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Reform of the Finnish Education System

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Abstract: The purpose of this article is to present the main phases of Finland´s Education System reform since early 1970´s until today. Finland has become known as a small Nordic country with one of the world's best education systems. Awareness is based in particular on the high-level Pisa (Programme for International Student Assessment) -results. The large and far-reaching reform in education has begun in Finland already in the 1970's including reforms of all levels of education. The main stages of reform are: 1. Implementation of the comprehensive school system in the 1970's, 2. Reform of secondary level education in the 1980s, 3. Reform of government´s education administration - from centralization to decentralization in the late 1980s, 4. Reform of higher education since 1991, 5. Reform of children day-care and kinder garden system to pre-school system in 2013 and transfer it under the auspices of Ministry of Education and Culture. Side this, the development of continuing education in adult education and 6. Reform of second level vocational education in 2018. Common features are highlighting equality and accessibility of education, high level teacher education and all education paths without leading to higher education. The government´s purpose in Finland is the highest success in Pisa. The competence assessment in Pisa 2018 is designed to elicit students' capacities to critically examine global issues. The higher education system is seen as an essential element of Finland's national and regional innovation systems, and there is a link between higher education and economic policies. The higher education reform has been one part to carry out Finland´s purpose to be the most competitive country in the whole world in 2020. The Ministry of Education and Culture has confirmed in 2017 the new Vision 2030 for higher education.

Keywords: Finnish education system, Basic education in Finland, Second level education in Finland, Higher education in Finland

1. Introduction

During the last few decades, the level of education among the Finnish population has increased rapidly. In the European Union's growth strategy (EU 2020, www.ec.euroa.eu), Finland commits itself to developing key sectors of its society and economy in order to strengthen Finnish and European competitiveness, improve welfare and safeguard a sustainable public economy. Education and science policy plays a key role in the strategy. In its draft national programme, Finland commits itself to raising young people's level of education and reducing the proportion of early school-leavers. All parts of reforms have been very successful. The higher education reform, which included the expansion of technology and engineering education, had the very big impact on Finland´s economic success since 1980´s.

After the first step of the reform, implementation of the comprehensive school system in the 1970's, Finland´s education system in 2018 is described in the following Figure 1. The phases of the reform process are presented in the following sections.

2.Reforms

2.1 Implementation of the comprehensive school system in the 1970's

The 1960s saw the beginning of the greatest education reform in the history of Finland: the comprehensive school. The argued reason for the success of this reform was the sustainable political

and educational leadership of the 1960s which enabled schools and teachers to concentrate on the development of teaching and learning (Aho, Pitkänen & Sahlberg 2006; cf. Hargreaves & Fink 2006).

Up until the 1970s, compulsory education was provided in the four-year primary school followed by a three-year civic school. After four years of primary school, part of each age group moved up to secondary school (grammar school), which was divided into a five-year lower secondary school and a three-year upper secondary school (Figure 2). Thus the school system operated on the principle of parallel schools and divided people into three unequal groups. This system was considered inadequate for an industrialising and democratising society from both the social and pedagogical perspective.

