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DIGITAL TECHNOLOGIES AND ONLINE LEARNING IN FINNISH UNIVERSITIES

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Glossary:

CSC: IT Center for Science Ltd (CSC) is a Finnish corporation co-owned by Finnish universities and the government, which develops, maintains and offers ICT solutions for Finnish universities.

FUNET: FUNET or the Finnish University and Research Network is a high speed data network built using optical fibres that provides internet services for Finnish universities.

HAKA: HAKA user database maintains the credentials of all students and staff members of Finnish universities and offers authentication and login services for, for example, University websites and ICT solutions.

Lifelong learning / Continuous learning: Finland has set a goal that all citizens regardless of age or social status should be given an opportunity to educate themselves throughout their lives. Lifelong learning or continuous learning refers to small packets of learning, usually offered online, for citizens willing to educate themselves further.

LMS: Learning Management System

UNIPS: UNIPS aka University Pedagogical Support is the name of a Finnish online learning platform aiming to offer lifelong learning/continuous learning opportunities for university staff members, teachers and doctoral students to study university teaching and learning phenomena.

Introduction

The PIAAC assessment of adult skills and competencies ranks Finland among the top countries in terms of adults' literacy, numeracy and problem solving skills (Pena, 2016). Finland offers opportunities for learning with a free of charge education from preschool to university. Digitalization is impacting each educational level, and the Ministry of Education and Culture in Finland has set promoting digitalization as one of its' key goal in the development of higher education.

Finland has currently 13 universities and 24 universities of applied sciences, which are geographically distributed mostly in the country's major cities (Study in Finland, 2019). Currently over 400 bachelor and master level programs are being taught across the universities. Universities have high autonomy in what courses and studies they offer, and how they offer them.

1. IT infrastructure

Finnish HE institutions remain autonomous in the way they want to organize education and generally, every HE institution has their own IT service departments who are responsible for the adoption and maintenance of the core services. Ministry of Education and Culture is financing several national

development projects where digital solutions for HE are developed for all Finnish universities, and often in collaboration with many of the universities. In addition the Finnish state and HE institutions own a common company called CSC which develops and provides ICT solutions for Finnish universities. Among the services CSC maintains and provides are the nationwide educational high speed internet providing backbone network FUNET and an authentication service HAKA (CSC, 2019).

Many nationwide IT infrastructure solutions have been developed. As an example, an electronic examination system has replaced most of the traditional exams in several Finnish universities. Collaboration is emphasized also at "Vision for higher education and research in Finland 2030" (Ministry of Education and Culture, 2019). An important goal for the future, set by the Ministry, is to transform HE by bringing together and combining collaboratively and individually created digital solutions of Finnish HE institutions into a single service.

2. Unique challenges

Finland's well-being is built on education and it has a strong role also in the future. The Ministry of Education and Culture has set the goal that half of the Finns should possess a HE degree by 2030. People should also be able to update their skills while working (SITRA a, 2019). Thus, offered education need to be flexible, interdisciplinary and include a foresight perspective beside discipline-based studies. These requirements have mostly been met by online courses, especially for adult learners (Lehto, 2016).

The current 13 universities in Finland compete with each other for government funding, which is measured by the amount and quality of produced research and the amount of graduated students. This poses some friction for nationwide collaboration as universities might want to withhold their best assets from one another due to financial interest. However, the Ministry of Education and Culture encourages and financially supports collaboration between universities, for example, in digitalization. The universities of applied sciences in Finland are also working towards offering online courses collaboratively (Scheinin and Kantola, 2018). A problem with digitalization projects is that where the produced materials will be stored after the project period and how those materials can be kept useful and updated in the future. This requires universities to make long-term plans for collaboration.

3. The role of technology

Finland has a relatively low population density, roughly 17 inhabitants per square kilometer with the southern parts and cities being more densely populated. Finland has made an effort to provide HE to all inhabitants despite long travel distances in the north. Historically the problem has been solved by geographically distributing universities and campuses across the country. In fact, there exists a HE campus in roughly 250 different geographical locations. New digital solutions offer new ways of organizing education for people living in distant areas, as well as for those who for some other reason cannot participate in face-to-face education.

For bachelor, master and PhD level programs students usually move to the city where they study. Their education includes digital learning solutions. Universities also offer a varying degree of their curriculum education online, allowing more flexibility. There are also many other online study options available, such as, Open University studies with low costs (10-15 euros/ECTS) (University of Turku, 2019). However, students often see distance education inferior to contact teaching, and are also doubtful whether employers perceive online degrees as rigorous as traditional ones (Ragusa and Crampton, 2017). Other downsides also include privacy issues as highlighted by the recent GDPR EU legislation (Marcovic et al., 2019), but recent studies argue that many if not all problematic features of online education can be solved with rigorous design and implementation (Ragusa and Crampton, 2017).

