carry out their teaching and assessment procedures as they best see fit (e.g., Linnakylä & Välijärvi, 2005; Sahlberg, 2007, 2011). Even though there are national learning objectives and contents set in the national core curricula (FNAE, 2014a; FNAE,

It is quite safe to say that the teachers' professionalism, commitment, and high work ethic are the key strengths of our education system.

2015), teachers can choose the methods and materials themselves as well as the assessment methodologies.

Although the current national curricular frameworks for both comprehensive school and upper secondary school do not allow quite as much freedom as they did in the 1990s and early 2000s, the Finnish education system still relies heavily on teacher autonomy and pedagogical freedom. For instance, there are no school inspections, nor official ranking lists in Finland. Nor is there obligatory external or national testing during basic education. The only "standardized" test is the Matriculation Examination at the end of the *lukio* (general upper secondary school, cf. senior high school). Yet, according to several comparative studies and research programs, we have one of the world's best-performing education systems (e.g., Tuovinen, 2008). So, it is quite safe to say that the teachers' professionalism, commitment, and high work ethic are the key strengths of our education system.

Another proof of the trust in and appreciation of teachers' professionalism is the teachers' role in curriculum design. In Finland, there are several levels of curriculum design. First, there is the national level (e.g., FNAE, 2014a, 2015). The national core curricula include, for instance, the objectives and core contents of different subjects, as well as the principles of pupil assessment, special needs education, pupil welfare, and educational guidance.

The second (and third) level is the education providers; usually, the local education authorities and the schools themselves draw up their own curricula for pre-primary and basic education within the framework of the national core curriculum. These curricula may be prepared for individual municipalities or institutions, or include both sections. Quite often the bigger cities have their own curriculum based on which schools design theirs.

On all the levels, the in-service teacher's role is extremely important. For instance, when the recent national core curriculum for basic education (FNAE, 2014a) was designed, the main responsibility lay with the officials at the Finnish National Agency for Education (FNAE). However, there were dozens of subgroups contributing to the planning, and each of them also had in-service teachers as members (e.g., Vitikka, Krokfors, & Rikabi, 2016). Naturally, the closer the grass-root level, the bigger the role teachers have in designing the school's curriculum.

Teaching is a Popular Career Choice

Even today, becoming a class teacher is one of the most popular career paths for students at the end of their school years. Thus, it is very difficult to get into the Department of Education—each year, only about 10-15% of the applicants are accepted (e.g., Kumpulainen, 2017). Future subject teachers are usually selected from among the most talented and motivated students, though their chosen subject is a factor to some extent. According to Jouni Välijärvi, the former coordinator of the Finnish PISA team, the popularity of the teaching profession is one of the factors that fosters quality in education. Within an international context, this is something unique and in need of nurturing, as the quality of Finnish know-how in the future will depend on the continued popularity of teaching as a profession (Hakala, 2011).

Teaching-oriented students are also motivated students. Even though there are no official statistics on to what extent and for what reasons students graduate in their major or interrupt their studies, it seems that students taking teachers' pedagogical studies are fairly certain to finish their master's degree. Due to this, some departments at the University of Jyväskylä (e.g., chemistry) have introduced more pedagogically oriented courses in their curriculum.

Depending on the school level at which the teacher is going to work, the qualification degrees can differ from each other to a great extent. In addition, as the Finnish universities are autonomous, there is some variation in both class teacher and subject teacher education programs between universities. However, to become a qualified teacher in basic education or upper secondary school, one must get a master's degree of 300 ECTS credits, including the teacher's pedagogical studies of 60 ECTS credits (see Figures 3 and 4). Next, we are going to take a closer look at class teacher and subject teacher education programs.

Student selection for teacher education

Universities enjoy a great deal of autonomy in Finland, so each university has the right to decide on their own admission procedures. Nonetheless, admission to teacher education has generally been based on a combination of the Matriculation Examination results, school-leaving grades, and entrance examinations drawn by the universities themselves. However, admission procedures to class teacher and subject teacher education differ from each other to some extent.

