

ICTs in Finland:

Book Chapter Final Paper

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Introduction

For the past fifteen (15) years, Finland has served as an exemplar of educational success for most of the world. With its extremely high test scores, rates of graduation, and satisfaction levels among students and teachers alike, many other nations have looked to Finland's leadership for insights on how to improve their own educational systems.

While Finland continue to perform at an extraordinary level in both primary and secondary education, the narrative around its dominance is beginning to change. Southeast Asian

countries such as Singapore, Japan, and South Korea have usurped its position atop the PISA test rankings, and other issues surrounding Finland's leverage of Information and Communication Technologies (ICTs) has started to take its toll on student performance and readiness in an increasingly technocentric world.

This chapter will examine the unique position of Finland as 'the nation that knew too much' - that is, a country that was already so successful in its education system that it failed to adapt to ICTs with the same level of zeal and strategy of their contemporaries in Europe and abroad. This analysis will provide a context of the nation and its education system before examining its approach to ICTs and highlighting some key factors dictating the success of Finland's future.

Context

Geography. The Republic of Finland is located in Northern Europe and sits between Sweden, Russia, and the Baltic Sea to its south. As a Nordic country in the boreal zone, Finland experiences extremely low temperatures in its northern regions during the Fall and Winter. However, its coastal areas are consistently warmed by the Gulf Stream, creating uncommonly warm temperatures for a nation located at its latitude.¹

Demography. Of Finland's 5.5 million people, the vast majority reside in the nation's southern region.² Nearly 90% of the population are Finnish.

¹ "Climate, seasons and weather in Finland | Studyinfinland.fi." 14 Dec. 2016, http://www.studyinfinland.fi/destination_finland/way_of_life/climate. Accessed 10 Aug. 2018.

² "Finland Population 2018 (Demographics, Maps, Graphs)." 17 Jul. 2018, <http://worldpopulationreview.com/countries/finland-population/>. Accessed 10 Aug. 2018.

Socio-Cultural. While Finland shared a similar prehistoric era with Russia and Norway in terms of technology and culture, it developed into a Corded Ware culture around 2700 BC and developed its own agriculture, cultural regions, and Bronze Age technology.³ After the 13th century, Finland was colonised by Sweden and became a part of its seafaring empire in addition to a domain for the Catholic church.⁴ In 1917 and after a century under Russian rule, Finland declared independence during the Russian Revolution and eventually established itself as a Republic.⁵

Currently about 90% of Finland's inhabitants speak Finnish, a language that is distinct in origin from the Scandinavian dialects of neighboring countries Sweden and Norway.⁶ While the Evangelical Lutheran Church of Finland once held about 95.0% of the nation's population, that number has dropped to 70.9% in 2017 and decreases by about 1% each year.⁷ About 26% of citizens claim no religious affiliation.

While many of Finland's traditions and customs reflect the rest of Western Europe, a few particularities stand out. For example, Finns drink coffee during every meal and late at night, giving Finland the highest coffee consumption per-capita in the world.⁸ While the national sport

³ "History of Finland and the Finnish People from ice age to WWII." <http://peacecountry0.tripod.com/earlyfin.htm>. Accessed 10 Aug. 2018.

⁴ "History of Finland - Lonely Planet Travel Information." <https://www.lonelyplanet.com/finland/history>. Accessed 10 Aug. 2018.

⁵ "Main outlines of Finnish history - thisisFINLAND." <https://finland.fi/life-society/main-outlines-of-finnish-history/>. Accessed 10 Aug. 2018.

⁶ "Languages of Finland - Institute for the Languages of Finland." https://www.kotus.fi/en/on_language/languages_of_finland. Accessed 10 Aug. 2018.

⁷ "Religion In Finland Today - WorldAtlas.com." <https://www.worldatlas.com/articles/religion-in-finland-today.html>. Accessed 10 Aug. 2018.

⁸ "Why Finland Drink More Coffee Than Any Other Country - Culture Trip." 25 Sep. 2017, <https://theculturetrip.com/europe/finland/articles/why-finlands-coffee-culture-reigns-supreme/>. Accessed 10 Aug. 2018.

of Finland is the baseball-like Pesäpallo, their most-watched sport by far is ice hockey with 70% of all citizens watching the 2016 world championships between Finland and Canada.⁹

Interestingly, Finns are known for weighing their words very carefully, and establishing a culture of very thoughtful or reserved speech.¹⁰ Finally, a Finnish phenomenon known as ‘Midsummer’ occurs for six weeks every June when a staggering number of citizens leave their professions and move to their vacation homes in the countryside until mid-August.¹¹