4. Online platforms

As previously mentioned, Finnish HE institutions have high autonomy, which has resulted in a situation where HE institutions have developed learning platforms for their own use, and the solutions are often not shared or adopted to use by other HE institutions. Generally all universities have at least one LMS for assisting teaching, with the LMS Moodle (Dougimas, 2004) being most popular. In addition to using standard Moodle installations, some universities have created their own online learning platforms on top of Moodle backbone, for example, DIGMA by Tampere University of Applied Sciences (Digma, 2019). Other similar learning platforms include the University of Helsinki MOOC platform (Lehto et al., 2016) and the ViLLE learning platform developed in the University of Turku (Laakso et al., 2018). In addition, many universities have their own secure file sharing and video streaming services for educational purposes

Finnish universities have recently started to collaborate more to create and use online learning materials. Altogether 24 Finnish universities of applied sciences have a common learning platform called Campus Online, through which students from any Finnish university of applied sciences can enroll and study courses provided via the platform (CampusOnline, 2019). The MOOC.fi platform offers free courses to anyone regardless of background and current situation for free, however the selection is quite limited (University of Helsinki, 2019). There are also other collaborative learning platforms, most which are subject-specific. Examples of these include UNIPS, a platform for university teachers to study pedagogy (Laato et al., 2018), Psykonet for teaching psychology, already formed back in 1989 (Niemi and Hamalainen, 1999) and MEDigi (MeDigi, 2019) that aims to harmonize medical degree education in Finland.

5. Technology and HE delivery

5.1 Lifelong learning /Continuous education

The lifelong learning in Finnish HE includes Open University departments of each HE institution, extension studies like MBA-degrees and specialization trainings for physicians, teachers etc. Lifelong learners are usually people who complete studies while working in order to update their know-how relevant to their current or future work, people aiming to become a full-time student in faculties and people for whom studying is a hobby.

The Finnish Ministry of Education and Culture (2019a) has listed lifelong learning for everyone as one of the key goals in their strategy for education in 2030. The upcoming disruption of the labor market means that a reform in Finnish adult education is needed. The challenge is to create future experts at the time of digitalization, globalization and climate change when challenges in working life and in societies require multidisciplinary collaboration around complex problems. The Finnish Innovation Fund SITRA has organized a series of workshops and reports as a preparation for needed adult education reform during the years 2018-2019 and the work continues until 2021 with a roadmap and development projects. (SITRA, 2019b)

5.2 Collaboration of universities

Among first efforts to enhance universities' collaboration in developing technology assisted teaching and learning in higher education was the Finnish Virtual University (FVU) founded in 2001, a collaborative organisation of all universities in Finland. It was planned to be "a learning provider, an academic network, a technical service, and a laboratory for the development of ICT-based education (Kylämä, 2005). The main organisation was dissolved in 2010 but many disciplinary virtual university networks still exist and provide joint courses.

In promotion of collaboration and digitalization in teaching and learning in HE, the Ministry of Education and Culture has financed altogether 36 development projects during years 2017-2020, including both universities and universities of applied sciences (Ministry of Education and Culture, 2019b). The biggest projects with 3 M€ funding each are eAMK with the aim to build a shared digital all-year courses offering platform for online courses produced in universities of applied sciences (eAMK, 2019) and the upgrading of university teachers' pedagogical skills especially in the use of educational technology with collaboratively produced materials like UNIPS (Laato et al., 2018) and different forms of support like flipped learning training, building communities of practice between teachers, pedagogical and technical experts around development project and networks of digi-tutors. Open Universities have started collaboration in the planning and implementation of competence modules which combine courses from different universities (Avot, 2019).

5.3 Ideal future of HE

High quality education includes digital solutions that can support the learning in flexible, timely and interesting ways. Offering parts of education in digital format allows teachers to use the face-to-face time to deeper discussions between teachers and students. However, also digital learning should include collaborative knowledge building processes. In the best situation, universities can collaborate in offering digital learning opportunities with both high quality content materials and pedagogically justified solutions. Digitalization can also increase the opportunities for collaboration between not only domestic but also international HE institutions.

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Further Reading

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Online resources

unips.fi (Finnish national platform for university pedagogical studies)

ville.utu.fi (LMS developed at University of Turku, Finland)

mooc.fi (A MOOC platform developed at University of Helsinki)

www.sitra.fi/en (The Finnish Innovation Fund Sitra)

<https://www.eamk.fi/en/frontpage/> (A common hub of online learning resources by 24 Finnish universities of applied sciences)

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- Keywords (5-10) are listed. Y
- Glossary terms are listed and highlighted throughout article.
- Further Reading and Online Resources section is present (5-10 suggestions). Y
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- The text is aligned with relevant ISCED standards or age range X
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