Student selection for class teacher education starts with a VAKAVA exam, which enables prospective students to apply to all the degree programs participating in VAKAVA, a national selection cooperation network in the field of education. The exam is based on a collection of scholarly articles announced approximately four weeks before the exam, as well as written materials handed out during the exam. The VAKAVA exam consists of multiple-choice questions, and the purpose of the test is to assess how well the applicants can use and apply knowledge in order to resolve different problems encountered in educational contexts. The scores earned from the examination are used for selecting applicants for the second stage of the selection procedure, which evaluates the candidates' suitability for the teacher profession (the so-called aptitude or suitability test). In this stage, a variety of methods (e.g., individual or group interviews, questionnaires, or demonstrations of specific skills) are used, often reflecting differences in the curricula between the universities. At the University of Jyväskylä, the second-stage evaluation consists of individual interviews and self-report questionnaires on candidates' key competences. In addition, the scores in language arts earned in the Matriculation Examination are taken into account in the second stage of selection (Tan, 2015).

At the University of Jyväskylä, the entrance examination to subject teacher education includes a written examination and an interview. Depending on the subject, the exam materials are either published beforehand or given in the exam. Similarly, in selection for class teacher education, there are differences between universities. In some universities, there is also a group task for the candidates which may be, for instance, a group discussion on a given topic or a teaching session.

In 2020, the selection procedure to Finnish universities will face significant changes. The role of the entrance exams will diminish, as 60% of the applicants are to be admitted to the aptitude test on the basis of their Matriculation Examination results. In addition, all the

materials in the VAKAVA exam will be handed out in the exam only, and the same aptitude test will be used nationwide.

Class teacher education

As mentioned earlier, the teaching profession is still highly regarded. Class teacher education, in particular, has been a popular choice for decades, and it has become more and more difficult to get in over recent years. Since 2011, no more than approximately 10% of the applicants have been admitted (Kumpulainen, 2017).

Class teachers major in educational science (see Figure 3). Their studies encompass three major entities: studies in education, teacher's pedagogical studies (including supervised teaching practice), and other studies. In primary school, class teachers have to teach a great range of subjects (e.g., Finnish, mathematics, history, and arts), and to be able to do that, they do the so-called POM-studies (i.e., multidisciplinary studies in subject and cross-curricular thematic modules taught in basic education). In addition, all class teachers specialize in at least one subject. In smaller schools, class teachers usually have to teach all the subjects, whereas in bigger schools class teachers seldom teach all the subjects, but rather the subject they are specialized in (i.e., a minor subject such as crafts, arts, or music) to several classes. In joint comprehensive schools (Grades 1-9 in one school), a number of subjects, such as P.E., music, and foreign languages, are frequently taught by subject teachers also in Grades 1-6.