Economy. Despite Finland’s significant number of timber and mineral resources, 66% of its GDP is from its service sector followed by manufacturing and refining at 31%.¹² Citizens have a per capita output and income similar to France or Germany; however, but the nation’s economy has slightly decreased in the past three years.¹³

Politics. Finland’s constitution outlines its government as a parliamentary republic framed by a representative democracy. The popularly-elected president has influence over foreign policy and their cabinet, but otherwise has become more of a ceremonial position in the past two decades. 200 members make up the unicameral parliament, and about five parties have enjoyed moderate to great success in elections over the past century.¹⁴ Finland is also noted for being the first state

⁹ "2016 IIHF World Championship - Wikipedia." https://en.wikipedia.org/wiki/2016_IIHF_World_Championship. Accessed 10 Aug. 2018.

¹⁰ "A guide to Finnish customs and manners - thisisFINLAND." <https://finland.fi/life-society/a-guide-to-finnish-customs-and-manners/>. Accessed 10 Aug. 2018.

¹¹ "Enjoying Midsummer the Finnish way - thisisFINLAND." <https://finland.fi/life-society/enjoying-midsummer-the-finnish-way/>. Accessed 10 Aug. 2018.

¹² "Finland Economy: Population, GDP, Inflation, Business, Trade, FDI" <https://www.heritage.org/index/country/finland>. Accessed 10 Aug. 2018.

¹³ "Finland - Economy | Britannica.com." <https://www.britannica.com/place/Finland/Economy>. Accessed 10 Aug. 2018.

¹⁴ "Guide to Law Online: Finland | Law Library of Congress." <http://www.loc.gov/law/help/guide/nations/finland.php>. Accessed 10 Aug. 2018.

to introduce universal adult suffrage in 1906.¹⁵

Education

Brief History. Finland's strong ties to Lutheranism and Christianity played a key role in the early development of its education system. As 'traveling schools' (*kiertokoulu*) helped teach literacy for the sake of reading the Bible, the rite of confirmation (marking transition into adulthood) was only reserved for those who were literate. Literacy rates in Finland have always been very high, with the first statistics in 1880 showing 97.6% literacy.

Under its Swedish rulers, Finland developed a similar education system with a three-part "trivial school." This system included a 'people's school' (*kansakoulu*) for grammar, Latin, Greek, rhetoric, and dialectics, followed by a preparatory 'learning school' that primed students for university.

Current Situation. In its current form, this three-part system has become an assertive part of Finland's dominant educational programming. Covering grades 1-9, the *kansakoulu* is not only mandatory but also provides free lunches to everyone. After grade 9 (around 15 years old), students may choose to pursue an 'academic' (*lukio*) track or a 'vocational' (*ammattikoulu*) track for their final years of secondary education. Both tracks are allowed to test for entrance into universities, but *ammattikoulu* students usually enter the workforce immediately.

Despite the presence of a few private schools, all education is publicly funded.¹⁶ Teachers are

¹⁵ "Legislation and rights - Infopankki." 25 May. 2018, <https://www.infopankki.fi/en/information-about-finland/finnish-society/legislation-and-rights>. Accessed 10 Aug. 2018.

¹⁶ "Education in Finland - Wikipedia." https://en.wikipedia.org/wiki/Education_in_Finland. Accessed 10 Aug. 2018.

fully unionized and extremely qualified for their positions, with all teachers possessing a master's degree in their field of instruction in addition to a teaching certificate.¹⁷ The average class size in primary school is under 20 students, and there are no 'gifted' or 'accelerated' tracks for students.

Major Reforms. The biggest educational reform in the past two decades has taken place at the university level, as the Ministry of Education has called for a consolidation of its higher education by merging several of its universities.¹⁸ However, in 2017 Finland began implementing an ambitious change to its *National Curriculum Framework* that, among other things, is introducing phenomenon-based learning as an alternative to subject-based learning.¹⁹

Educational Technology

Brief History. For the past thirty (30) years, Finland has consistently ranked as one the most digitally competitive countries with regards to its ICTs and their implementation in government and education.²⁰ This number extends to their internet connectivity and number of ICT specialists.²¹ Overall, the Finnish government has leveraged meaningful investments in emerging

¹⁷ "NCEE | Finland: Teacher and Principal Quality."

<http://ncee.org/what-we-do/center-on-international-education-benchmarking/top-performing-countries/finland-overview/finland-teacher-and-principal-quality/>. Accessed 10 Aug. 2018.

¹⁸ "University Mergers in Finland: Mediating Global ... - Wiley Online Library."

