

Governance decentralisation in education: Finnish innovation in education^{1,2}

Gobernanza descentralizada: Una innovación finlandesa en educación

Jari Lavonen^{1,2}

¹Department of Educational Sciences, University of Helsinki, Finland

²Department of Childhood Education, University of Johannesburg, Soweto, South Africa
jari.lavonen@helsinki.fi

Abstract

This paper introduces a Finnish education innovation known as decentralisation in education. The innovation is described based on education policy documents, research papers and two short interviews with national and municipality experts in curriculum design. In a decentralised education system local providers of education (municipalities) and teachers play important roles in the preparation of local curriculum and learning environments, including the use of digital learning tools and environments. Education providers localise the national aims and content and describe how education is organised. Classroom-based assessment is another characteristic of decentralisation. Three pre-conditions are required for a decentralised education system to be effective: 1) common, national level, long-term strategic aims and must be established and local level plans, such as curriculum and an equity plan, must be developed and the implemented, 2) quality work, student assessment, continuous improvement of learning environments and practices implemented at the local level and 3) professional teachers must collaborate and engage in broad planning and assess their teaching abilities and their students' learning outcomes.

Keywords.-

Education policy, digital strategy, curriculum, quality assurance, assessment

Resumen

Este documento introduce a la innovación educativa finlandesa conocida como "descentralización educativa". Esta innovación en primer lugar se describe sobre la base de documentos de política educativa, documentos de investigación y dos breves entrevistas con expertos nacionales y municipales en el diseño curricular.

¹ This material is based upon work supported by the Finnish Academy (no. 298323 and 294228)

² Nota del Editor.-

El presente artículo se considera acogido a dos tipos de contribuciones de las consignados en las normas editoriales (http://www.um.es/ead/red/normasRED.htm#_Toc417848548): "La política o la investigación" e "innovación o innovaciones en curso". Además la innovación propuesta es aplicable en distintos entornos de aprendizaje, en particular a los entornos apoyados con la tecnología como el propio autor reconoce cuando dice en la página 8: *Finnish teachers are responsible for the versatile grouping of students and their learning and collaboration in different learning environments. Moreover, they are responsible for the continuous development of the use of information and communication technology (ICT) tools*

En un sistema educativo descentralizado, los proveedores locales de educación (los municipios) y los maestros desempeñan un papel importante en la preparación de planes de estudio y entornos de aprendizaje locales, incluido el uso de herramientas y entornos de aprendizaje digital. Los proveedores de educación localizan los objetivos y contenidos nacionales y describen cómo se organiza la educación. La evaluación basada en el aula es otra característica de la descentralización. Para que un sistema de educación descentralizada sea eficaz, se requieren tres condiciones previas: 1) que haya a nivel nacional, a nivel nacional, objetivos estratégicos a largo plazo y establezcan planes a nivel local, tales como un plan de estudios y un plan de equidad; 2) Que existan un trabajo de calidad, un Sistema de evaluación de los estudiantes, un sistema de mejora continua de los entornos de aprendizaje y que las prácticas sean implementadas a nivel local y 3) los profesores profesionales deben colaborar y participar en una planificación amplia que evalúe sus habilidades de enseñanza y los resultados de aprendizaje de sus estudiantes.

Palabras clave.-

Política educativa, estrategia digital, curriculum, evaluación de la calidad, evaluación educativa

Introduction

This paper introduces a Finnish education innovation known as governance decentralisation in education. As a part of this decentralised model the implementation of digital learning strategies are discussed. Decentralised education is described based on education policy documents, research papers and two short interviews with experts in the field of education. The first interviewee has been in charge of national level curriculum preparation at the Finnish National Board of Education (FNBE) and has a PhD in curriculum studies. The second interviewee has been in charge of the preparation of local curriculum and strategies in a large city. He has a PhD in education leadership. The excerpts from the interviews are included in the main section of this paper in order to discuss the interviewees' responses and to place the education policy documents into greater context.

The first section of this paper discusses the context of Finnish education. The second section introduces the structure of decentralisation; it also discusses two levels of curriculum, assessment at the classroom level and quality work at the school level. The third section presents evidence supporting the success of decentralisation.

The Finnish Education Context

The Finnish comprehensive school system, which provides basic education for children between the ages of 7 and 15, was established in 1970. Since then, the national core curriculum has been the central administrative steering document for education. In the beginning of the 1990s, decentralisation in all governance areas was implemented in Finland. In education, a national level framework curriculum for basic education and for upper secondary education was prepared in collaboration with the FNBE, schools and stakeholders (FNBE, 1994). At the same time, the pre-evaluation of school learning materials and the inspectorate system were abolished. As part of this devolution, the power to make decisions was allocated to the local level and, since 1994, providers of education, typically municipalities, have been responsible for quality assurance and the preparation of a local curriculum, in collaboration with local stakeholders and families. Teachers play an important role in this decentralised education system. They are

responsible for participating in local curriculum work, engaging in broad planning of learning environments and courses and assessing their teaching abilities and their students' learning outcomes. They are also charged with selecting the learning materials and learning environments, including digital tools and digital environments. Over the past several decades, research studies (Atjonen, 1993; Jauhiainen, 1995; Holappa, 2007) have indicated that local curriculum processes have inspired and empowered teachers and principals to develop the local curricula and their own work. In the beginning of 2000, a national level framework curriculum for pre-primary education was prepared and a local level interpretation was implemented. A similar tradition has been followed in teacher education. Over the last 20 years, this orientation has continued to be developed (FNBE, 2004).

Although, the education system in Finland is decentralised, there is a clear structure for the planning and organisation of education in this country. Fig 1 presents the structure, planning and the implementation of Finnish education (Krzywacki, Lavonen, & Juuti, 2013).

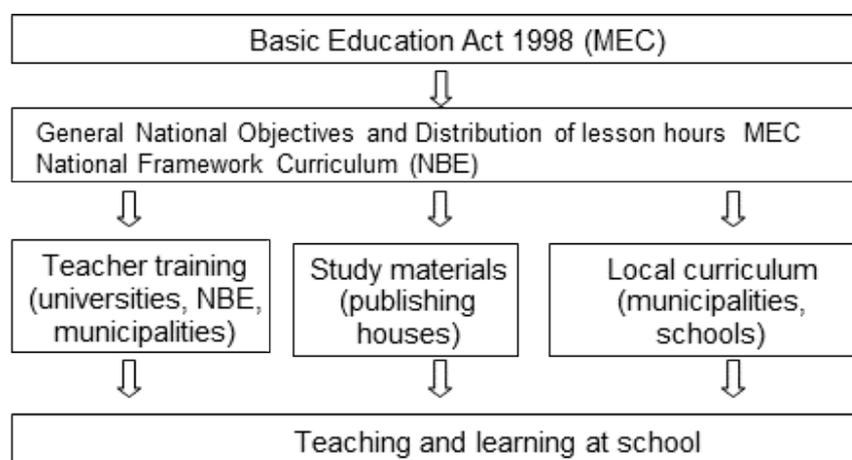


Figure 1. Finnish education structure, planning and its implementation through national and local level curriculum, teacher education and science classroom practice (MEC = Ministry of Education and Culture; NBE = National Board of Education) (Source: Lavonen, 2008).