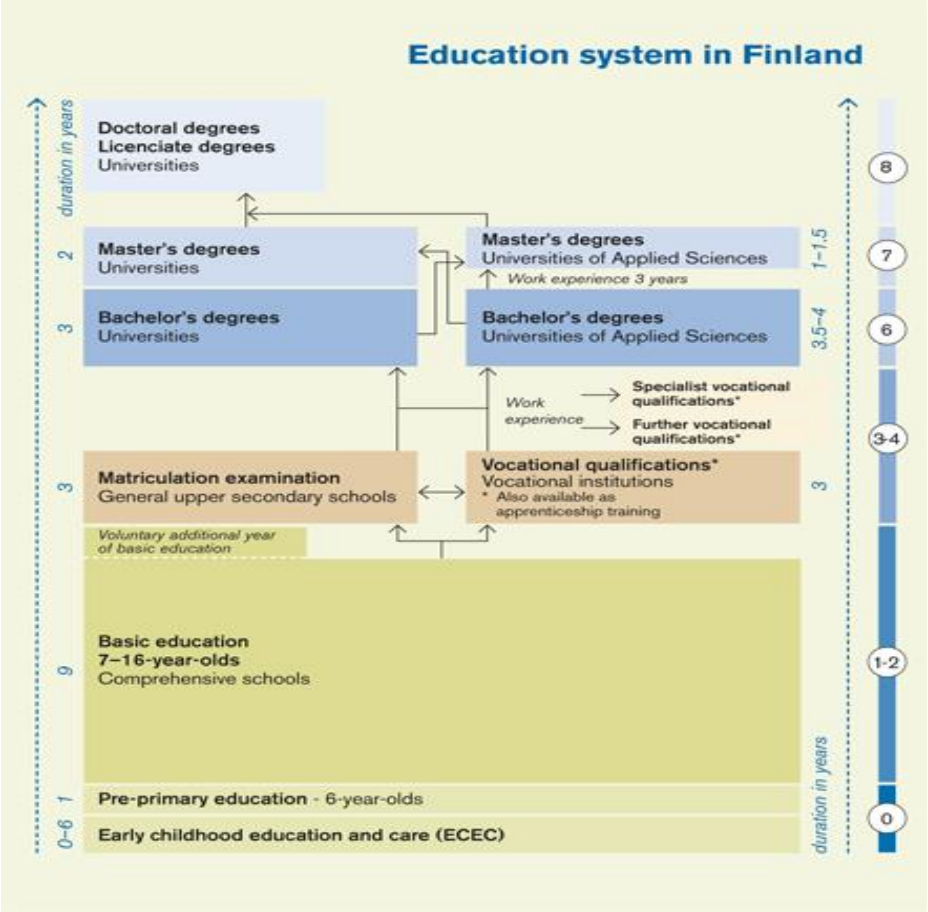

Figure 1. Education system in Finland in 2018. (www.minedu.fi)

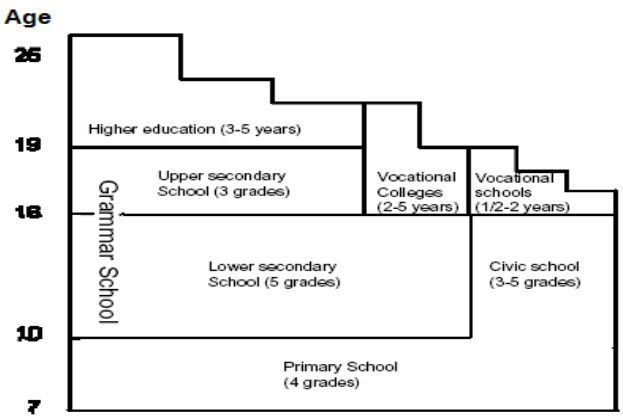

Figure 2. Finnish education system before the 1970s. (Aho, Pitkänen & Sahlberg 2006, 29)

The goal of the reform was a new, integrated comprehensive education system. The first principal initiative was accepted by the Parliament in 1963. In 1966, a majority Government, the

coalition incorporated the comprehensive school reform in its political agenda. The 1968 School System Act was approved after careful preparation in state committees, negotiations with the teachers' trade organisations and other labour organisations, and experimentation by regional and local governments. The primary school and the middle school (lower secondary school) were integrated to form a unified comprehensive school (Figure 2), and the upper secondary school (grammar school) was separated into a school of its own.

Basic Education Act, its Objectives of education in the law: "The purpose of education referred to in this Act is to support pupils' growth into humanity and into ethically responsible membership of society and to provide them with knowledge and skills needed in life. Furthermore, the aim of pre-primary education, as part of early childhood education, is to improve children's capacity for learning. Education shall promote civilization and equality in society and pupils' prerequisites for participating in education and otherwise developing themselves during their lives. The aim of education shall further be to secure adequate equity in education throughout the country." (Basic Education Act 628/1998: Amendments up to 1136/2010)

This reform and its implementation was a success because it was realized by experiments step-by-step from North Finland to South Finland after getting experience in setting it in to smaller rural area schools. After abolishing streaming in comprehensive school in the mid-1980s and, therefore making learning expectations similar for all students, the achievement gap between low and high achievers began to decrease. Practically this meant that all pupils, regardless of their abilities or interests, studied mathematics, sciences and foreign languages in same classes. Earlier all these subjects had three levels of curricula that pupils were streamed based on their performance in these subjects. First evidence of more equitable learning outcomes came from the OECD's Programme for International Student Achievement (PISA) survey in 2000. In that study Finland had one of the smallest performance variations between schools, less than one tenth of that variation in Japan, in reading literacy between schools of all OECD nations. A similar trend continued in the 2003 PISA cycle in mathematics and was even strengthened in the PISA survey in 2006 (OECD, 2001; 2004; 2007a, 2007b, 2008)).