<https://onlinelibrary.wiley.com/doi/pdf/10.1002/he.20112>. Accessed 10 Aug. 2018.

¹⁹ "Finland's school reforms won't scrap subjects altogether." 25 Mar. 2015,

<http://theconversation.com/finlands-school-reforms-wont-scrap-subjects-together-39328>. Accessed 10 Aug. 2018.

²⁰ "Finland one of world's most digitally competitive countries - ICT" 17 Jul. 2017,

https://www.investinfinland.fi/ict-digitalization/-/asset_publisher/ARTICLEPG001/content/finland-one-of-world-s-most-digitally-competitive-countries?inheritRedirect=false. Accessed 10 Aug. 2018.

²¹ "Finland leads in number of ICT specialists - Good News from Finland." 20 Jul. 2015,

<http://www.goodnewsfinland.com/finland-leads-in-number-of-ict-specialists/>. Accessed 10 Aug. 2018.

technologies to take advantage of opportunities for growth.

Major Projects & Tech Reforms. Finland's Ministry of Education has partnered with the Finnish company Eliademy.com in order to create a comprehensive cloud-based learning management system for its entire schooling system.²² It hopes to use this information to more capably measure and improve upon its students' performance. In addition, the University of Helsinki has partnered with Finnish company Reaktor to create a free online course for educating Finns on the basics of artificial intelligence.²³

Current Situation, Strengths, & Challenges. However, there is a great difference between the accessibility of a nation's ICTs and the degree to which those ICTs shape their instruction. According to an international study, Finland ranks last among EU members with regard to how frequently they use ICTs in the classroom.²⁴

Interestingly, the cause of this is likely the strength of the students and teachers themselves. Students have consistently performed with high marks on PISA tests, making the appeal of ICT implementations less salient.²⁵ Further still, the teachers in Finland are highly-qualified and fully unionized, which means they carry a great deal of autonomy in their curricular selections and instructional techniques.

²² "Pilot - Finnish Education 2.0 | Eliademy." <https://eliademy.com/67ec2f85c0>. Accessed 10 Aug. 2018.

²³ "Finnish university's online AI course is open to everyone - Engadget." 20 May. 2018, <https://www.engadget.com/2018/05/20/finland-helsinki-university-ai-course/>. Accessed 10 Aug. 2018.

²⁴ "Finland's low-tech take on education - POLITICO." 27 May. 2014, <https://www.politico.com/story/2014/05/finland-school-system-107137>. Accessed 10 Aug. 2018.

²⁵ "Finland's schools were once the envy of the world. Now, they're" 8 Dec. 2016, https://www.washingtonpost.com/local/education/finlands-schools-were-once-the-envy-of-the-world-now-theyre-sli-ping/2016/12/08/dcf0f56-bd60-11e6-91ee-1adddfe36cbe_story.html. Accessed 10 Aug. 2018.

Finland's Ministry of Education has identified this as a critical issue as they watch Finland's scores plateau and eventually decline. As stated in their *National Plan for Educational Use of Information and Communications Technology* in 2010:

Finland has been at the top of international comparative assessments of learning outcomes for almost ten years now. The factors that have led to this success are not the same ones that will keep us at the top for the next ten years. ... In order for Finland to retain its position as a top country in education, schools need to make diverse use of the opportunities provided by ICT and media.²⁶

Finland's challenge will surely be shifting the culture of teacher training and professional development into one that more favorably embraces and takes advantage of ICTs in the classroom. Its future trends will include a re-prioritization of the assessment of teachers for their competitive positions and the introduction of programs and curricular materials that can help increase students' popular interest in ICTs.

Educational Technology Resources

Key People, Organizations, and Associations. While the Ministry of Education established the national plans and funding for educational reforms in Finland, most of the impactful changes are initiated by key influencers in the nation's teaching core. The *Opetusalan Ammattijärjestö*²⁷,

²⁶ "ICT in Finnish education and ICT education in Finland. TOMI" <https://docplayer.net/18312660-Ict-in-finnish-education-and-ict-education-in-finland-tomi-jaakkola-centre-for-learning-research-university-of-turku.html>. Accessed 10 Aug. 2018.

²⁷ "About us - OAJ." https://www.oaj.fi/cs/oaj/About%20us_en. Accessed 10 Aug. 2018.

Finland's teachers' union, includes 95% of all Finnish teachers and receives 1.2% of their gross salary and devotes it towards policies that support educators. Helsinki University is another strong influencer thanks to its extensive research in ICTs and their training in primary and secondary school settings.²⁸

As mentioned before, Finnish companies like Eliademy.com and Reaktor are taking on greater roles in influencing the future of ICTs in education. Thanks to the autonomy of schools and districts under Finland's model, it is likely that other agencies and corporations will play a role in equipping the next generation with ICT skills and training practices.