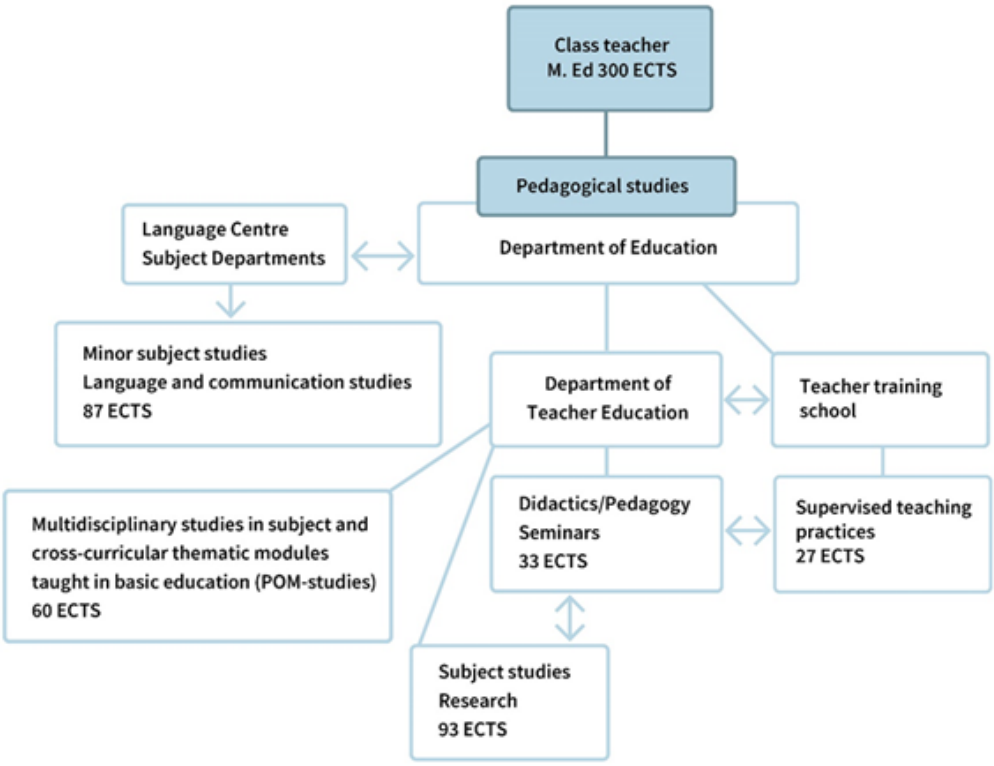

Figure 3. Structure of class teacher studies in the University of Jyväskylä, Finland.

In the future, the demand for class teachers will increase most, mainly due to the expected growth of age cohorts entering primary school. The high mobility of class teachers in the labor market also causes pressure to train more teachers. More training will also be needed

for special class teachers, due to the relatively high number of unqualified teachers in certain regions at present. In secondary schools, the demand for new teachers is highest in English, physical and health education, and student counselling (Nissinen & Välijärvi, 2011.)

Subject teacher education

Subject teachers major in the subject they also teach (e.g., English, mathematics, biology, and P.E.) (see Figure 4). As minor subjects, students usually take one or two other subjects taught at school. There are no fixed subject combinations, but it is quite common to study subjects that are somehow related to the major subject (e.g., biology and geography, physics and chemistry, history and social studies). In addition to studies in major and minor subjects, subject teacher qualifications comprise teachers' pedagogical studies of at least 60 ECTS credits, including supervised teaching practices.

