Teachers' Expectations for Digivisio 2030 – A Joint Higher Education Digital Transformation Project in Finland

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Abstract - This paper describes digital transformation (DT) in Finland from the perspective of a medium-sized University of Applied Sciences. Higher education institutions (HEIs) compete with each other, both locally and globally, in terms of student and staff recruitment, government funding and research funding. In addition, networking with companies and other organizations is an important part of HEI strategies and actions. In this paper, we discuss digital transformation in higher education institutions. We also present the results of a questionnaire survey conducted in a medium-sized university of applied sciences in Finland on teachers' attitudes and expectations towards a nationwide digital transformation project (N=82). The data show that teachers' expectations and attitudes range from positive to uncertain. Many believe that in the future digital university, student counselling will play a more important role compared to face-to-face learning. In addition, it is not widely accepted that future students will be self-directed. The role of technology was not seen as a challenge, and teachers expect more training and pedagogical methods to emerge when they collaborate with other teachers from other universities in Finland.

Keywords – digital transformation; teacher; higher education

I. INTRODUCTION

The Finnish higher education (HE) system is a dual model with two types of higher education institutions (HEIs), namely universities and universities of applied sciences. Universities offer bachelor's, master's and doctoral degrees and conduct both basic and applied research. Universities of applied sciences offer bachelor's and master's degrees and carry out applied research and development in their region. In such the role of the university of applied science is more regional compared to the universities whose role is national. Bot sectors do close cooperation with companies and organizations. The Finnish Ministry of Education and Culture directs the activities of higher education institutes. The higher education system is funded by the government. There are no tuition fees for European students. For research, universities and universities of applied sciences apply for funding from various sources, such as the Academy of Finland, Business Finland, EU programs and private foundations. Funding for higher education institutions is based on an agreement between the Ministry of Education and a higher education institution. The funding is based on a model that allocates funds to an institution according to its performance. The HEI is measured by the number of students it graduates and the amount of external research funding it receives.

In many industry and service sectors in Europe and Finland, the need for a skilled workforce is growing, especially in technology-related fields as well as the social and health sectors. In terms of long-term projections, the decreasing birth rate suggests that Finland's population will begin to decline in 2034 (YLE News, 30.9.2021, Statistics Finland: Falling birth rates cannot maintain population). HEIs are expected to respond to the need for more workforce by providing degree studies and continuing education.

Moreover, due to technological development and the rapid changes in our societies, jobs are constantly changing. For many jobs, workers' skills and knowledge need to be updated systematically. It is not enough to simply have a degree; rather, one must possess the latest knowledge and skills. In addition to job-specific skills, students are expected to learn the so-called future skills such as problem-solving skills, creativity, the ability to act in a self-organized manner, cooperation skills, and social and communication skills, all of which are important in today's changing work life [1, 2].

The contemporary adoption of technologies in HEIs reflects a paradigm shift, whereby technology is seen as facilitating the management of complex learning environments and digital learning [3]. This paradigm shift is known as digital transformation (DT). According to [3], "digital transformation (DT) has become a priority for higher education institutions (HEIs) in this second decade of the 21st century, and this is a natural and necessary process for organizations that claim to be leaders of change and be highly competitive in their domain."

Digital transformation is seen as a "process for increasing efficiency and collaboration, and reducing costs and errors in the management of at-scale training systems" [4]. DT has many implications for higher education institutions. For example, the shift from paper to digital, the automation of processes in HEI's, the increasing use of mobile devices and the cloud have a significant impact on how HEI's will operate in the future [4].

In [5], the researchers discuss the implications of digital transformation. Their main finding is that technology may not be the most important driver of DT, but that technology-enabled teaching and learning processes need to be reformulated. They also conclude that educational content and curricula need to be reformulated.

In [6] there is a report on a study of DT in a small Swedish university. The researchers conclude that the role of the teacher changes in DT and that the changes are reflected in the digital competence and the didactic and pedagogical competence of the teacher. In [6] digital competence is defined to include "the knowledge, skills, understanding and motivation that the individual needs in the process of change that digitalization entails".

In [6] a main finding is that teachers have a good level of digital competence and find it easy to learn new technologies, but they do not use these technologies and methods in their teaching. It can be concluded from [6] that DT should not only take place at the teacher level, but also at the organizational level and as a societal process. In addition, the IT infrastructure, the training of teachers and the management and leadership of the higher education institution are the key drivers of DT [7].

In [8] it is stated that the core processes where DT should be applied are teaching, IT infrastructure, curriculum, management and governance, research, business processes, human resources and marketing. In this sense, DT is a rather holistic process [8].

In their literature review [8], the researchers point out that currently the renewal business model in HEIs is aligned with technological development. However, technology should be seen as a tool to support the redesign of business processes in higher education institutions.

