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TOWARDS EXPEDIENT DIGITAL REFORMS AS SUSTAINABILITY IN FINNISH UNIVERSITIES

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ABSTRACT

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According to the politically produced strategic narrative on digitalization, digital solutions will make university education not only more accessible and personalised, but also more sustainable. However, this kind of strategic narrative ignores the fact that previous research has also recognised that it tends to use technology to solve problems that are not technological in nature but, for example, pedagogical or, as in the case of sustainable development, complex. Thus, the aim of this study is to challenge the beliefs of the politically produced strategic narrative of digitalization in universities and to seek routes to expedient digitalization in the university context.

The study sought to identify the real conditions for the implementation of a strategic narrative of digitalization at the university by answering the research question: "How is sustainability understood within the context of expedient digital reforms at the university level?". The research was carried out as a qualitative case study, using thematic analysis as a methodology. A total of seven university teachers and lecturers were interviewed about the links between digitalization and sustainability in university context.

The results of the study show that the technology currently in use is unable to meet the expectations of those involved in the teaching situation in terms of teaching quality, due to both technological limitations and a lack of digital skills. Economic benefits were identified as the driving force behind digital reforms, manifested in, among other things, increased economic rationality in the university. The rise of economic rationality and digitalization has led to an increase in teachers' workload, which the study refers to as the paradox of efficiency. According to the study, sustainable, expedient digitalization in the university context is currently not taking place, as there is an axiological vacuum where the strategic narrative on digitalization does not share the same ideals as its target of application.

This study suggests that to fill the axiological vacuum, any kind of university reforming should be tied to values that are more enduring than electronics, political agendas or economic growth. Furthermore, to cherish the ideals of subject staff and meet the needs of disciplines, the scale should be in the digital reform of subjects rather than the university as a whole.

Keywords: Digital Pedagogy, Digital Reforms, Sustainability, Universities

The originality of this thesis has been checked using the Turnitin Originality Check service.

CONTENTS

1	INTRODUCTION	1
2	LITERATURE REVIEW	4
2.1	CRITICAL ECHOES FROM THE FIELD	4
2.1.1	<i>Agents in change</i>	6
2.1.2	<i>New forms of pedagogy</i>	7
2.1.3	<i>Digitalization and sustainability</i>	8
2.2	EXPEDIENT DIGITALIZATION.....	11
2.3	PROPOSED FRAMEWORK AND RESEARCH QUESTION	12
3	METHODS AND IMPLEMENTATION OF THE STUDY	14
3.1	CASE TAMPERE UNIVERSITY	14
3.2	RESEARCH DESIGN	15
3.3	RESEARCH CONTEXT AND PARTICIPANT RECRUITMENT.....	16
3.4	DATA COLLECTION	18
3.5	DATA ANALYSIS	19
4	FINDINGS	23
4.1	OPPORTUNITIES AND SHORTCOMINGS OF MODERN TECHNOLOGY.....	23
4.1.1	<i>Inadequacy of modern technology in higher education</i>	23
4.1.2	<i>Inclusion</i>	26
4.1.3	<i>Identified utility</i>	28
4.2	PRACTICES AND PRACTITIONERS IN DIGITAL REFORMING	30
4.2.1	<i>Digital pedagogy</i>	30
4.2.2	<i>Impacts on teacherhood</i>	33
4.2.3	<i>Environmental impact of teaching</i>	36
4.3	INFLUENCERS, MOTIVATIONS, AND MANAGEMENT OF DIGITAL REFORMS	39
4.3.1	<i>Influencers</i>	39
4.3.2	<i>Financial factors</i>	40
4.3.3	<i>Management</i>	42
4.4	AXIOLOGICAL VACUUM.....	43
5	DISCUSSION	45
5.1	ECONOMIC INTERESTS AS THE DRIVING FORCE OF THE DIGITALIZATION IN GENTRIFIED UNIVERSITY	45