Key Factors

When considering the implementation of new ICT programs in Finland, there are three key factors that will dictate any program's success.

Teacher Perceptions & Adoption. In Finland, teachers carry all of the power when it comes to curricula, instructional technologies, and policy-making. While many are savvy with technology and optimistic about the use of ICTs overall, they are dealing with an incredible amount of inertia brought about by decades of successful scores and a great deal of autonomy in their instruction. ICT programs in Finnish education will need to be highly-aware of the popular perceptions of individual technologies in the eyes of the teachers union and the teachers themselves. Without the union's support, top-down implementations are nearly impossible.

²⁸ "Technology in Education - University of Helsinki." <http://www.helsinki.fi/technology-in-education/c/e1.htm>. Accessed 10 Aug. 2018.

Teacher Qualifications & Training. Fortunately, teaching positions in Finland are highly competitive and yield highly-qualified instructors with a great deal of professional training. This leaves an intuitive framework for introducing ICT training and grass-roots professional development for instructors seeking to improve their use of ICT in instruction. With a fairly uniform model for financing and distributing ICTs in Finnish schools (thanks to their exemplary infrastructure and publicly-funded schooling system), producing cost-effective professional development should be much easier than in other nations.

Maintaining Clear Goals. Finland's education system is inspired by a classical model for equitably creating competent citizens. At the same time, Finland is a world leader in innovative curricular strategies like their 2017 'Phenomenon-based learning' program. Throughout all of this, Finland is pushing for an increase in the use of ICTs in instruction and the training of students for the use of ICTs in professional work. With so many different initiatives in their educational system, it can be difficult to maintain a clear national identity or propagate a clear purpose for new efforts concerning education. It is the responsibility of the Ministry of Education and key influencers to communicate a clear vision for these programs, always maintaining a focus on how those goals will be assessed.

Conclusion

Overall, Finland tells a fascinating story about an educational giant that has suffered from the complacency of prolonged success. While Finland's highly-qualified and autonomous teachers have demonstrated an incredible potential to teach students and innovate their curricular design, the future of ICTs in education requires Finland to change its cultural perception of ICTs and

prepare teachers to leverage newer technologies in their upcoming efforts.

Many countries look to Finland as a beacon for proper instructional design, but in this one area those nations could likely learn from Finland's unique disadvantages. Over time, it will be an interesting point of research as educators observe Finland's gradual transition to and acceptance of ICTs as a core part of their instruction. Regardless, it is undoubtable how much Finland will inspire groundbreaking educational practices in the rest of the world as they wrestle with their own implementation of ICT programs.

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Welcome to explore open job opportunities in Finland. Here you'll find jobs targeted at English speaking professionals. You can search by region, job category or use the keyword search. Finland performs the best in Human capital & research and its weakest performance is in Market sophistication. *The highest possible ranking in each pillar is 1. Finland's innovation strengths and weaknesses. 3.1 Information & communication technologies (ICTs). 87.5 16 3.1.1 ICT access 73.9 52 3.1.2 ICT use. Oulun korkeakoulujen yhteiset ICT-palvelut palvelevat Oulun ammattikorkeakoulun opiskelijoita ja henkilöitä. ICT... ICT-palvelut Oamkissa. College & University in Oulu, Finland. Closes in 20 minutes. About ICT-palvelut Oamkissa. Tietoa meistä - Information about us. Oulun korkeakoulujen ICT-palvelut tarjoaa IT-tukipalvelut Oulun ammattikorkeakoulun opiskelijoille j See More. Community See All. 156 people like this. 172 people follow this. 1 check-in. About See All. This article gives a general framework for the understanding of the use of ICT in primary, secondary (vocational education excluded) and tertiary education in both Finland and Hong Kong. We describe the quantity and quality of ICT infrastructure and teachers' skills and attitudes towards it. Based on various surveys and scientific research, the pedagogical use of ICT is also studied from the pupils' and teachers' viewpoint. The Finnish Transport Infrastructure Agency (Finnish: Valtionvirasto, Swedish: Trafikledsverket), shortened to FTIA, is a Finnish government agency responsible for the maintenance of Finland's road, rail, and waterway systems. The agency's annual budget is 1.6 billion euros. The FTIA's parent organization is the Ministry of Transport and Communications. The FTIA was founded on 1 January 2010. The agency took over the operations of three separate transportation agencies; the Finnish Rail Administration