2.2 Reform of secondary level education in the 1980´s

After the comprehensive school system created in the 1970's Government confirmed the Upper secondary education reform, which includes general upper secondary education and upper secondary vocational education and training (Figure 1). General upper secondary education is non-vocational education preparing for the matriculation examination. The main objective of upper secondary vocational education and training, in turn, is to provide vocational competence. The reform of the secondary vocational education included the reorganization of the structure to more broad-based educational programmes and the national reform of all vocational education curriculums. Also the educational path from the vocational schools to higher education was opened. In 2009, approximately 90% of comprehensive school leavers moved on to general or vocational upper secondary studies immediately after basic education. In 2009, 79.5% of the 25–64 age groups had attained at least upper secondary education (Ministry of Education and Culture).

The general upper secondary school had a traditional organization until 1985 when the new Act on General Upper Secondary Education abolished the old system and introduced a modular curriculum structure. This change enabled schools to rearrange time scheduling of teaching. Two annual semesters were replaced by five or six periods. This, in turn, changed local curriculum planning because schools had more flexibility to allocate lessons into different periods (Valijarvi, 2004).

The next phase of development was to replace age cohort-based grouping of students with a non-graded organizational system. The non-graded general upper secondary school brought more choice to students in planning their own studies – both regarding the content and time sequencing. The new curriculum framework placed a stronger emphasis on understanding students' cognitive development and also invited schools to make the best use of their own and their community's strengths. Although students have more freedom in terms of their studies, all students are obliged to study 18 compulsory subjects within minimum of 75 compulsory courses that are required in general upper secondary education diploma.

The national objectives of vocational education and training (VET), the qualifications framework and the core subjects are decided by the Government, while the Ministry of Education

and Culture decides on the specific details and scopes of qualifications. The Finnish National Board of Education is responsible for preparing of the National Core Curricula for Upper Secondary Vocational Education and Training and the Requirements of Qualifications, which set the objectives and core contents of studies. In 2011, there were about 140 providers of upper secondary VET in Finland. In 2017, Finland´s government confirmed the new act for secondary level education based on the reform. Further reference can be found in (Act 93/2017: Act for Secondary Level Education, www.finlex.fi)

2.3 Reform of government´s education administration - from centralization to decentralization in the late 1980´s

The new law 1987 of vocational education increased the jurisdiction of the providers of vocational education to regulate the supply of education. The purpose was to follow better the educational needs of the local business life. Before that the supply had been regulated nationally by the National Board of Vocational Education. Also many other administrative decisions concerning among other things the staff administration were delegated from the national board to the local providers. (Rauhala, 2018)

2.4 Reform of higher education since 1991

The higher education system is seen as an essential element of Finland's national and regional innovation system, and there is a link between higher education and economic policies. These policies have been strengthened by several national policy initiatives and reforms within both the university and universities of applied sciences sectors. The Finnish government is committed to a binary (dual) system built around discrete degrees, degree titles and functions under the auspices of the Ministry of Education and Culture (Figure 1). It has stated its intention to clarify the division of responsibilities between universities and universities of applied sciences. The binary system in Finland has strong political support.

Currently, there are 16 universities and 25 universities of applied sciences in Finland. Constitutionally, Finland is a bilingual nation and two universities and two universities of applied sciences teach predominantly in the Swedish language. In 2016, universities and universities of applied sciences had about 229 000 FTE (Full time equivalency) students and 46 000 enrolled students respectively. Universities of applied sciences have a stronger emphasis on vocational and practical competences than universities but no scientific basic and further research. They are actively seeking to apply existing knowledge and make so-called applied research or order research mainly for business and business needs. (www.minedu.fi)

In the reform both universities and universities of applied sciences got autonomy. All higher education organizations should have own strategy, negotiations and agreements with the Ministry of Education and Culture and they are independent employers. All higher education organization have total responsibility of own economy. The funding systems at universities and universities of applied sciences are quite similar. Finnish students and students from EU-counties and from ETA-area do not pay tuition fees.