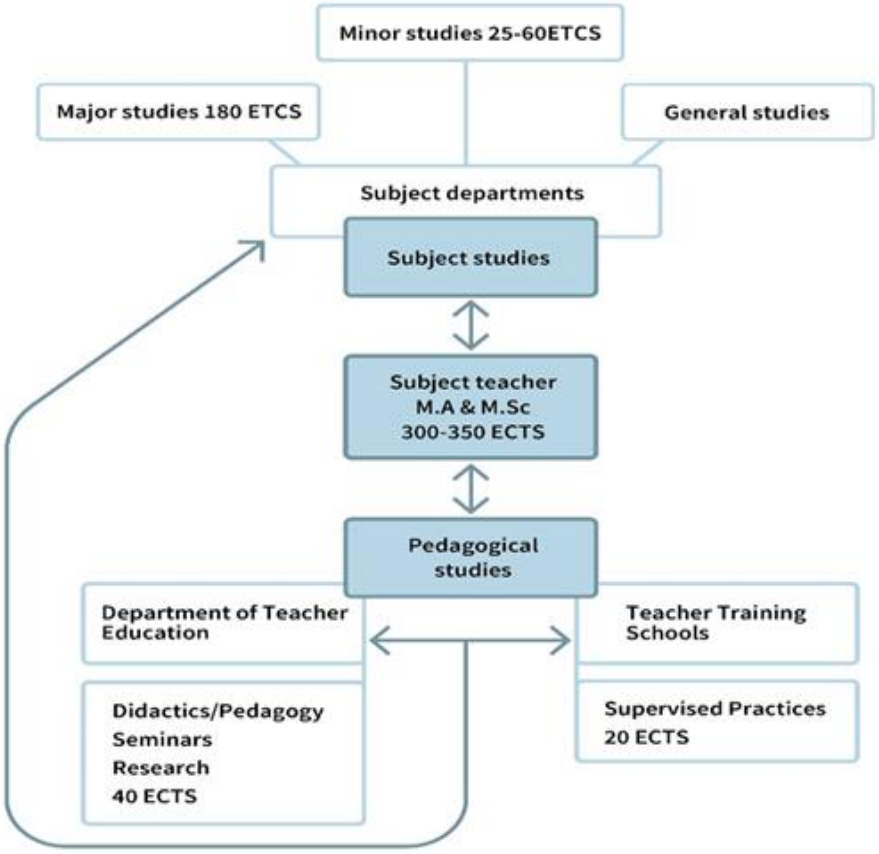

Figure 4. Structure of subject teacher studies in the University of Jyväskylä, Finland.

There are no comparable statistics on how many students apply for subject teacher education, as various universities have different procedures for pedagogical studies. For instance, several departments at the University of Jyväskylä have committed themselves to annually producing 170 master's degrees with pedagogical studies as minor subjects. From teacher statistics it can be concluded that the national number of subject teachers educated meets the need, but we do not know the ratio between students who earn or wish to earn the teacher qualification and those who do not. However, the percentage varies greatly depending on the subject or the year.

The keyword is the direct admission to subject teacher education, which means that students who want to become subject teachers begin with teachers' pedagogical studies already during the first year (e.g., Toomar, Salo, & Pollari, 2011). In other words, it provides teaching-oriented students with both education and major studies, along with pedagogical studies in the subject from the very beginning. As these are scheduled to different phases of study, it helps the students to maintain motivation, especially as the students have a close reference group which contributes to proceeding in the studies. The subject departments' curricula guarantee that those who undergo teacher training also have the required competence to continue academic studies in their own field of study, and thus alternatively create an academic researcher career. In addition, teachers' pedagogical studies have proven to be useful in many business activities, so Finnish teacher training provides a number of possibilities to work in versatile positions in society.

After graduation, both class teachers and subject teachers are fully qualified. Thus, although the education providers are obliged to organize at least three days of in-service training for their teachers each academic year, the main responsibility for further in-service education lies within teachers themselves. In recent years, we have witnessed new openings in further in-service education, with several projects in which peer-group mentoring has been developed (e.g., Heikkinen, Jokinen, & Tynjälä, 2012; Niemi, 2017).

Assessment of the teacher certification process

In Finland, each university with a teacher education program can autonomously decide the contents of the teachers' pedagogical studies of 60 ECTS credits. There is, for instance, some variation in how much supervised teaching practice is offered. In order to be admitted to supervised teaching practice, students have to have enough ECTS credits in the major subject, and the basic studies in pedagogical studies have to be completed before the admission to subject studies. At the University of Jyväskylä, teachers' pedagogical studies consist of 13 courses which are all assessed, and to get the qualification, students have to pass them all. Students barely ever fail the supervised teaching practice, as they have all passed the suitability test (i.e., interview) in the selection process. However, at times students who have problems in meeting the objectives can be required to teach a few extra lessons. However, should there be a need to fail a student teacher, supervising teachers are quite powerless.

The Unique Way of Organizing Teacher Training in Finland

The Finnish teacher education system is quite different from those of many other countries, mainly due to the way teacher training is organized. Every university that organizes teacher education has a teacher training school (nine altogether in Finland; see Figure 5) whose primary purpose is to provide supervised teaching practice for aspiring teachers. Although parts of the teaching practice may be undertaken outside the teacher training schools, most future teachers carry out the majority of their training at the teacher training schools under the constant guidance and supervision of qualified teacher educators.