5.2	TRANSFORMATION IN AGENCY AND TEACHING	46
5.3	NON-UTILIZED POTENTIALITY IN DIGITAL PEDAGOGY	47
5.4	ENVIRONMENTAL SUSTAINABILITY OF DIGITAL REFORMS	49
6	EVALUATION AND THE ETHICAL ASPECTS OF THE STUDY	51
6.1	TRUSTWORTHINESS AND LIMITATIONS OF THE STUDY	51
6.2	ETHICAL CONSIDERATIONS.....	53
7	CONCLUSION.....	55
7.1	SUMMARY	55
7.2	IMPLICATIONS	57
7.3	FUTURE WORK.....	58
	REFERENCES	60
	APPENDIX 1 (REVIEW OF FINNISH UNIVERSITY STRATEGIES)	65
	APPENDIX 2 (INTERVIEW THEMES)	73
	APPENDIX 3 (CONSENT FORM).....	74

1 INTRODUCTION

Universities are striving for sustainability through, among other things, facility efficiency projects, as it has been calculated that a significant part of a university's carbon footprint is generated by the maintenance of its buildings. For example, on the local level, Tampere University has decided to give up parts of its campus buildings in the name of space efficiency, claiming that this will reduce the carbon footprint of the university community (Tampere University, 2021). However, this does not *de facto* reduce any emissions since the emissions are passed on the next user. Moreover, universities cannot reduce its facilities without moving teaching events elsewhere, as this would force the universities to downsize. This does not seem plausible in the light of Finland's objective in which at least 50% of young adults will have earned a higher education degree by year 2040 (Valtioneuvosto, 2021, p.12). Therefore, as universities give up their teaching and working facilities without reducing the number of students, they will have to find new spaces for its activities outside the built environment, as renting or building new spaces conflicts with the efforts to make spaces more efficient and carbon footprint smaller. This space is represented by digital learning environment. What this means in practice for learning and teaching is not disclosed, nor is the final outcome of this process. This effort to increase the digitalization of the university involves a lot of ambiguity in the form of assumptions that are not disclosed in the text of the strategies.

The object of this research is to bring knowledge from the field into the universities' policy-making process and to break down the beliefs that underpin the strategic narrative of digital reforming. By highlighting the friction between the strategic narrative and the reality of teaching, the study aims to increase the understanding of expedient digital reforming in Finland. Above all, sustainable development serves as an interpretative framework for the theme, derived from a strategic narrative. In line with the United Nation's (N.d) agenda, sustainable development is understood in this study as a holistic entity with indivisible economic, social, and environmental dimensions. The Finnish university strategies leave unclear the actual conditions for the implementation of a politically produced strategic narrative on digitalization in university context. This shows out from analysis of those strategies as a background study of this thesis (Appendix 1). According to this review on university strategies, digital pedagogy and digital infrastructure were

mentioned in the strategies of most universities. Based on the background study, increasing digitalization were justified, among other things, appealing to sustainability, accessibility, and personalisation of learning. The strategies do not, however, explain why and how increased digitalization, if implemented, could support sustainable development in the university context.

While the strategic narrative presents digitalization as inevitable for higher education, practical experiences of it tends to undermine this perception. The strategies have a strong ethos of increasing the digitalization of the university, even though there was widespread dissatisfaction with the pandemic-induced digital-leap and distance learning, which was quickly found to be causing, for example, mental health problems among students (Helsingin yliopisto, 2020). This distinct mismatch between the ethos of the strategic narrative of digitalization in universities and the problems of providing high quality and sustainable education in a digital environment formed the knowledge gap that this thesis aims to fill. This knowledge gap stems from an erroneous conclusion in the strategic narrative to seek a technological solution to challenges that are, for example, pedagogical in nature. Thus there is a need for better understanding of what sustainability means in context of digital reforms of university.

Another influence for this thesis topic was the Tampere University project group in which the researcher joined through the Sustainable Digital Life Master's programme. The project group that consisted of peers from the same master's programme focused on the holistic sustainability of hybrid teaching and its client was a sustainability specialist from the Tampere University Research and Innovation Services. The smallest common denominator between the projects was the exploration of the potential of digitalization from the perspective of sustainable development in a university context.

The author's background in sustainable digitalization led him to examine this research gap through the three dimensions of sustainable development, as the case study subject Tampere University (2020) also states in its strategy that it aims to be a pioneer of sustainable development, and it would be paradoxical if these goals – digitalization and sustainable development – conflicted with each other. It was to the conditions of this endeavour, namely expedient digitalization, that this research ultimately turned.