2.4.1 University

Parliament passed a new university law in 2009. The law came into force at the beginning of 2010. With the law, universities were disbanded from the state organization and universities were given economic and administrative autonomy. In connection with the change of law, universities were also given an independent employer status. In a way this was coming back to former decades. Before the 1970´s there were also private universities in the side with state universities. After 1973 all universities were nationalized under the Ministry of Education and Culture.

When adopting a new university law, Parliament required that the government monitor the implementation of the university reform and its impact, and report it to the education committee during the spring season of 2012. According to the mandate defined by the Ministry, the main issue of the evaluation was to examine the impact of the new legislation on transitions in universities.

According to the assignment, these effects were primarily considered within the university community within strategic management and personnel policy areas. Regarding the politicians and officials involved in the preparation of the law, as well as the representatives of the most influential stakeholders, the approaches to the necessity and necessity of change seemed to be more justified. Accountability, the appropriateness of the international competitiveness of the Finnish university institute, research and education, particularly in the business sector and its renewal, and the balance of public finances could have been regarded as a necessity for the reform.

The Government´s funding is based on the results of research and education. Universities have the possibility to receive private funding. The can also get project funding from European Union. (Act for Universities: 558/2009, www.finlex.fi)

2.4.2 University of Applied Sciences

Universities of applied sciences (UAS) were established by several experiments in the same time in 1991. They are quite new comers to education market in Finland. Every UAS began as experimental institution, based largely on the amalgamation of a vast number of small trades and vocational colleges.

They are a particularly Finnish means of responding to rapid changes in professional working life. Their activities emphasize active and effective links with business, entrepreneurship and regional development. In the experiments several colleges and institutes were collected regionally together in order to establish a regional higher education experiment. The main education fields were engineering, business and social and health-care. The length of former degrees varied and was mostly shorter than the degrees in this new experiment. The experiments were evaluated by the Ministry of Education and Culture very carefully. After accepted evaluation they received step by step the permanent status.

In university of applied sciences the Bachelor's Degree is a pragmatic and professional-oriented university degree that prepares various expert, design, development and supervisory missions. UAS degrees have been enrolled in the law as university degrees and give qualifications to apply for municipal and state posts as well as public assignments for which a higher education degree has been awarded as a qualification. The UAS degree is equivalent to a lower university degree, although it is not otherwise included as a university degree.

In 2005 Universities of applied sciences started to offer postgraduate degrees. However, this degree is not in all respects directly comparable concerning the content to a university higher education. The development of the postgraduate Bachelor's degree started in 2002 in three fields of education.

Finnish universities of applied sciences have been tightly controlled via legislation. In effect, many organisational aspects of universities of applied sciences have been guaranteed by legislation. The reform will change this by making the system more flexible and setting the scene for the development of an “entrepreneurial culture”. Although it seems likely that only some of the reform will have an immediate direct effect on the universities of applied sciences, it is essential that flexibility be built into the Finnish higher education sector. Finnish universities of applied sciences offer both Bachelor and Master degrees (no Ph.D. degrees).

The Elements of the Reform at universities of Applied Sciences included the following aspects:

a) Government cut admission in the fields of engineering, tourism, agriculture and culture (together by 2,030 in 2012 and added admission in the field of social and health care (+242). Before the cut, the annual admission in Finland was 24,607, after decision the annual admission has dropped to 22,577. The reasons for the changes were: Smaller generations, reduce demand for labor in engineering, tourism and culture and demographic changes; higher need for labor in the health care sector.

b) The agreement with the Ministry of Education and Culture Every university of applied sciences had to sign an agreement with the Ministry of Education and Culture concerning 4-years periods, at present the years 2017-2020. The contents of the agreement are: the strategies for the UAS, its core competences, its fields of education, and the total number of students.