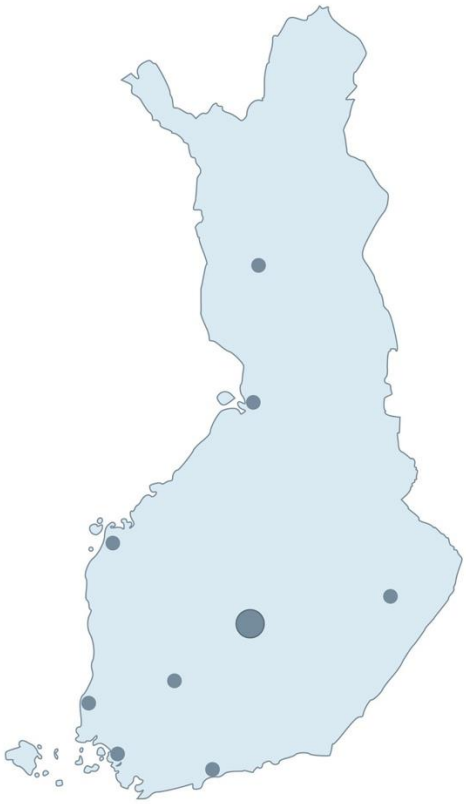

Figure 5. The locations of the nine teacher training schools in Finland.

The number of future teachers practicing at all Finnish teacher training schools annually is approximately 3,000. The universities, and thus also the teacher training schools, are situated quite evenly throughout Finland, and hence they are regionally accessible to everyone, whether living in the metropolitan area or further away in other parts of Finland. This probably also explains why there are qualified teachers all over Finland, and there are no particular regions with difficulties in finding qualified staff (for statistics, see Kumpulainen, 2017). That, at least partly, accounts for the relatively small performance variation among different regions or different schools across Finland (OECD, 2016).

In addition to supervised teaching practices, teacher training schools also provide general education for pupils and students of basic education and upper secondary school. The size of the teacher training schools varies from schools with the primary level only to schools providing teaching from preschool to upper secondary levels. The number of pupils and students in all teacher training schools totals 8,000, and the number of teaching staff totals approximately 800. All teacher training schools are partly governed and financed by the state. The Ministry of Finance covers the costs of basic education, whereas the Ministry of Education and Culture finances upper secondary school education and teaching practices.

According to Zeichner (1990), the quality of teaching practice defines the quality of teacher education. For several reasons, the quality of supervision at teacher training schools is considered to be particularly high. Firstly, the teachers who work at teacher training schools are committed not only to teaching their own students and classes, but most importantly, to supervising aspiring teachers. This also entails ongoing professional development in order to be able to intertwine practical classroom work and the latest pedagogical research in the supervision of future teachers. Several teachers also do research themselves. For instance, nearly 20% of teachers at teacher training schools hold a PhD or licentiate degree (a degree

between a master's and a doctorate) and they are strongly committed to professional in-service education. Another evident reason for successful teacher training and teacher education is the innate connection between teacher training schools, departments of education, and other university departments (see Figures 3 and 4). These participants, all part of the same institution, can write their teaching programs so that they together can help student teachers best develop their knowledge and skills for their future profession. For instance, theoretical aspects and teaching practice are integrated at all stages during the studies. This enables students to acquire the theories, knowledge, know-how, and competence needed in the teaching profession during their studies at the subject departments and during their educational studies. In turn, they can put all the skills and knowledge they have acquired into practice in their supervised teaching practices. In a nutshell, the central aims of the teaching practice periods for student teachers are:

- to evolve into pedagogically thinking teachers;
- to grow into the profession; and
- to become aware of their practical theories and views on educational matters.