In [8] the elements in the DT process are "people, processes, strategies, structures and competitive dynamics". In addition, based on the survey in [8], an important dimension of DT is the customer experience lifecycle. DT should enhance and replace current products and services and be seen as a way to create "additional and differentiated value" [8].

The survey in [8] also examined the role of teachers in DT. Teachers reflect the need to improve their productivity in teaching through the use of digital tools. In addition, teachers expect that DT will improve communication, collaboration and co-creation of value in higher education.

Based on these definitions, it is clear that DT has a significant impact on HEIs' strategies, teaching, infrastructure, curricula, administration, research, business processes, human resources, and marketing.

In the digital era, learning can also be analyzed using Lee and Hannafin's [9] own it, learn it, and share it (OWL) model. According to the OWL model, students are responsible for their own learning processes and set their own learning goals, thus learning according to their plans via a rich set of cognitive tools and achieving meaningful learning outcomes with a strong link to real-world problems. However, instead of being left to study alone, students should have access to guidance during the learning process. Consequently, student engagement in the learning process is strong in the OWL model.

In this paper we discuss DT in Finnish higher education institutions. As a case study, we discuss the expectations of the staff of a medium-sized Finnish university of applied sciences in relation to digital transformation and the Digivisio project.

II. DIGIVISIO PROJECT

Digivisio 2030 is a joint development program for all Finnish universities and universities of applied sciences. The main aim of Digivisio is to establish Finland as a model country for flexible learning and a global pioneer in higher education in the world. With external funding, Finnish HEIs have formed a consortium for implementing a common model for DT in Finnish higher education. According to Digivisio [10], the aims are as follows:

- Learners are provided with data on their own learning in a secure manner, enabling and supporting their learning throughout their lives.
- In 2030, Finland has an open and recognized learning ecosystem that offers quality, diversity, flexibility, efficiency, and suitability for the life situation and needs, thus generating better learning results.
- The learning ecosystem also provides a platform for research and innovation activities, benefiting society and working life extensively.
- In 2030, the scientific and educational activities of HEIs are key factors in securing the high level of competence of the adult population, national competitiveness, and international impact.

Currently, all HEI's in Finland have their own IT infrastructures and systems, and students need user ID's to each university they would like to study courses. Digivisio 2030 will change this by providing to establish one identity to students. In order to achieve this, all universities must make their systems and services compactible, and they should support Digivisio platform. Students will own their own data in Digivisio platform. In this sense, Digivisio platform supports the OWL model [9].

It is expected that, DT will also change student counseling. HEIs should support both young students and those coming from working life to take part to continuing education. The support should be available regardless of time and place. Counseling can at least partly be implemented with AI solutions [10]. However, it is not easy to support students in complex learning environments and new solutions are needed. According to [11], "there is an urgent need to determine how to support students that have underdeveloped self-regulation skills." Regarding the Digivisio, we can agree with [12]: "With the sudden shift to digital in classrooms around the world, future research may continue to examine how student engagement varies from context to context to understand how educators can better support all students." It can be

concluded that students' needs in Digivisio platform needs more research and implementation of new student-centered guiding and counseling practices. Digivisio represents a major DT that cannot happen without proper change management.

At SAMK, the Digivisio is seen as a continuation of the collective and individual transformations SAMK has been implementing already since early 2000. A comprehensive change in the culture of action does not happen quickly but it needs time. Although faculties and organizational units strive to fulfill their own functions, only the unity of the subsystems enables the organization to achieve its DT goals. Therefore, management should consider the requirements and effects of change on all parts of the system as well as the relationships and dependencies between them [13]. In sum, Digivisio 2030 is a new stage in the transformation that SAMK and other HEI in Finland have been undergoing for many years [14, 15, 16].

III. METHOD AND RESULTS

Between September and October 2022, SAMK faculty members were invited to complete a questionnaire with three background questions and seven open-ended questions about their expectations of the Digivisio project. Prior to the survey, SAMK had organized a briefing on the project, and the status of the project was regularly communicated to the staff in newsletters. The survey was available in either Finnish or English. At the time of the survey, there were 441 employees in SAMK and 84 (19%) responded to the survey. The respondents were from the teaching staff (49%), the research staff (19%) and the administration (32%). The distribution of respondents corresponds to the distribution of staff in SAMK.

In general, 48% of respondents have a positive attitude and 45% have a neutral attitude towards the Digivisio project. Only 6% have a negative attitude and 1% did not answer the question.

Respondents had varying levels of prior knowledge of the Digivisio project. Of all respondents, 38% recognized the project but did not have a clear understanding of it. Only 4% of respondents had no prior knowledge of the project. The majority of respondents had attended project events (48%) or were aware of the project's objectives (11%).