c) Mergers and cooperation
In Finland there are now 25 universities of applied sciences. The size varies between 1,200 and 16,000 students. The government push smaller universities of applied sciences to merge together, or at least to have a very deep strategic cooperation especially locally. The purpose is to guarantee quality and cost effectiveness, and to offer students more possibilities for studies.
d) The current licence for managing a university of applied sciences
Finnish universities of applied sciences are meant to have a close working relationship with the "working life" and part of their mission is to foster regional development. Core funding comes from the government. The board members must represent comprehensive expertise in social life and the tasks of UAS´s. In the board must be members who have practical experience in business life. Also the staff and students must be represented. In fact, many members are politicians.
e) Funding
Funding resembles that of the universities. It is coming on the basis of educational and research achievements: degrees, study credits, publications, outside research funding etc. (Act for Professional Universities: 351/2003; 932/2014; 563/2016. www.finlex.fi)

2.4.3 Conclusion of higher education reform

The reform of higher education has led the increased autonomy for higher education organizations. It has afforded legal status in own right, and has increased financial freedom. Governance and authority relationships have changed, both between higher education organizations and the government. From the legal perspective, the major change that came with the passing of the new act, is that universities of applied sciences became independent registered Finnish limited companies.

There are few other sources of funding beyond those that can be derived from government, students and donors. Funding from domestic corporations, the European Union and other foreign sources are some other funding sources, but much of this also comes from government departments. The purpose of order education (= to sell degrees outside EU/ETA) does work at present quite profitably. That purpose has been a party political solution in government.

2. Reform of children day-care and kindergarten system to pre-school system and adult education in 2013

In 2013 government confirmed the first steps for childhood education and also the reform of adult education.

3.1 Early childhood education and care (ECEC)
Finnish children attend early childhood education and care clearly less than children in other EU member states and the Nordic countries. The first step of reform of children day-care and kinder garden system to pre-school system starting in 2013 was carried out by Ministry of Education and Culture and side this was also the development of continuing education in adult education transferred.

The National Core Curriculum for Pre-primary Education (2014) has been implemented from 2016. Early childhood education and care, pre-primary and basic education form an integrated whole progressing consistently following the child's development. Changes in the working time of kindergarten teachers, and special needs kindergarten teachers and directors of early childhood education and care centers were implemented.

At national level early childhood education and care (ECEC) is the responsibility of the Ministry of Education and Culture. A revised Act on Early Childhood Education and Care was adopted in spring 2015. Based on the new legislation, the Finnish National Board of Education became the national expert agency for ECEC in August 2015.

In 2018 the Government will launch a broad experimentation on free early childhood education for five-year-olds in co-operation with municipalities which are interested in the experiment. The Government will grant for the experiment between 2018 and 2019. One of the aims is to improve the family's financial situation and to enable more children to participate in early childhood education. Increasing participation is aimed at improving the quality and accessibility of early childhood education. In addition, the change aims at increasing the incentives for work.

The second step of the reform happened in 2018, when the government proposal for the new Early Childhood Education (ECEC) Act was submitted to the Parliament and is planned to be implemented at the beginning of August 2018. The new legislation would include the following key changes. Nearly all 6-year-olds were, however, enrolled already when pre-primary education was voluntary. (www.minedu.fi; Act for Early Childhood Education: 2018, www.finlex.fi)

3.2 Adult education

Finland has a long history of participation and promotion of adult education. Adult education is also very popular and the participation rate is high in international terms. The main objectives of adult education policy are ensuring the availability and competence of the labor force, providing educational opportunities for the entire adult population and strengthening social cohesion and equity. The objectives should support efforts to extend working life, raise the employment rate, improve productivity, implement the conditions for lifelong learning and enhance multiculturalism.

In the 1970´s the network of adult education centers was founded in order to offer vocational courses for unemployed. Today adult education also for people in working life is an essential part of the education both in higher education and vocational schools. The adult education is supported economically by the state and labor market organizations. In 2018 ministry of education finances new short higher education programmes with are aimed to help the transfer to new work tasks in working life.

Ministry of Education and Culture has prepared a law proposal, which makes easier to use modules of degree programmes as continuing education for actual needs in business life. This is a part of fulfilling the Higher Education vision for 2030 (Conclusion).

3. Reform of second level vocational education from 2018

Finland´s Parliament approved in 2018 the new legislation on vocational education and training. The accepted reform of vocational education and training is the biggest reform of education legislation for almost twenty years. The structures of education in Finland have been slowly renewed, although working life has revolutionized our environment. The reform of vocational education will bring vocational skills to the new decade and will show the direction for reform of entire education system.