The Finnish Ministry of Education and Culture (MEC) prepares national level strategies and plans. For example, the MEC has developed and implemented the Basic Education Act 628/1998³, which addresses general national educational objectives, distribution of lesson hours and educational vision in addition to providing guidance to municipalities. The FNBE is responsible for developing school education and preparing the National Core Curriculum for Basic Education (NCCBE, 2014) in Finland. According to the FNBE (2014), the latest core curriculum supports teachers in analysing key education questions, such as: What will education mean in the future? How can education prepare young people for the future? What types of competences will be needed in everyday and working-life situations? What kind of learning environments and practices or teaching methods would best produce the desired education and learning?

³ Basic Education Act 628/1998: Available online: <http://www.finlex.fi/en/laki/kaannokset/1998/en19980628.pdf>

According to the education policy documents, the most important features of the shared, consistent and long-term policy is a broad commitment to the vision of a knowledge-based society. This vision is widely shared and accepted by employers and labour organisations, as well as industries and their interest groups. Representatives of these organisations have always participated on the advisory board of the national curriculum development projects (Laukkanen, 2008). Promoting educational equality is another long-term objective of the Finnish education policy (Sahlberg, 2011; Niemi, Toom, & Kallioniemi, 2012). Effective special education programmes are one of the most important consequences of this equality policy. The policy aims to prevent students from dropping out and to support the learning of all students. As part of this policy, teachers should not consider the students in their class as one entity; instead, teaching should be adjusted to meet the individual needs of each student (Jahnukainen, 2011). A third general education policy principle in Finland is the devolution of decision-making power and responsibility at the local level or decentralisation of education administration. Education authorities and national-level education policymakers trust professional teachers, who together with principals, headmasters and parents, know how to provide the best education for children and adolescents in a specific district (Simola, 2005). The second expert interviewed for this research study analysed equality in Finnish education in the following way:

In my opinion, the most important overall impact has been the realisation of the potentials for equality at schools and in classrooms. The use of criteria for recognising the areas or schools where we have threats for equality are working. The schools have been able to develop different packages for or actions on how to recognise threats for equality and how to support the development of equality. It is essential that general rules are not coming directly from the government but the criteria and practices are developed at the local level and starting from the local needs.

The teaching profession in Finland has always enjoyed great public respect and appreciation (Simola, 2005). Teacher education is one of the most attractive training programmes at Finnish universities. For example, at the University of Helsinki, only 5% of applicants are accepted into that programme. In neighbouring countries, Sweden and Norway, teacher education is among the last choice of prospective students. There are several reasons why teacher education is attractive in Finland. In addition to the academic status of teachers, they enjoy collaboration with and receive support from school site operations, which makes the teaching profession attractive. Moreover, the national education policy and its implementation, such as a strong quality culture and the teachers' role in assessment, support for the professionalism of teachers (Lavonen, 2016).

The Structure of the Decentralisation

The main motivation for decentralisation in education is that local level decision-making takes local characteristics into consideration. This gives teachers a feeling of ownership and enables them to allocate resources to the real planning and implementation of education—not for inspection and control. This empowers teachers to collaborate, and it supports their ongoing commitment to life-long-learning.

Decentralisation allows teachers to consider the local context and to address the diversity among the students they teach. Therefore, governance decentralisation in education is strongly linked to the Finnish way of interpreting teacher professionalism and teacher status in Finnish society. However, the concept of teacher professionalism is complex, and it has been defined in several ways. In addition, a variety of terms, such as “effective”, “competent”, “expert”, “quality”, “ideal” or “respected”, have been used to describe a professional teacher (Cruickshank & Haefele, 2001; Stronge & Hindman, 2003).

A teacher’s professionalism/effectiveness is typically approached by analysing: (i) the knowledge base of the professional teacher (input approach), (ii) the process or the interaction that occurs in the classroom between the teacher and students (process approach) or (iii) the outcomes of the teaching and learning process, such as students’ learning outcomes measured by national tests or graduation rates (output approach) (Goe, Bell, & Little, 2008). According to the Finnish input approach, a professional teacher is supposed to possess a versatile knowledge base, allowing him or her to act as an autonomous professional. The term “knowledge” is broadly interpreted in this context, and its meaning is close to “competence” or “skill”. This knowledge base supports the broad planning, organising and evaluation of an educator’s teaching ability, as well as the students’ learning and learning outcomes. Broad planning incorporates everything from the planning of the local curriculum to the planning of a single lesson.

In Finland, teacher professionalism not only refers to an individual teacher’s competence; it also refers to the status of teachers in a given society. This depends on school-level factors and cultural and education policy factors, in addition to the individual characteristics of a teacher, such as his or her knowledge base, teaching philosophy and interaction and collaboration skills (Müller, Norrie, Hernández, & Goodson, 2010). For example, the nature of leadership, the culture of collaboration, the structure of networks and school-society-family partnerships are all important school-level factors. Cultural and education policy factors include the state-level education context; for example, whether the country is following a policy of accountability or, alternatively, whether it trusts teachers without relying on heavy inspection and testing.

National and local curriculum

As previously mentioned, an important education policy principle in Finland is the devolution of decision-making and responsibility at the local level or decentralisation of education administration. Local municipalities allocate tax revenues for social services and education for each school with a separate budget. However, variations in the economic situations between municipalities are migrated through national level mechanisms. The second expert interviewed for this research study is in charge of local level administration and curriculum preparation. He noted that the state level support that is given to municipalities has fewer resources:

The state has delivered special resources to the municipalities according to certain criteria in order to guarantee the equality in education. These criteria are based on the drop-out-rate, unemployment rate and number of immigrants in the city. These extra resources have been used, for example, for special needs education and the hobby activities available at the school.

The local education providers (local authorities or municipalities) and schools plan the local curriculum with teachers based on the NCCBE. Teaching might be focused on local needs and this helps decide which elective subjects are offered. Moreover, the second person interviewed for this study noted that schools should prepare an equality plan:

Every school in our municipality should prepare an education equality plan according to their own context and circumstances. In the plan, the school should describe how it will support education equality. In practice, the schools can borrow digital tools or support the hobby activities of the low income families. Some schools use extra resources for special need education or Finnish language teaching for immigrant students according to the plan.

These kinds of curricula and plans address the local context and support teachers in taking ownership of education.

Local education providers are also responsible for organising a general assessment of the schools and using the data to evaluate how well the goals have been achieved and how effective the education policy has been in practice. The role of school headmasters/principals is important in school development and evaluation and in the implementation of an education policy at the local level, including budgetary authority. This includes, for example, decisions on class size and the purchasing of learning materials. In Finland, there have been no national or local school inspectors since the late 1980s/beginning of the 1990s; moreover, there has not been any comprehensive national-level testing in schools or systematic evaluations of teachers. Trust means that educational authorities and national-level education policymakers trust that teachers, together with principals, headmasters and parents, know how to provide the best education for children and youth in a specific district. Teachers are valued as professionals in curriculum development, teaching and assessment at all levels. The local curriculum is viewed more as a process than as a product, and it plays a central role in school improvement.