This thesis finds its academic ground in critical educational technology research – and media education more generally. According to critical educational technology research, the "ed-tech" discourse – an unabashedly optimistic attitude towards the pedagogical benefits of technology – is not limited to policy documents such as strategies, tech-company sales speeches, or news articles, but has also become part of academic communication (Mertala, 2021, p. 238). Moreover, research

has found that educational technology research is predominantly quantitative research, plagued by a positive bias (Mertala et al. 2021). Researchers suspect this is due to the hypothetical nature of the research question (Mertala et al. 2021, p. 10). For these reasons, among others, it is advisable to approach this research problem using qualitative research methods by asking a research question that reviews the issue in a more in-depth manner. In this study the aim is to create an understanding of the sustainability of digital reforms in university context. Critical educational technology research is not, however, against educational technology, but against the discourse in which various technological interventions are presented as necessary for education, both culturally and pedagogically (Mertala, 2021, p. 238).

This thesis consists of seven chapters, one of which is this introduction. The introduction is followed by a literature review that challenges the strategic narrative of digitalization in higher education, using academic research. After the literature review, the methodology of the study is presented, and the research design is explained in detail. In the Results section, the data analysis is opened, which is then mirrored with the previous literature in the discussion. In conclusion, the prior research and the findings of this research are gathered and from these the main conclusions of this study are derived.

2 LITERATURE REVIEW

The concepts presented in the university strategies (See Appendix 1) – Digi campuses, Digi pedagogy and life-long learning, few to mention – have not gone unnoticed in academic research. As the following paragraphs will display, the researchers' point of view on the matter of digitalizing different parts of academic education or education at large differs from political documents and ambitions. This apparent contradiction explains itself partly with the loftiness of university strategies and the more specific nature of research. However, presumably the lack of common discourse impairs the creation of understanding of the university teaching's future. Strong, recognized dynamics combined with a yet uncharted goal, i.e., the digitalization of the university can lead to a situation of no-alternatives. This, in turn, may place unfounded expectations on the implementation of digitalization.

2.1 Critical echoes from the field

In their paper Suoranta & Teräs (2022) carry out critical analysis on Digivisio 2030 -project that at the same time comments on the digitalization of higher education more generally. Digivisio 2030 is a project that has been accepted by all the Finnish universities and has an eye to create national learning platform, student counselling that utilizes among other things data to support change management (Digivisio 2030, n.d.). Suoranta & Teräs put a lot of emphasis on the economic language that is related to digitalizing the higher education. According to the Suoranta & Teräs (2022, p. 31) digitalization has merged to an integral part of education development that takes into account the needs from the business life mainly because education itself has found to be a booster for economic growth and societal well-being. This alliance produces visions of digital future and creates expectations. As a result from education being the only coping mechanism for pint-sized nation, such as Finland, it creates a vision that is inevitable and disables alternative future visions from being sketched (Suoranta & Teräs 2022, p.33).

In more concrete terms, Suoranta & Teräs (2022, p. 34) claims that the digitalization in higher education and its by-products are not becoming more common because they are second to none, but

because they are creating new demand and savings and decreasing production costs related to higher education. For instance, platformisation has created a new money spinner, platform capitalism. Platformisation itself means penetration of platform frameworks into various areas of society (Poell et al, 2019, p. 6-7). Emerging from this is platform capitalism a form of capitalism, which rejects the idea of a built marketplace, but focuses on facilitating an infrastructure for different groups to mediate in. This is advantageous over the traditional business models in data business because the platform is between the users and below them, providing the ground for interaction and the possibility to record everything. (Srnicsek, 2017, p. 44) Platforms naturally own the data occurred in their platform, which makes them not only owners of information but also gives them a potential to become owners of the infrastructure of society (Srnicsek, 2017, p. 92). This of course, requires that the data and it's imaginative refining remain economically valuable in the future as well. As a result, the most diverse actors can end up in the education business, as platform capitalism opens the market to non-traditional education producers.

The alarmistic stance taken by the writers of Digivision 2030 critique is quite understandable, when estimating the costs for pedagogy itself. One can *a priori* conclude that it is unlikely to reach the best possible pedagogical results by means of economics. Or as it is put by Macgilchrist et al. (2023, p. 20):

If designing sociotechnical artefacts is always already designing relations, the relations within educational practice are at stake.