Reform has been made in a challenging economic environment but has received extensive support from training professionals. The reform is significant for students, training providers, and business and industry. The biggest change in the reformed vocational training is turning the mindset from system focus to the competence base. In the future, the most important task of vocational education is to produce individual professional skills according to the needs of students and working life. In the future, individual skill-needs can be flexibly answered through qualifications, their components, non-degree education and advanced training. Guided and targeted learning can be implemented flexibly in both learning environments, workplaces and digital learning environments.

The reform will increase opportunities to study at workplaces by introducing a new training contract model. The reform will also increase the attractiveness of existing apprenticeship training. Skills acquired through training and apprenticeship is demonstrated by showing it in practical work situations. Competence assessment is carried out by teachers and working life experts together. Training can be accessed and accessed when needed. Adding work-based learning approaches is a way to respond to the transition to working life. The difference between a new training contract and apprentice training is that student in training contract is not a worker and not paid, but under the suspicion of the school.

Vocational education reform prevents exclusion when personalization makes the studies more smoothly and the instructors have a clear incentive to care for the students. There are more tools now. The aim is for each young person to complete at least a secondary school degree. During the course of parliamentary proceedings, the most important issues included the design and implementation of individual study paths, the securing of the teaching and guidance required by the student, the conditions for studying at work and the predictability and incentive of the funding model. The new law came into force on 1th January 2018. The Ministry of Education and Culture

will support and monitor the implementation of the reform. In particular, it is necessary to monitor the impact of the reform on the regional and linguistic accessibility of education, the suspension of studies and the completion of training guarantees, and the increase in the number of apprenticeships and training contracts in line with the objectives of the reform. The work of teachers is diversifying

Main changes in teacher´s work are: teaching is shared expertise and teachers have more cooperation. Work is done in a variety of learning environments. An important part of teaching is done together with workplaces. In teaching is the emphasis on guiding and coaching. (Act for Second Level Vocational Education: 547/2018, 548/2018. www.finlex.fi)

5. Conclusion

Teachers in Finland are highly trained. In general education all teachers are required a Master's degree. In vocational education teachers should have a Master's degree or Bachelor's degree. The high level of training is seen as necessary as teachers in Finland are very autonomous professionally. Teaching and guidance staff within day-care centers generally has Bachelor's degrees. Pre-primary teachers in schools hold a Master's degree.

Guidance counselors in basic and upper secondary education and training should have a Master's degree and guidance studies. Special needs teachers hold a Master's degree with special pedagogy as the main subject or a teaching qualification including special needs teacher studies. Teachers at universities of applied sciences are required to have either a Master's or a post-graduate Licentiate's degree or a Doctoral degree, depending on their position. They must also complete pedagogical studies. University teachers are generally required to hold a Doctoral or other postgraduate degree.

Teacher training can be either concurrent, with pedagogical training integrated into the Master's programme, or consecutive, with the pedagogical training completed after the initial degree. The latter is the case for example in vocational teacher education. The consecutive model also serves those who decide on a teaching career later.

At most levels of education teachers are required to participate in in-service training every year. Finnish teachers consider in-service training to be a privilege and therefore participate actively. Teaching practice is integrated into both theoretical and methodological studies. Over the five-year program, candidates advance from basic practice to advanced practice and then to final practice. During each of these phases, students observe lessons by experienced teachers, practice teaching observed by supervisory teachers, and deliver independent lessons to different groups of pupils while being evaluated by supervising teachers and department of teacher education professors and lecturers.

Finland's pride is equal education. Every child has the opportunity to seek out their dreams. Equality in education has been and is the foundation stone for Finland's competence and success. Finland's international success is the training system that starts with the fact that everyone is excellence. The foundation for Finnish equality is created in early childhood education. High-quality early childhood education is the right of every child. In the 2010s, education policy has been implemented by emphasizing the rights of individuals and families to make choices and get differentiated services. Children's parents, students and students are seen as clients with individual needs.