As previously noted, local curriculum and classroom based assessment are core elements of education decentralisation in Finland. The FNBE, a national independent institution under the direction of the MEC, is responsible for implementing the national education policy by developing a national framework curriculum. The core curriculum (e.g., FNBE, 1994, 2004, 2014) discusses the values, learning, learning environments and general goals and aims of education, such as learning the 21st century competences (Vahtivuori-Hänninen et al., 2014). It also describes the general aims and subject-specific objectives. The aims and objectives describe the core competences to be learned in each subject and the cross-curricular themes. The curriculum lists basic concepts in each subject, but the list is just a suggestion; it is not obligatory. Therefore, the aims and objectives are the most central aspects of the curriculum; there is no traditional syllabus.

The first expert interviewed for this research study, who is in charge of national level curriculum preparation, described the practical preparation of the national level curriculum in the following way:

The national process was planned and lead carefully by FNBE. Information about the state of basic education and the need for

development had been gathered since the previous national curriculum renewal process. The goal was to develop basic education, identify the strengths and weaknesses of the system and to build a shared understanding of the direction and actions needed to make the required improvements. Special interest was taken in developing a coherent core curriculum.

The national curriculum process was designed as a large scale, top-down-bottom-up reform by FNBE officials. Hundreds of stakeholder (researchers, teachers, members of different educational associations, etc.) were invited to participate in the core curriculum reform work. Municipalities and citizens were asked to give feedback along the process.

The aim was to create a transparent, evidence-based process that is based on knowledge-sharing and shared sense-making. People from the National Board of Education, teacher training units from different universities and regional state administrative agencies cooperated to organise opportunities to get information and discuss with teachers and principals about the aims and possible consequences of the curriculum reform.

As this interviewee noted, the participation of several parties in education, such as schools, unions and central administration personnel, made the process and product more equal.

Local education providers—the municipalities—have broad autonomy. They are responsible, with teachers, for planning local curricula and organising assessments and grading, and then using the data to evaluate how well the goals in the curriculum have been met. The role of a principal or a head teacher is important in school development and in the implementation of educational policy at the local level (Lavonen, 2007). Over the past several decades, many studies (Atjonen, 1993; Jauhiainen, 1995; and Holappa, 2007) have clearly indicated that local curriculum processes have inspired and empowered teachers and principals to develop their own work. While the system is partially centralised, it respects different professional opinions and different stages of development at different schools. The preparation of the local curriculum allows teachers to consider different variations in the circumstances they encounter in their local schools and the differences in their students' competences and backgrounds. Therefore, the preparation and implementation of the local curriculum offer the opportunity to provide equal circumstances for learning. Both of the people interviewed for this study emphasised this during the interviews. However, the first interviewee described the negative side of this autonomy:

Voluntary basis means also that there are some municipalities, schools and teachers who did not want to take part into the preparation process. There is no exact evidence of the reasons for this avoidance. It might indicate lack of human or professional resources. Also, poor economic situations in some municipalities might have affected this.

The first interviewee described the preparation of local level curriculum in a following way:

The providers of education, municipalities and private schools make their local curricula on the basis of the national core curricula. The Finnish basic education curriculum has been reformed approximately every 10

years. The national core curriculum is a strong judicial remit, but it is also a tool for single schools to develop their own pedagogical praxis.

Education providers organised the local processes freely. There were several large regionally organised (many municipalities together) local processes. Besides education professionals, also parents and other local stake holders were involved in local processes.

Pupils' opinions were also heard in some cities and schools. FNBE used information from a large scale pupil survey made in 2000.

The second interviewee described the preparation of local level curriculum in the following way:

The preparation of the local curriculum is collaboration inside the school and between the partners of education, like non-profit organisations and sport clubs. Both parties could benefit from this type of partnership: students could have access to sport club activities and sport clubs could have access to school gym hall.

The preparation of the local level curriculum takes into account different variations at the local level, and it is a good starting point for supporting all kinds of learners in the classroom and, consequently, it creates an environment for equality.

The first interviewee described the cooperation in the planning of the curriculum as:

Using national core curriculum as a strategic tool would not be possible without large scale cooperation, tolerance of different opinions and the skills to lead a multi-voiced process. A high level of professionalism is also needed, not just from the national or municipal officials but also from teachers. Professionals who have been part of mutual knowledge-sharing and decision-making are more likely to follow the shared principles.

National and local digital learning strategies

Over the past 25 years, six official national digital learning strategies and hundreds of national development projects have been implemented. Digital learning strategies have also been connected to or implemented for other strategies and national framework curricula. The most recent strategy document was launched in 2010. This national "Osaava-ohjelma" [Competent programme]⁴ aimed to support teachers, especially older teachers, in peer-mentoring activities and the use of social media and mobile devices in education. The FNBE has allocated resources for projects and activities during 2010–2014 under the "Osaava-ohjelma". The current Finnish government decided that it would not write separate strategies, such as a national digital learning strategy; however, it referred to entire programme as a strategic programme⁵. The government programme introduced two special programmes: the Knowledge and Education programme and the Digitalisation programme. The Digitalisation programme focuses on developing a productivity leap in public services and the private

⁴ <http://osaavaohjelma.fi/>

⁵ Finnish government programme:

http://valtioneuvosto.fi/documents/10184/1427398/Ratkaisujen+Suomi_EN_YHDISTETTY_netiti.pdf/8d2e1a66-e24a-4073-8303-ee3127fbfcac

sector by grasping the opportunities offered by digitalisation. In order to foster digitalisation, the government called for activities to be integrated at all levels in education

In the Finnish context, strategy-based development in the context of digital learning is based on the idea of autonomous decision-making at the school level. Several important bodies play a role in the implementation of strategic plans. For example, the FNBE has designed an implementation plan for the school level. This includes plans to allocate resources for teachers' in-service training or professional development projects and for improving the digital learning infrastructure. It seems as if there has been enough money to fund the infrastructure because some minor resources have not been used in several years. Education units (e.g. schools and universities) have created their own strategies or implemented their own ideas for local curricula or programmes according to the national framework.

Teacher-conducted assessments

Finland has a long-standing policy of teacher-conducted assessments, and teachers are considered the core of this assessment policy because they implement and mediate the assessment procedures. This internal, teacher-conducted assessment policy also supports teachers in modifying their classroom practices (Lavonen & Laaksonen, 2009).