This statement originates from post-digital theory that understands realities as messy, muddy, and noisy and questions the idea of purely digital, since everything has their own epistemological and ontological base that is connected to political relations and historical legacies, and even the most digital artefact has it's socio-material and environmental effects (Macgilchrist et al. 2023). Or as Lopez (2020a, p. 47) claims, the current inequality and unfair distribution of wealth along with global infrastructure and other factors enabling ICT, have resulted from human abuse and displacement, resource extraction and ecological devastation.

As an example of the costs for pedagogy the writers mention that in the digital learning environments the learning itself and evaluation of learning tends to reduce into changes in external behaviour (Suoranta & Teräs 2022, p.35). These digital learning environments measures performances and results, but the more profound evaluation of learning remains obscure. Descriptive

analysis on the matter is given by Selwyn (2011) who states that technology is offered as a solution for educational problems, even though the problems are something else by nature.

2.1.1 Agents in change

In their presentation, Digivisio 2030 uses terms learner (*oppija*) and content creator (*sisällöntuottaja*) when referring to students and teachers (Digivisio 2030, n.d.). This kind of *parole* appear to produce an image of increasing entertainment in education, which is also noted in the critique, stating that in the future these digital learning contents are competing for the free time of citizens with other entertainment such as literary and media (Suoranta & Teräs 2022, p. 37).

This change of language has been acknowledged more broadly in the field of education. *Learnification* a concept coined by Gert Biesta (2019, p. 549) refers to phenomenon of redefining the terms of education exactly as the Digivisio 2030 has done. Schools are referred to as learning environments and teachers have become facilitators of learning. According to Biesta (2019, p. 529) the previously described change of language originates from the dominating way of perceiving education as a production-line where teachers are operating as factors.

Something about the decline in the appreciation of teaching professionals says that teachers are treated as objects of digitalization instead of being perceived as active participants of creating the digital future of academic teaching (Teräs et al. 2022, p. 572-573). This notion is supported by Biesta (2019, p. 529) as well, stating that production-line view of education insults the integrity of teachers' professionalism.

Production-line view of education has developed more grim reality than expected for the teachers in academic education. According to Teräs et al. (2022, p. 576) the digitalization has not succeeded in enhancing the pedagogy but has put a strain on teachers' work in form of digital bureaucracy and surveillance. For instance, a production-line view of education which pursues cost-efficiency has led to a situation where there is less visible teaching by teachers and more independent learning by students. However, this situation creates an illusion, because the workload of teachers won't diminish because it takes plenty of time for teachers to create the educational design to the online learning environments (Teräs et al, 2022, p. 576). Thus, what seems to be easy, independent, and flexible is actually a product of countless design hours. Incorrectly, many may seek an analogy with the digitalization of education from building a house. It is not that after the construction the house is ready, and inhabitants could live there without problems. It is more likely a house built on a landslide that is constantly at mercy of different forces such budget cuts, curriculum reforms, staff

changes etc. This example aims to stress the seemingness of the easiness related to digitalization of academic education. There is evidently more than meets the eye. A dissenting view for the current development comes from the post-digital field saying we should abandon the dominating techno-solutionist narratives that create illusions of efficiency and progress and try to see narratives that would nurture different worldviews, structures, and lifestyles (Macgilchrist et al. 2023).

2.1.2 New forms of pedagogy

Pedagogy is a discipline and conception on how raising or education ought to be arranged (Tieteen termipankki, 2015). A term and concept parallel for pedagogy could be politics since the contents of politics varies largely and the term politics in general refers only means to manage matters. Likewise, the content of pedagogy varies, and the concept of correct pedagogy varies from person to person and culture to culture. Pedagogy with prefix digital (Digital Pedagogy) can broadly be understood as pedagogical use of digital technologies (Vääätäjä & Ruokamo, 2021, p. 6).