There were seven open-ended questions:

- What do you think about the Digivisio project and its objectives?
- What are your expectations of the Digivisio project?
- How do you think the Digivisio project will affect your current job?
- How do you think you will benefit from the Digivisio project?
- How do you think the Digivisio project will affect the selection and numbers of degree students at SAMK?
- How do you think the Digivisio project will affect student numbers at the Open University of SAMK?

- What kind of information about the Digivisio project do you want and through what means?

The responses to the open-ended questions were merged into text documents and analyzed using thematic analysis. The researcher examined the documents and identified common themes from the data by first coding the data and then grouping the coded data into themes. An inductive approach was used to identify the themes. The themes identified were:

- The goals of the Digivisio project
- Teaching
- Funding and the guidance from the Ministry of Education (MoE)
- Organizational change
- Pedagogy

A. The goals of the Digivisio project

In general, the respondents think that the goals of the project are in the right direction. There were also opinions that reflected the potential outcomes if the project succeeds in its goals.

"The prerequisite for reaching the goal is to re-examine the processes in each higher education institution and think about what we can do differently, and at which points we have built obstacles to the implementation of flexible learning."

There were also fears that the goals may be too ambitious.

B. Teaching

The respondents expect that the Digivisio project will bring flexibility to the learning.

"Digivisio - hopefully - will lead to students being able to smoothly choose the teaching units necessary for developing their own competence."

In contrast to online learning, respondents discussed the importance of face-to-face learning on campus and the role of guidance. Some of the respondents were concerned about the quality of learning in the future and wondered whether students would be self-directed, which would be necessary in digital learning environments.

"I'm a little afraid of what will happen to face-to-face teaching, which, however, is more effective than online teaching in certain subjects."

The quality of the content was also seen as a competitive factor when competing for good students.

"The course offering must be of high quality in order to be able to compete with others for applicants. The course material must also be as new and easily accessible as possible."

C. Funding and the guidance from the Ministry of Education (MoE)

There were not many responses related to funding and guidance from the MoE. The MoE has funded the Digivisio project, and one respondent was concerned that the project will actually be a tool for the MoE to unify

HEI's in Finland. Some respondents questioned how funding for HEI's will be allocated in the future, when digital transformation has changed the way HEI's operate.

"The impact of policy changes on the core funding of organizations is not addressed. It will ultimately determine what will remain permanent."

D. Organizational change

Organizational change seems to be the theme that has drawn many responses. Respondents stated that Digivisio will change the way higher education institutions operate in the future. It was seen that teaching practices and learning opportunities will change because of the digital transformation. The change was also seen as an opportunity through new and flexible service models. In addition, it was seen that lifelong learning and international students will benefit from these new service models.

"New opportunities for learners, universities and their staff. Especially for new, flexible service models."

Competition between HEIs was also reflected in the responses. The Digivisio project was seen as increasing competition between higher education institutions.

"What is SAMK's competitive position in the future? What can we offer online that others don't?"

It was believed that the digital transformation in HEI's will increase the number of students, but it will also increase the dropping out of studies. Some respondents think that the only large HEI's will benefit from DT so that they will get more students. However, the location of the HEI campus might also be a factor in selecting the where to study.

"I think young people will continue to choose where to study based on the city, not the school?"

E. Pedagogy

The respondents emphasized that in Digivisio project the technology should be a tool and the pedagogy should be in focus. The also expected to get new pedagogical methods and more collaboration with other teachers in the future. In addition, training and support for using technology were requested.

The increasing number of IT systems was perceived as stressful, and respondents wished that DT would reduce the number of IT systems. It can be interpreted that teachers experience that many different IT systems create a cognitive load and the time needed to learn a system reduces the time available for regular teaching.

"I wish that at least one system or program would be deactivated, i.e. the functions would be moved to another program or system. "

IV. CONCLUSION

Mostly the data revealed topics related to teaching and management. The role of research did not emerge in our study. So far, the Digivisio project has had a strong focus on teaching, which may explain why research was not mentioned as an important process of the HEI in the data.

The results of the data analysis support previous findings. The role of process development was emphasized, and teachers' technological skills did not raise many questions.

The data shows that teachers' expectations and attitudes vary from positive to uncertain about what to expect. Staff have a clear understanding that Digivisio will change many current processes. Many believe that student counselling will play a more important role in the future digital university compared to face-to-face learning. In addition, it is not widely accepted that future students will be self-directed. The role of technology was not seen as a challenge, and teachers expect more training and pedagogical methods to emerge when they collaborate with other teachers from other HEIs in Finland.

V. DISCUSSION

The COVID 19 pandemic has forced universities to digitise their processes. However, the pandemic is not the only driver of digital transformation in universities worldwide. The shortage of skilled labour, competition for the best students and staff, and student expectations have also forced universities to rethink their offerings.