Krzywacki, Koistinen, and Lavonen (2012) examined Finnish primary and lower secondary science teachers' views on student assessment and how they implement that as part of their teaching. According to research of Krzywacki, Koistinen, and Lavonen (2012), assessment is mainly carried out as an internally-guided, integrated element of teaching and learning. However, the autonomous role of teachers influences the way assessment is integrated as part of teaching and learning in Finnish classrooms. Teacher-conducted assessments aim to improve teaching and learning inside the classroom not to produce school rankings and ensure adherence to a standardised syllabus.

Various roles of teachers at the school site

Korhonen, Lavonen, Kukkonen, Sormunen and Juuti (2014), Sormunen, Lavonen and Juuti (2014), Kukkonen and Lavonen (2014) and Korhonen and Lavonen (2014a) have theoretically and empirically analysed the various roles of Finnish teachers in relation to the local curriculum and learning environments, networks and partnerships, as well as the local leadership.

Finnish teachers are responsible for the versatile grouping of students and their learning and collaboration in different learning environments. Moreover, they are responsible for the continuous development of the use of information and communication technology (ICT) tools. The aim of grouping students and using learning environments is to support meaningful learning that is grounded in activity and intention, reflection and self-evaluation, collaboration and interaction, construction, contextualisation and cumulative learning. Throughout this grouping process, students are acknowledged as individuals with diverse needs.

In an optimal situation, a Finnish school has versatile networks and partnerships on five different levels. At the school level, this includes grade and subject teams. Moreover, each school should have a multi-professional team that attends to the well-being of all

pupils and, specifically, aims to solve the problems of pupils that have learning or behaviour difficulties through inclusion and through the help of special needs teachers and classroom assistants. Several schools work with other schools in order to support the ability of teachers in these thematic networks to share experiences and learn from each other. Networks and partnerships are supportive for the sharing of ideas and the generation and the adoption of new ideas.

Strategic (or goal) orientation, versatile collaboration and clear structures in administration are essential elements of leadership in Finnish schools. As a part of strategic orientation, the school principal is responsible for the preparation of the local curriculum and quality assurance. This type of leadership and professional culture supports collaboration among teachers. In summary, instructional leadership and transformational leadership are integrated into Finnish schools in a way that is similar to what Marks and Printy (2003) have described. However, in Finnish schools, instructional leadership does not entail heavy accountability, as it does in many other countries.

Evidence for the Effectiveness of the Decentralised Education System

As previously mentioned, equality and equity are leading values in Finnish education, and basic education has been developed as a common component for all students in every school. The completion rate in basic education is almost 100% (Statistic Finland, 2015), which indicates that basic education for all, including differentiation and integration of special needs students into a school, is successful. Children with special needs usually attend the nearest mainstream school. Support for learning and school attendance services are available in every school. Multi-professional pupil welfare services are also available for children and their families. These support services are based on Finnish law and the national core curriculum, but they are organised locally in municipalities and schools.

Pietarinen, Soini and Pyhältö (2016) and their research teams, have examined the 2014 curriculum renewal process. According to the first results of that study, the process has been successful (Pietarinen et al., 2016); the top-down-bottom-up strategy facilitated meaningful collective sense-making, which affected the coherence of the curriculum. However, the outcome of the collective sense-making process could best be elaborated upon in terms of its educational impact at the school level. Additional follow-up research is needed.

In the present study, the first interviewee emphasised the success of the top-down-bottom-up strategy. However, she voiced concerns about the possible threats related to stating that the strategy has been a success:

In spite of promising news from the research field and positive feedback from local level processes, it is important to remember that local implementation of the new curriculum is ongoing. The school work, along new local curricula, started this in August. The Finnish curriculum concept is wide; local curriculum can be seen as a handbook of an excellent school. The new curriculum contains many challenges for improvement for each school. This means that principals and teachers have to make plans and evaluate developments, as needed. They also have to stay interested in evaluating and developing their daily work, learning

environments, pupil support, etc., for many years. Implementing curriculum is a long-term process in which autonomous schools play an essential role. However, in my opinion, new evidence about the process is coming. The Finnish Education Evaluation Centre is going to evaluate the results of the curriculum reform and FNBE has started a self-evaluation process. Also, more academic research, national and international research, will be published.

The second interviewee described evidence of the effectiveness of the Finnish innovation in the following way:

There is little research-based evidence on the impact of the preparation of the local level curriculum on equality in education. However, there are several signs that the innovation has had an impact on several topics, which have an effect on equality, engagement and learning outcomes. Very few differences in the performance of low- and high-achieving students have been observed. There are better possibilities for students with different socio-economic levels to participate in hobby and sport club activities. Variation in the performance of schools is low. However, the planning of city structures and services has had an impact on these topics, too. The different minority groups have benefited from the efforts in different ways. The efforts have supported the special needs students. However, for example, it looks like gypsy students do not benefit from these efforts.

However, the Programme for International Student Assessment (PISA) results could be used as one source of evidence. According to these results, Finnish students have received high scores in reading, mathematics and scientific literacy (OECD, 2007, 2010). These high scores and the low performance variations in the results have been widely considered to be outcomes of the Finnish education policy and the implementation of that policy, especially decentralisation. The national level evaluation reports about learning outcomes are in line with the PISA results. According to the PISA results, a pupil's performance is less affected by his or her socio-economic background in Finland than in other Organisation for Economic Co-operation and Development (OECD) countries. This indicates that the Finnish education system is functioning well, and the differences in performance between the schools and regions in Finland are rather small.

The PISA results are even more interesting because, in Finland, the number of school days and the number of lesson hours are among the lowest in the OECD countries. Finland does not have a tradition of private tutoring or evening schools, as can be seen in several Asian countries; Finnish parents trust their schools and professional teachers and they do not pay for extra educational services (Sahlberg, 2011; Burris, 2012). In Finland, good learning outcomes are the result of the education of professional teachers. Teachers are able to address the diverse needs of individual students; they can emphasise the learning of broad competences because there is no heavy testing and teachers do not need to prepare the students to take standardised tests.

In addition to good results in learning outcomes, the self-efficacy and self-concept related to reading, mathematics and science are high among Finnish students (Väljjarvi et al., 2007). Students with high self-efficacy and a strong self-concept are confident of their abilities; they believe that investing in learning can make a difference in their lives

and can help them overcome difficulties. Thus, they have a strong sense of their own efficacy (Bandura, 1997). Studies of Bandura (1997) and Pajares (1996) have linked self-efficacy to general academic achievement. Belief in one's own abilities is highly relevant to successful learning (Marsh, 1986). Therefore, self-concept and self-efficacy are important outcomes of education and the implementation of an education policy. According to Lavonen and Laaksonen (2009), Finnish students' beliefs about self-efficacy and their self-concept related to science were the most powerful positive predictors of their performance in PISA 2006. Therefore, the Finnish science education culture has succeeded in supporting the development of students' science-related self-efficacy and self-concept. This result is very similar to what Välijärvi et al. (2007) concluded on the basis of the multilevel modelling procedure on mathematics and reading-related self-efficacy.