In lower levels of Finnish education system has been implemented the reform called digital leap, which means modernizing the digital infrastructure of schools. Here as well, the same motives – enhancement of learning experience and improvement of nation’s position in global market economy – are the underlying causes, according to Saari & Säntti (2018, p. 442-443). Even though the comprehensive school is entirely different educational sphere than academic, some general notions on digitalization’s and education’s relation can be made. For example, Saari & Säntti (2018, p. 452) mention that one fundamental problem in reforming the education – with for example digitalization – is that the education system is seen as something that needs constant fixing. As a perceptive observation, they point out that even though the school system has gone through different reforms the teaching and its methods have remained very traditional. The reason is augured to be that the stress point of these reforms has been technological not pedagogical (Kupiainen 2022, p. 288). The matter that connects these difficulties spotted in the comprehensive school to universities is the original source. As Kupiainen (2022, p. 288) states, the planners behind the digital infrastructure of schools are not teachers by profession and the plans are usually based on national policy making. The same disease is likely to plague the organization of higher education as well. According to Teräs et al. (2022, 576) the distance between academic staff and management has been widened. In the case of higher education, the situation is peculiar, since the management usually consists of people with researcher’s background which one would think would help to find common understanding on premises for organizing the education.

The amplification and allocation of financial interests discussed in chapter 2.1. have affected also in the quality of pedagogy, producing phenomenon of neo-pedagogy. Neo-pedagogy, a concept coined by Maunumäki (2021), describes the development where research is emphasized at expense of teaching and pedagogy. The development is boosted by the financial interests that don't count teaching or pedagogy in. Neo-pedagogy leads to situation where students' complete precision strikes to specific universities to maximize one's value in job market (Maunumäki, 2021, p. 183). The concern raised here is about the quality of teaching or education, where the whole education is very individualistic and genuine mentor- or teaching relationship between student and teacher disappears in the jungle of digital learning platforms and loose study modules. The menacing vision included in the neo-pedagogy seem to oppose directly many parts presented in the Digivision 2030, which aims to boost Finland's position in global economy. Development in this direction enabled by increased educational technology tends to increase bureaucracy instead of supporting softer values such as more humane utilisation of technology (Teräs et al. 2022, p. 580). Reporting and creating metadata from education takes time off teachers' worktime that could be used, for instance, creating mentorship with students. Increased interaction with technology is directly out of genuine interaction with academic community. The previous scatters effectivity and the latter agency.

2.1.3 Digitalization and sustainability

Review on university strategies (See Appendix 1) highlighted the connection between digitalization and sustainability. For instance, The University of Helsinki claimed that creating digital working spaces – among other things – promotes sustainability. However, the digitalization of society and its different services does not automatically mean more sustainable future.

On the planetary level, great expectations have been projected towards digitalization. It is said that:

Digitalization is a game-changing tool to assist the scientist in the race against time to stop climate change (Mondejar et al. 2021, p. 17).

It is presented that digital technologies can enhance agriculture, fairer water supply, energy efficiency, and Industry 4.0 among other things (Mondejar et al. 2021). These kind of claims sum up the scale of digitalization. There are hardly any areas of life that could not be improved, made more efficient, or user-friendly with digitalising. Digitalization seems to be the answer whether the

question is about organizing work, householding or tackling the climate change. The evangelic tone of this politics has been challenged, but still, considering the scale, there are quite little of counterarguments for implementing ICT everywhere, and conducting the digitalization the way it has been done hitherto (Baumer & Silberman 2011, p. 2271).

Services that are products of digitalization have not appeared from nothing. The creation and maintenance of digital infrastructure requires large tonnages of resources. For instance, the creation of electronic devices consumes 25 percent of all the silver mined in the world (Lange & Santarius 2020, p. 13). The production is usually the most stressing phase for the environment in the case of digitalization. For example, 79 percent of the overall carbon footprint of iPhone comes from the production (Lange & Santarius 2020, p. 16). Disposal of the electronic devices offers another high risk for the environment because electronic devices tend to have relatively short lifespan and those devices tend to end up to poorer countries for disposal that may not have sufficient disposal practices (Lange & Santarius 2020, p. 13). Santarius et al. (2023) claims that the digital infrastructure such as digital communications technologies do not follow the rules of circular economy since the production – mining included – are usually carried out in questionable and insufficient environment and the recycling rate of the devices is negligible. Moreover, Lopez (2020b, p. 384) remarks that in the case of media consumption we may read about, for example, climate change, but the gadgets enabling the media experience are unsustainably produced relying on extractive industries.