Teachers and staff may have somewhat contradictory expectations of the digital transformation taking place in universities. Firstly, teachers are usually highly motivated to do their job well. This is why some are apprehensive about the quality of teaching and learning in the digital world. Second, teachers expect that shared digital platforms could bring advanced teaching and learning methods and more collaboration with colleagues in other universities. Although teachers expect to be trained in new technologies, their skills do not appear to be a barrier to driving digital transformation.

In many countries, individual universities are making progress in digital transformation. However, it is not common for a country to develop a national platform for all universities, as Finland has started to do. In Germany, for example, there is the German Forum for Higher Education in the Digital Age (Hochschulforum Digitalisierung), which monitors, shares and acts as a source of information, provides strategic advice and builds key competences of higher education professionals across the country [17]. Finland's advantage is the relatively small number of higher education institutions that share a common vision of higher education.

REFERENCES

[1] Bakhshi, H., Downing, J. M., Osborne, M. A., & Schneider, P., The future of skills: Employment in 2030. Pearson, 2017.

[2] Ehlers, U. D., & Kellermann, S. A., Future skills: The future of learning and higher education. Karlsruhe, 2019 https://www.learntechlib.org/p/208249/

[3] Benavides, L. M. C., Tamayo Arias, J. A., Arango Serna, M. D., Branch Bedoya, J. W., & Burgos, D. (2020). Digital transformation in higher education institutions: A systematic literature review. Sensors, 20(11), 3291. https://doi.org/10.3390/s20113291

[4] C. G. Demartini, L. Benussi, V. Gatteschi and F. Renga, "Education and Digital Transformation: The "Riconnessioni" Project," in *IEEE Access*, vol. 8, pp. 186233-186256, 2020, doi: 10.1109/ACCESS.2020.3018189.

[5] Kamsker, S., Janschitz, G. and Monitzer, S., "Digital transformation and higher education: A survey on the digital competencies of learners to develop higher education teaching," International Journal for Business Education: Vol. 160: No. 1, Article 2, 2020.

[6] Sjöberg, J., Lilja, P., University Teachers' Ambivalence about the Digital Transformation of Higher Education. International Journal of Learning, Teaching and Educational Research. Vol. 18 No. 13 (2019): December 2019.

[7] Bernhard-Skala, C., Organisational perspectives on the digital transformation of adult and continuing education: A literature review from a German-speaking perspective. Journal of Adult and Continuing Education, 25(2), 178–197. https://doi.org/10.1177/1477971419850840, 2019.

[8] Benavides, L.M.C.; Tamayo Arias, J.A.; Arango Serna, M.D.; Branch Bedoya, J.W.; Burgos, D. Digital Transformation in Higher Education Institutions: A Systematic Literature Review. Sensors 2020, *20*, 3291. https://doi.org/10.3390/s20113291

[9] Lee, E., & Hannafin, M., A design framework for enhancing engagement in student-centered learning: Own it, learn it, and share it. Educational Technology Research & Development, 64(4), 707–734, 2016.

[10] Higher Education Institutes' Digivisio 2030. https://Digivisio2030.fi/tiedostot/higher-education-institutes-Digivisio-2030/, 2021.

[11] Edyburn, D., Transforming student engagement in COVID-19 remote instruction: A research perspective. Education Tech Research Dev, 69, 113–116. https://doi.org/10.1007/s11423-020-09919-6, 2021.

[12] Wong, K. M., "A design framework for enhancing engagement in student-centered learning: own it, learn it, and share it" by Lee and Hannafin (2016): An international perspective. Education Tech Research Dev, 69, 93–96. https://doi.org/10.1007/s11423-020-09842-w, 2020.

[13] Mattila, E., Kallio, T. J., & Saru, E., Sivistyksen ja soten yhteistyö kunnissa – askeleita kohti syvempää palveluintegraatiota. Hallinnon Tutkimus, 3/2021, 170–186. pp. 171–172, 2022

[14] Auvinen, P., Ammatillisen käytännön toistajasta monipuoliseksi aluekehittäjäksi? Ammattikorkeakoulun-uudistus ja opettajan työn muutos vuosina 1992–2010, 2004.

[15] Nenonen, M., Tulokset paranevat, miten käy laadun? Tulosperustainen rahoitusmalli koulutuksen tuloksellisuuden ja laadun kehittäjänä ammattikorkeakouluissa, 2020.

[16] Multisilta J., Mattila T., Digital Transformation in Finnish Higher Education: A Perspective from a University of Applied Sciences. In Baptista M. & Isaias P. (2022) Proceedings of International Conference e-Learning 2022, Lisbon Portugal, 19-22.7.2022. IADI Press. pp. 93-110, 2022.

[17] HOCHSCHULFORUM DIGITALISIERUNG: ABOUT US. https://hochschulforumdigitalisierung.de/en Accessed 19.3.2023