High self-efficacy and self-concept related to reading, mathematics and science are consequences of the Finnish national education policy. Teachers are the main actors in student assessment in comprehensive schools; therefore, they can plan how to support and build students' confidence in their abilities when they need to perform a particular task. Over the past 25 years, not ranking schools or pupils to avoid the feeling of punishment (cf. Bandura, 1986) has been a central component of the education assessment policy in Finland. This kind of long-term policy has been important for the development of a supportive atmosphere, which has contributed to the development of the students' self-efficacy. Finnish classrooms are heterogeneous; consequently, high-achieving students can be role models for low-achieving students (cf. Bandura 1997). Finnish classrooms are relatively small and heterogeneous; thus, they allow common goal-setting and verbal persuasion, which takes the form of feedback and encouragement given by teachers to students. This kind of teacher behaviour can increase the students' self-efficacy (Bandura, 1997).

The use of resources for education and the resulting learning outcomes are useful to compare at the international level. In general, it seems as if the students' PISA results depend on a nation's education expenditure, as described below. In this scenario, two OECD data sets were combined: the use of money in education in a country and the students' learning outcomes, as measured by the PISA test. The Finnish students' performance clearly exceeds expectations based on the fairly average level of expenditure in education in Finland, indicating that the effectiveness of an education system is not just tied to expenditures (Hautamäki et al., 2008). Finland differs from other countries, especially, based on the ways that equality and equity are implemented in the system.

The first person interviewed for this study analysed the evidence of the efficiency of the Finnish education system in the following way:

A two-dimensional curriculum system, the national core curriculum and the local curricula based on it, was established in the 1990s as part of the decentralisation policy. Since then, the national guidance system of education has been simplified and the number of national officials was reduced significantly. For instance, an inspection system was shut down in the 1990s. The Basic Education Act of 1998 stresses the importance of local decision-making and evaluation. The role of participatory national curriculum processes, once a decade, has strengthened as a strategic tool for keeping up and raising the quality of basic education. Compared to other

European countries, the Finnish education system is efficient. The results are fine; learning environments are up-to-date but the costs are below average in international comparison.

However, it is important to recognise that it is difficult to analyse and compare measures and outcomes among different education systems. The main reason for this concern is the difference between aims and how these aims are set in different contexts. It is also difficult to compare how the education is organised in practice and how teachers are trained (educated).

There are also challenges associated with developing and implementing a decentralised education system. According to the 2016 Finnish government budget proposal and the general government fiscal plan for 2016–2019⁶, the government will strengthen the sustainability of public finances through several structural reforms. This is in line with the 2016 Finnish National Reform Programme (NRP) priority actions/measures, and it is also in line with the *Country Report Finland (CSRs) 2016*. This means that fewer resources are needed to support the equal possibilities for learning are. The resources for special needs education and counselling have been and will be reduced. The resources for positive discrimination will also be reduced. The increase in the number of students in a classroom will increase, and this makes inclusion difficult. Each of these will make it difficult to implement local curriculum and local equality plans.

Digital learning is one area that the decentralised system has not adequately supported. Although several strategies and implementation efforts in digital learning have been addressed, the European Commission (2013) has pointed out the increasing gap between the current use of digital tools in learning in Finnish schools and the daily experiences that students have with digital tools outside of school. In general, there has been broad agreement about the reasons why digital tools should be integrated into classrooms and about the advantages of their use in teaching and learning. It is quite clear for teachers that the use of digital tools in education could support meaningful learning and student motivation. However, too many Finnish teachers do not rely on research-based evidence to identify good practices, nor do they see the usefulness of employing digital tools in a classroom.

Policymakers are not satisfied with the digital competences of teachers, students or employees. Therefore, Prime Minister Sipilä's new government programme⁷ analyses the education sector and job markets and states that they have been unable to reinvent themselves. The gap between the digital competences learned at school and the competences needed in an individual's day-to-day life and working life is too large. The government's programme introduces strategic aims, improvements and renewals in two areas related to education: knowledge and education and digitalisation. For 2016–2018, the Finnish government has allocated EUR 300 million for its Knowledge and Education programme and EUR 100 million for its Digitalisation programme. Ministers have been appointed to oversee each key project.

⁶ The budget proposal 2016 and the general government fiscal plan for 2016–2019, http://budjetti.vm.fi/indox/tae//2016/hallituksenEsitys_tae_2016.jsp

⁷ Finnish government programme: http://valtioneuvosto.fi/documents/10184/1427398/Ratkaisujen+Suomi_EN_YHDISTETTY_netiti.pdf/8d2e1a66-e24a-4073-8303-ee3127fbfcac

In this present study, both of the interviewees noted several challenges related to governance decentralisation in education. The first interviewee described the challenges in a following way:

“Large-scale reform means a lot of work. There was a lack of personnel resources at the national level. It is more challenging to plan a two-phase curriculum than just a national standard. There was also a lack of economic resources. Even though the curriculum renewal process has a remarkable role in the national education guidance system, it was not taken into account in the national budget. After long negotiations with the Ministry of Education, the situation got better. Still, the national process would not have succeeded without the help of individuals and other organisations. The members of groups preparing the national core curriculum were working on a voluntary basis; they were not paid for their work. Regional State Administrative offices and municipalities paid the travel costs of the specialists taking part in local seminars. Also, several associations, like the Finnish Parents League, supported the process in many ways. It seems that professionals in municipalities, schools and in universities and associations see the role and possibilities of the curriculum process as being more important than those in the leading role of educational politics.

The second interviewee described the preparation of local level curriculum in the following way:

From the point of view of equality, it has been difficult to find experts who understand the immigrants’ culture and language. In the implementation of the curriculum from the point of view of equality, the teachers’ union regulations make co-teaching or team teaching challenging.

Conclusions

Decentralisation is a core idea in Finnish education, and it is implemented in the Finnish education system in several important ways. Local providers of education (municipalities) and local teachers prepare the local curriculum. In doing so, they localise the aims and content of the curriculum and they describe how education is organised and how the students are assessed. Local providers of education collect tax moneys and decide how the resources are allocated to schools.

To summarise, in order for a decentralised education system, which aims to provide for equal opportunities for all learners, to be successful, three pre-conditions must be met: 1) common, national level, long-term strategic aims must be established and local level plans, such as a curriculum and an equity plan, must be prepared and implemented, 2) quality work, student assessment, continuous improvement of learning environments and practices must be implemented at the local level and 3) professional teachers must collaborate, engage in broad planning and assess their own teaching abilities and their students’ learning outcomes.

1. *Common strategic aims.* In Finland, there is a long tradition of preparing national level strategies and curriculum documents collaboratively in cyclic processes in order to

overcome challenges in education. For example, the national level framework curriculum (FNBE, 1994, 2004, 2014) has been constructed collaboratively with stakeholders and teachers in order to support its implementation. The new teacher education strategy is another example of this collaborative effort. As a part of the education-related key projects of the Finnish government⁸, the Ministry of Education established the Finnish Teacher Education Forum in February 2016⁹, which seeks to foster the renewal of teacher education. The aims of the Teacher Education Forum are to establish and implement Teacher Education Development Programme (TEDP) for teachers' pre- and in-service education (life-long professional development). It also aims to create the conditions for the renewal of Finnish teacher education through development projects. The TEDP seeks to describe the kind of teacher education and continuous professional development of teachers that is necessary to ensure that teachers are able to support students in the classroom to learn the competencies (knowledge, skill and attitude) needed to succeed today, tomorrow and in future.