The Finnish teacher education system has a strong emphasis on research. A research-based teacher education means that teachers and student teachers are given possibilities for experimental teaching, teaching experiments, and scientific research. The teaching experiments and educational research connected with teaching practice jointly aim at promoting an innovative and analytical attitude in prospective teachers. Thus, the objective of research-based teacher education is to educate students to be able to make educational decisions based on rational argumentation, in addition to their intuitive insight. In short, teacher education aims at merging theory and practice (Silander & Välijärvi, 2013). Furthermore, as teacher training schools are university schools, the teachers working there are encouraged to conduct research and teaching experiments as an integral part of their work. Teacher training schools also provide context for research conducted by different faculties of the university.

Teacher training schools compared to other schools

Even though the nationwide network of Finnish teacher training schools can be considered unique, the schools themselves are not very different from Finnish schools in general. All Finnish schools design their local curriculum based on the national core curriculum, all qualified teachers hold a master's degree, and there is no pupil selection as pupils usually attend the school closest to their home. The most important differences are based on the fact that teacher training schools are university schools, and thus they participate in various research and development projects. As noted above, many teachers at teacher training schools hold a PhD, and, in addition, they are committed to supervision as well as development work. Furthermore, constantly supervising and mentoring aspiring teachers—who have received the latest knowledge in their fields of study—helps the supervising teachers to keep abreast of latest developments in the subjects or in education.

The objective of research-based teacher education is to educate students to be able to make educational decisions based on rational argumentation, in addition to their intuitive insight.

Conclusion

One thing explaining Finland's success in several international comparative studies during the past 15-20 years is the appreciation of education. Education has been considered a major factor for securing both the nation's and the individual's future, as Finland's growth from a rather poorly-educated agrarian country into one of the world's most literate and modern societies shows. Equity and equal access to education is regarded as important. However, the appreciation of education does not mean that Finland spends more money on education than most countries; quite the contrary, Finland spends less money on education than OECD countries on average (Sahlberg, 2011). Furthermore, Finnish pupils and students spend less time in school, and also on their homework, than students in most countries, and yet, they seem to perform better (Sahlberg, 2011).

Highly qualified, motivated, and autonomous teachers are probably the strongest factor when trying to explain Finnish learning results of the past two decades. Firstly, teaching is a popular career choice. This means that access to teacher education is very competitive, and thus only the most talented and motivated students get in. Secondly, teacher education, with its research-based orientation as well as its requirements of a master's degree, is also considered an important and recognized part of higher education. Teaching has been a genuinely academic profession in Finland since the reforms in teacher education in the late 1970s. Thirdly, academically educated, highly qualified and trained teachers are nowadays trusted and respected professionals, who have a great deal of autonomy in their work in regards to planning, teaching, and student assessment. School inspections were abolished in the 1980s, and external testing has never had any foothold in basic education in Finland. Therefore, with no disruptive pressure caused by school inspections or external testing, teachers can truly focus on the core of their profession: to help all students learn the best they can. With the help of their academic education, teachers are also able to research and develop their own work and participate in curriculum development.

In light of these learning results, it seems that the trust in Finnish teachers and teacher education has paid off.

Pirjo Pollari has been working as a teacher and teacher educator of English at the Teacher Training School of the University of Jyväskylä, Finland, for over 20 years. Her research interests include students' experiences on assessment and in-service training. She has also presented on the Finnish educational system, teacher education and training, and the new Finnish core curricula to various international audiences both in Finland and abroad.

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Kirsti Koski has worked at the Teacher Training School of the University of Jyväskylä, Finland, for over 30 years, first as a teacher and teacher educator of physics, chemistry and mathematics, and then as the principal of the upper secondary school (i.e., senior high school). Ms. Koski has been involved in several national development projects concentrating on science education, school administration, curriculum, and teacher education. She was a member of the latest national curriculum steering group, and she has also participated in international programs such as TIMSS-r and PISA in various advisory roles.

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