The experienced PISA miracle was then kept alive, until the 2012 assessment's declining scores delivered a minor "PISA shock" in Finland. PISA 2015, however, proved that the decline was temporary, but it did not eliminate the worry about Finnish gender gap in literacy, claimed as widest among the OECD countries, entailing alleged boys' severe underachievement. Success in PISA became an integrated part of national identity and Finnish country brand. Every three years PISA produces masses of standardized numerical information, which unfortunately does not redeem the strict requirements of policy based scientific facts. Still, Finland continues to be a top class in Pisa research, but equality in education is depleted regionally and on a home base. It is also a concern that natural sciences and mathematics are not interested. There are many reasons.

Flexibility is typical in Finnish education system. It offers various teaching and learning arrangements and in reporting on progress and achievements. Creativity becomes an important prin-

ciple at all school level. Teachers who are catalysts of learning in the knowledge society, must therefore be provided with incentives and encouraged to make their work place and classrooms creative learning organizations where openness to new ideas, playfulness and approaches flourish. Also risk-taking needs to be encouraged in daily life and learning in schools. School leaders should be examples of risk-takers. A good teacher is very similar compared with a good ethical leader.

Young people's grip and attitudes towards schooling have become more negative. Motivation, interest, and belief in their own skills have weakened. They have a connection to what the students know. (OECD, 2016). The first step of the whole reform concerning the comprehensive school system was politically controversial in its initial stages, as well as the vocational upper secondary degree. Today, there is a consensus on these issues.

The emergence of new occupations and the rapid changes in the world of work bring about new requirements including both content and methodology challenges for the whole education. Foresight and anticipation of education and training have been developed vigorously in recent years and the results are utilized in targeting provision and developing educational contents. Quantitative anticipation has been part of the educational administration's basic work for a long time now. Qualitative foresight of educational contents has been developed as part of the process of preparing qualification requirements and programmes of study and in various projects with support from OECD and European Union organizations. Although different forms of foresight and anticipation have been developed in parallel, they do not as yet support each other sufficiently. The challenge is, therefore, to co-ordinate qualitative foresight and quantitative anticipation more effectively. The aim is for different perspectives of educational foresight and anticipation to complement each other.

One of Finland´s challenges in the unbalance between supply and demand of employees. There is lack of professionals and workers in some areas and in the same time quite big long-period unemployment. The Ministry of Education and Culture is looking for the solution to this problem. Also there is a fear that highly-educated younger professionals will move abroad looking for more income and international experience.

One challenge is also the difference of the qualifications of pupils and students. It is important to support those pupils and students who have problems in studies, but in the same time very talent pupils and students who have enormous motivation to study should be supported. PISA results are still good, but Finland is no more on the top of the world. Digitalization and robotics should be taught already at beginning of basic education. The average age of Finnish people is raised like as in many other European countries.

Establishing a closer and more pragmatic connection between qualitative foresight and quantitative anticipation is also required by the objective of increasing the flexibility of the whole education system set by the Ministry of Education and Culture in its Development Plans for Education and Research and also for Vision 2030 (www.minedu.fi)

Between years 2014 and 2017 have happened mergers or plans for merging between some higher education organizations. Tampere University, Tampere Technical University and Tampere University of Applied Sciences are merging together. Between higher education institutions in Lahti and Lappeenranta is also a special merging project going on and same in Lapland. Ministry of Education and Culture is supporting projects like these.

The main purposes of Vision 2030 are as follows:

- **Education Key Asset for Finland in 2030:** In 2030 Universities and universities of applied sciences will be strong and reliable institutions.
- **Effectiveness, Productivity and Competitiveness in 2030:** Ever more international and using open practices ensure that higher education institutions will better placed in finding new channels for effectiveness.
- **Research, Development and Innovations in 2030:** The whole population's knowledge capital will have grown. Higher education will be available for everyone. At least 50% of young adults (25 to 34-year olds) will have completed a higher education degree. Public and private investment in research and development (R&D) activities will have been raised to 4% of GDP.
- **International collaboration in 2030:** International collaborative efforts by higher education institutions in frontrunner networks will bring greater quality to the institutions and boost Finland's attractiveness.

Higher education in Finland has a dual structure: it is provided by universities and universities of applied sciences (UAS), at beginning of the reform polytechnics. Equal access to higher education is ensured by the wide institutional network, the free education, student financial aid as well as the flexible pathways to higher education. Efforts have also been made to lower the threshold to apply to higher education by developing an on-line joint application system.

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