2. *Quality work at the local level.* Although the Finnish education system does not have inspectors or heavy testing, the quality of education is important. As such, educators are always looking for good quality education or a quality culture, as it is called in Finland. Providers of education and schools apply a variety of methods to ensure that students receive quality in education. They collect feedback from parents and local stakeholders, and teachers participate in self-assessment activities. Teachers' self-evaluations and development discussions are essential elements of quality assurance. The development discussions that are supportive of self-evaluations are organised by school principals. Although quality work is decentralised, national level coordination is still needed. In the past, national level quality processes were coordinated by separate offices. These offices were combined, and the Finnish Education Evaluation Centre (FINEEC)¹⁰, the national level quality and general assessment office, was established in 2014. Since that time, separate assessment and quality assurance activities have been gathered under the FINEEC. The FINEEC is an independent government agency that is responsible for the national evaluation of education. The evaluation/assessment and quality assurance activities of the FINEEC cover the education system in its entirety, from early childhood education to higher education. The FINEEC consists of an Evaluation Council, a Higher Education Evaluation Committee and units for the evaluation of general education, vocational education and training (VET) and higher education. The FINEEC aims to implement evaluations related to education, education providers and higher education institutions (HEIs). In addition, from time to time, the FINEEC implements sample-based assessments of learning outcomes for basic education (e.g., Kärnä & Rautopuro, 2013). The information gathered by these sample-based assessments is mainly used for curriculum development and as a basis for educational policies. In addition to this type of national monitoring, quality assurance is organised through self-assessment at the school and municipality levels. For example, school principals organise development discussions with teachers in order to support their self-

⁸ Hallitusohjelma ja kärkihankkeet (Target programme related to Government programmes). http://www.minedu.fi/OPM/Linjaukset_ja_rahoytus/hallitusohjelman_toteuttaminen/?lang=fi

⁹ The author of this report is working with the Finnish Teacher Education Forum and the description here is based on the work done in that forum. http://valtioneuvosto.fi/documents/10184/1427398/Ratkaisujen+Suomi_EN_YHDISTETTY_netti.pdf/8d2e1a66-e24a-4073-8303-ee3127fbfcac

¹⁰The Finnish Education Evaluation Centre (FINEEC) <http://karvi.fi/en/>

assessment. Schools collect feedback from students and parents, and analyse it in teacher meetings in order to improve teaching and school operations. Self-assessments are discussed at the municipality level; consequently, there is interaction between these two levels. Quality assurance is seen as a part of an enhancement-led policy, which means that in Finland, quality is seen as a tool for improvement—not for punishment (Niemi & Lavonen, 2012).

3. Professional teachers who engage in collaboration, broad planning and assessment of their teaching abilities and their students' learning outcomes. The Finnish education context is challenging for teachers because they are required to perform a variety of duties, such as planning the local curriculum and organising assessments, engaging in networks at the school and city levels, partnering with families and participating in quality assurance processes. Thus, primary and secondary school teachers are educated in master's programmes at eight Finnish universities. In fact, Finland has a 45-year tradition of educating primary school teachers (grades 1–6) in five year master's-level programmes. For more than 100 years, secondary school teachers (grades 7–12) have been educated at this level. Primary school teachers typically teach all the subjects at a primary school, whereas secondary school teachers typically teach two subjects in lower and upper secondary schools (Jakku-Sihvonen & Niemi, 2006). According to national- and university-level strategies, teacher education should be based on scientific research and professional practices in the field. The programme of study should provide student teachers with the knowledge and skills they need to operate independently as academic professionals and to develop their fields. The Teacher Education Development Programme (2002) presents national-level aims that are similar to the description of teacher professionalism reported in the literature (Cruickshank & Haefele, 2001; Stronge & Hindman, 2003; Müller et al., 2010). An emphasis on research is an essential characteristic of the programmes that educate primary and secondary school teachers in Finland is (Jakku-Sihvonen & Niemi, 2006). Student teachers learn how to consume and produce educational knowledge within their pedagogical studies (Gitlin, Barlow, Burbank, Kauchak, & Stevens, 1999; Pendry & Husbands, 2000; Reis-Jorge, 2005). Student teachers consume educational research-based knowledge when they combine theory and experience or interpret situations during their teaching practice. Students acquire the capacity to produce educational knowledge that they learn during their research methodology courses and while conducting their educational research projects (bachelor's, pedagogical and master's dissertations) (Gore & Gitlin, 2004). The knowledge and skills that students acquire during their thesis projects support lifelong learning. Pedagogical studies are a core element of the educational programmes for both primary and secondary school teachers. During their pedagogical studies, students learn to combine educational theories, subject knowledge and their personal histories and to integrate subject matter knowledge, as well as knowledge about teaching and learning and school practice, into their own personal pedagogical view (Lavonen et al., 2007).

In this paper, the decentralised education system is interpreted through the lens of the Finnish education context. However, transferring an education innovation from one education system to another is challenging.

First, education systems are typically broad and complex. At the very least, students with diverse abilities, professional teachers and schools are part of each education system. In this context, a school is understood as an environment that has a certain type of leadership, social and physical environments, networks etc. Moreover, each

education system also includes parents as well as collaboration with parents. Cultural and education policy factors are also part of an education system. These factors include the state level education context; one must determine if a country's education system has an accountability policy, if it trust teachers and if it relies on heavy inspection and testing. For example, parents could hold very conservative views about educational topics. If they believe that testing and inspection are important in education, it is difficult to change those traditions. In this paper, the first interviewee voiced a similar opinion by stating: 'The practice could be adopted and modified to other countries as well. A system requires well educated teachers and school leaders'.

Second, transferring an education system from one entity to another is also complex. Interesting perspectives on the discussion about this concept can be constructed by looking at the origins of the word 'transfer'. In Latin, '*trans*' means over, or across the border, and '*ferre*' means to carry. The notion of carrying (typically knowledge and skills) refers to something that is done actively by purposefully employing communication. Thus, '*trans*' suggests that, during the process of carrying, a border is crossed. Accordingly, a transfer can be viewed as an active process during which knowledge and skills are carried across the border of two entities. These entities—the designer of an innovation and the adopter of the innovation—could be countries, organisations, universities, companies, schools or individuals. In order to understand all the challenges related to transferring an education system, the role of communication/communication channels in the adoption of innovation should be analysed carefully. Indeed, effective communication is needed at all levels.

Although, it challenging to transfer a system in one country to another country, if one takes a broad view of an education system it is possible to learn from other systems and transfer some of the ideas that could be useful. This process requires discussion and collaboration among the stakeholders. The second interviewee whose views are mentioned in this paper was more optimistic about the situation described above. He stated:

Only the legislation in a country could make the implementation of Finnish innovation difficult in other countries. In Finland, the most difficult challenges have been the attitudes of teachers and local stakeholders; it is difficult to change one's own way of thinking and behaviour.

Acknowledgement: This material is based upon work supported by the Finnish Academy (no. 298323 and 294228)

Presentación del artículo: 4 de marzo de 2016

Fecha de aprobación: 26 de abril de 2016

Fecha de publicación: 30 de enero de 2017

Lavonen, J. (2017). Governance decentralisation in education: Finnish innovation in education. *RED. Revista de Educación a Distancia*, 53. Consultado el (dd/mm/aaaa) en <http://www.um.es/ead/red/53>

References

- Aho, E., Pitkänen, K., & Sahlberg, P. (2006). Policy development and reform principles of basic and secondary education in Finland since 1968. In *Education, Working Paper Series Number 2: The World Bank*.
- Atjonen, P. (1993). Kunnan opetussuunnitelman koulun hallinnollisen ja pedagogisen kehittämisen kohteena ja välineenä [Local level curriculum as a target and tool for the development of school administration (management and leadership)]. *Acta Universitatis Ouluensis, series E*. Oulun yliopisto, Kasvatustieteiden tiedekunta.
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: W.H. Freeman and
- Burris, J. E. (2012). It's the teachers. *Science*, 335 (6065), 146.
- Cruickshank, D. R., & Haefele, D. (2001). Good teachers, plural. *Educational Leadership*, 58(5), 26–30.
- European Commission. (2013) *Survey of schools: ICT in education benchmarking access, use and attitudes to technology in Europe's schools*. European Commission - IP/13/341 19/04/2013
- Eurostat (2016). Europe 2020 education indicators in 2015. European Commission. Retrieved from: <http://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do>
- FNBE (1994). *Framework curriculum for the comprehensive school (in Finland)*. Helsinki: State Printing Press and National Board of Education.
- FNBE (2004). *National Core Curriculum for Basic Education 2004*. Helsinki: Finnish National Board of Education.
- FNBE (2014). *The National Core Curriculum for Basic Education*. Helsinki: Finnish National Board of Education.
- Gitlin, A., Barlow, L., Burbank, M., Kauchak, D., & Stevens, T. (1999). Pre-service teachers' thinking on research: Implications for inquiry oriented teacher education. *Teaching and Teacher Education* 15, 753–769.
- Goe, L., Bell, C., & Little, O. (2008). *Approaches to evaluating teacher effectiveness: A research synthesis*. Washington, DC: National Comprehensive Center for Teacher Quality.
- Gore, J., & Gitlin, A. (2004). [Re]visioning the academic-teacher divide: Power and knowledge in the educational community. *Teachers and Teaching: Theory and practice*, 10(1), 35–58.
- Government Programme of Finland (2015). Key Projects. Retrieved from: <http://valtioneuvosto.fi/en/implementation-of-the-government-programme>

- Hautamäki, J., Harjunen, E., Hautamäki, A., Karjalainen, T., Kupiainen, S., Lavonen, J., Pehkonen, E., Rantanen, P. & Scheinin, P. (2008). *PISA 2006: Analysis, reflections, explanations*. Helsinki: Ministry of Education. 2008:44.
- Holappa, A-S. (2007). Perusopetuksen opetussuunnitelma 2000-luvulla – uudistus paikallisina prosesseina kahdessa kaupungissa. *Acta Universitatis Ouluensis, series E 94*. Oulun yliopisto, Kasvatustieteiden tiedekunta.
- Jahnukainen, M. (2011). Different strategies, different outcomes? The history and trends of the inclusive and special education in Alberta (Canada) and in Finland. *Scandinavian Journal of Educational Research, 55*(5), 489-502.
- Jakku-Sihvonen, R., & Niemi, H. (Eds.). (2006). *Research-based teacher education in Finland – Reflections by Finnish teacher educators*. Research in Educational Sciences 25. Turku: Finnish Educational Research Association.
- Jauhiainen, P. (1995). Opetussuunnitelmatyö koulussa. Muuttuuko yläasteen opettajan työ ja ammatinkuva? [Preparation of a local curriculum. How do teacher profession and identity change?]. *Tutkimuksia 154. Helsingin yliopiston opettajankoulutuslaitos*.
- Korhonen, T., & Lavonen, J. (2016). A new wave of learning in Finland – Get started with innovation! In *educating for twenty-first century global capacities: International perspectives and practices*. Springer.
- Korhonen, T., Lavonen, J., Kukkonen, M., Sormunen, K., & Juuti, K. (2014). The innovative school as an environment for the design of educational innovations. In H. Niemi, J. Multisilta, L. Lipponen, & M. Vivitsou, *Finnish innovations and technologies in schools: Towards new ecosystems of learning* (pp. 99–114). Rotterdam: Sense Publishers.
- Kärnä, P. & Rautopuro, J. (2013). Mitä on oppimistulosten taustalla [In Finnish] In A. Räsänen (Ed.), *Oppimisen arvioinnin monet käytännöt. Raportit ja selvitykset 3/2013*. pp. 87–211. Helsinki, Finland: National Board of Education.
- Krzywacki, H., Koistinen, L., & Lavonen, J. (2012). *Assessment in Finnish mathematics education: Various ways, various needs*. Paper presented in 12th International Congress on Mathematical Education, 8 July–15 July, 2012, COEX, Seoul, Korea.
- Krzywacki, H., Lavonen, J. M. J., & Juuti, K. (2013). There are no effective teachers in Finland— Only effective systems and professional teachers. In O-S. Tan, & W-C. Liu (Eds.), *Teacher effectiveness*. Singapore: Centage Learning.
- Kukkonen, M., & Lavonen, J. (2014). Crossing classroom boundaries through the use of collaboration-supporting ict: a case study on school -kindergarten - library - senior home partnership. In H. Niemi, J. Multisilta & E. Löfström (Eds.), *Crossing boundaries for learning – through technology and human efforts* (pp. 67-90). Helsinki: CICERO Learning Network, University of Helsinki.
- Laukkanen, R. (2008). Finnish strategy for high-level education for all. In N. Soguel & P. Jaccard (Eds.), *Governance and performance of education systems* (pp. 305–324). The Netherlands: Springer.

- Lavonen, J. (2007). National science education standards and assessment in Finland. In D. Waddington, P. Nentwig & S. Schaze (Eds.), *Making it comparable* (pp. 101–126). Berlin: Waxmann.
- Lavonen, J. (2008). Finland in PISA 2006 Scientific Literacy Assessment. In J. Hautamäki, E. Harjunen, A. Hautamäki, T. Karjalainen, S. Kupiainen, J. Lavonen, E. Pehkonen, P. Rantanen & P. Scheinin (Eds.), *PISA 2006: Analysis, reflections, explanations*, pp. 65–113. Helsinki: Ministry of Education Publications 2008:44. Retrieved from http://www.minedu.fi/OPM/Julkaisut/2008/PISA06._Analyses_Reflections_and_Explanations?lang=en
- Lavonen, J. (2016). Educating professional teachers through the master's level teacher education programme in Finland. *Bordón* 68(2), 51–68.
- Lavonen, J., Krzywacki-Vainio, H., Aksela, M., Krokfors, L., Oikkonen, J., & Saarikko, H. (2007). Pre-service teacher education in chemistry, mathematics and physics. In E. Pehkonen, M. Ahtee, & J. Lavonen (Eds.), *How Finns learn mathematics and science* (pp. 49–67). Rotterdam, Netherlands: Sense Publishers.
- Lavonen, J., & Laaksonen, S. (2009). Context of teaching and learning school science in Finland: Reflections on PISA 2006 results. *Journal of Research in Science Teaching*, 46(8), 922–944.
- Marks, H. M., & Printy, S. M. (2003). Principal leadership and school performance: An integration of transformational and instructional leadership. *Educational Administration Quarterly*, 39(3), 370-397.
- Marsh, H.W. (1986). Verbal and math self-concepts: An internal/external frame of reference model. *American Educational Research Journal*, 23 (1), 129–149.
- Müller, J., Norrie, C., Hernández, F., & Goodson, I. (2010). Restructuring teachers' work-lives and knowledge in England and Spain. *Compare*, 40(3), 265–277.
- NCCBE (2004). *National Core Curriculum for Basic Education 2004*. Helsinki: National Board of Education. Retrieved from: <http://www.oph.fi:80/english/page.asp?path=447,27598,37840,72101,72106>
- NCCBE (2010). *National Core Curriculum for Pre-primary Education 2010*. Helsinki: National Board of Education. Retrieved from: http://www.oph.fi/download/153504_national_core_curriculum_for_pre-primary_education_2010.pdf
- NCCBE (2014). *National Core Curriculum for Basic Education 2014*. Helsinki: National Board of Education.
- NCCBE (2015). *The National Core Curriculum for Upper Secondary Education*. Helsinki: National Board of Education. Retrieved from: http://www.oph.fi/download/172121_lukion_opetussuunnitelman_perusteet_2015.docx
- Niemi, H. & Lavonen, J. (2012). Evaluation for improvements in Finnish teacher education. In J. Harford, B. Hudson & H. Niemi (Eds.). *Quality assurance and teacher education: International challenges and expectations*. Oxford: Peter Lang

- Niemi, H. Toom, A., & Kallioniemi, A. (2012). *Miracle of Education: The principles and practices of teaching and learning in Finnish schools*. Rotterdam: Sense Publishers.
- OECD (2007). *PISA 2006: Science competencies for tomorrow's world, Volume 1: Analysis*. Paris: OECD.
- OECD (2010). *PISA 2009: Volume 2: Data*. Paris: OECD.
- OECD (2014a), *PISA 2012 results: What students know and can do – Student performance in mathematics, reading and science (Volume I, Revised edition, February 2014)*, PISA, OECD Publishing. Retrieved from: <http://dx.doi.org/10.1787/9789264201118-en>
- OECD (2014b), *Talis 2013 results: An international perspective on teaching and learning*, PISA, OECD Publishing. Retrieved from: <http://dx.doi.org/10.1787/9789264196261-en>
- Ouakrim-Soivio, N., Rinkinen, A., & Karjalainen, T. (toim.) (2015). Tulevaisuuden peruskoulu. Opetus- ja kulttuuriministeriön julkaisu 8:2015. Retrieved from: <http://www.minedu.fi/export/sites/default/OPM/Julkaisut/2015/liitteet/okm8.pdf?lang=fi>
- Pajares, F. (1996). Self-efficacy beliefs in academic settings. *Review of Educational Research*, 66(4), 543–578.
- Pendry, A., & Husbands, C. (2000). Research and practice in history teacher education. *Cambridge Journal of Education*, 30(3), 321–334.
- Pietarinen, J, Soini, T, & Pyhältö, T. (2016). Large scale curriculum reform in Finland – Exploring the interrelation between implementation strategy, the function of the reform, and curriculum coherence. (unpublished manuscript)
- Press release (2014). Kiuru: Broad-based project to develop future primary and secondary education. Ministry of Education. Retrieved from: <http://www.minedu.fi/OPM/Tiedotteet/2014/02/perusopetus.html?lang=en>
- Reis-Jorge, J. M. (2005). Developing teachers' knowledge and skills as researchers: A conceptual framework. *Asia-Pacific Journal of Teacher Education*, 33(3), 303–319.
- Rodgers, C. (2002). Defining reflection: Another look at John Dewey and reflective thinking. *Teachers College Record* 104(4), 842–856.
- Sahlberg, P. (2011). *Finnish lessons*. New York: Teachers College Press.
- Simola, H. (2005). The Finnish miracle of PISA: Historical and sociological remarks on teaching and teacher education. *Comparative Education*, 41(4), 455–470.
- Sormunen, K., Lavonen, J., & Juuti, K. (2014). Crossing classroom boundaries in science teaching and learning through the use of smartphones. In H. Niemi, J. Multisilta, & E. Löfström (Eds.), *Crossing boundaries for learning – through technology and human efforts* (pp. 91-111). Helsinki: CICERO Learning Network, University of Helsinki.
- Statistics Finland (2016). http://www.stat.fi/index_en.html

- Stronge, J. H., & Hindman, J. (2003). Hiring the best teachers, *Educational Leadership*, 60(8), 48–52.
- Taajamo, M., Puhakka, E., & Välijärvi, J. (2014). *Opetuksen ja oppimisen kansainvälinen tutkimus TALIS 2013. Yläkoulun ensituloksia*. Opetus- ja kulttuuriministeriön julkaisuja 2014, 15.
- Teacher Education Development Programme. (2002). Helsinki: Ministry of Education, Department for Education and Research Policy.
- Vahtivuori-Hänninen, S. H., Halinen, I., Niemi, H., Lavonen, J. M. J., Lipponen, L., & Multisilta, J. (2014). A new Finnish national core curriculum for basic education (2014) and technology as an integrated tool for learning. In Niemi, H., Multisilta, J., Lipponen, L. & Vivitsou, M. (Eds.), *Finnish innovations and technologies in schools: A guide towards new ecosystems of learning* (pp. 33-44). Rotterdam: Sense Publishers.
- Välijärvi, J. (2016). *Tasa-arvon toteutuminen suomalaisessa peruskoulussa*. Jyväskylän yliopisto, Koulutuksen tutkimuslaitos. Retrieved from: http://omalinja.fi/wp-content/uploads/2016/03/Oma-linja_Tasa-arvo-suomalaisessa-peruskoulussa.pdf
- Välijärvi, J., Kupari, P., Linnakylä, P., Reinikainen, P., Sulkunen, S., Törnroos, J. & Arffman, I. (2007). *The Finnish success in PISA – and some reasons behind it*. Jyväskylä: Institute for Educational Research.