Besides the production, the maintenance of digital infrastructure has high demand on energy. It has been estimated that information and communication technology cover ten percent of the whole energy consumption of the world (Lange & Santarius 2020, p. 20). According to systematic literature analysis carried out by Santarius & Wagner (2023), the sustainability research on ICT have failed to consider the multidimensionality of sustainability and has focused mainly on the efficiency-aspect. A genuine step towards sustainable solution would also require inclusion of consistency and sufficiency, where preceding refers to renewable energies and materials and latter to absolute reduction of resource and energy demand with changes both in consumption and production practices and habits (Santarius & Wagner 2023, p. 23).

The problem with the meagreness in understanding the sustainability only as efficiency is the rebound effect. The rebound effect seems to be two-dimensional. The first dimension is environmental, whereas the accomplished energy-saving by efficiency is taken back by the intensified demand enabled by the saving (Santarius & Wagner 2023, p. 26). The second is societal, where the leap from physical world to digital steers people to more sustainable choices, but at the

same time increases labour productivity, that accelerates innovations for more consumption that swallows the savings made (Santarius et al. 2023, p. 12).

The researchers have a sceptical attitude towards the redemptive nature of the digitalization for the environment, since the improvements gained in the micro-level get nullified in the macro-level (Santarius & Wagner 2023, p. 23). Santarius et al. (2023) goes as far as claiming that the digitalization we have witnessed has not succeeded in solving any of the alarming environmental issues we are facing, except some small-scale initiatives.

In the university context the environmental side of the digital services has gone unnoticed, and according to one research only half of the university staff paid attention to sustainability of these digitalized services (Arnold et al. 2021, p. 24). It is also a matter of traditional education and media education. Lopez (2020b, p. 383) argues that students usually lack the systems perspective, because the ecological and material relations of ICT are usually ignored in the education. This leads to a situation where students of, let's say media, don't understand how the internet is arranged. It is difficult to question the structures if one does not know where or what they are. Universities' besetting sin may be the blindness on the macro-levelness. Digital services tend smoothly co-exist with old media, rather than fully replace them (Santarius et al. 2023, p. 12). The ever-growing proportion of digital services requires more from the end-devices as well, which calls for newer and better hardware. Even though in the light of the presented papers, the environmental benefits of these digital services are questionable, there is no doubt that in long run these services enable more diverse groups to study in universities since they do promote accessibility. For instance, universal accessibility design philosophy has made numerous breakthroughs in ICT, creating gadgets and services that tears down the traditional barriers blocking people with special needs for using them (Abascal et al. 2016, p. 179). Abascal et al. (2016, p. 179) reminds, that even the noblest universal design in the field of ICT, usually takes granted several socioeconomic preconditions such as literacy and the digital infrastructure. This is not the most relevant concern in the university context but offers a moment of self-reflection for our western perspective.

On the very fundamental level, it is very unlikely that digitalization, being a technological intervention, could solve such a complex phenomenon as unsustainability, since the factors it includes – political, social, economic, few to mention – are so diverse.

2.2 Expedient digitalization

In the light of the papers presented, the greenness of digitalization and its ability to improve higher education, let alone solve the key planetary problems of our time, are controversial. It is fair to say that the status of digitalization as a panacea is to some extent politically produced and without valid grounds. Still, there is no denying the benefits digital technologies have brought and may bring in the future to these previously named areas. The key problem with digitalization in all areas discussed, is that reduction of complexity precedes technological intervention, because the real-world problem must first be transformed to a technologically solvable format (Baumer & Silberman 2011, p. 2273). In more concrete terms, the utilization of digital technology tends to solve real-world problems that are not digital by nature. This brings harmful side effects to the areas – education, pedagogy, and sustainability – presented above.

The universities at the domestic and global level have two-fold role when it comes to digitalization. On one hand, they're strong utilizers of digitalization transforming more and more contents and services to digital format. On the other hand, universities are the place where the critical research of digitalization occurs. The review on university strategies that preceded this thesis (See Appendix 1), discussed the relation between Ministry of Education and Culture and Finnish universities and by and large the power that political decision-maker has over the universities. This evidently impairs the ability of self-reflection of the universities. What could be the reasonable alternative between Luddite's attitude and Digitalization as panacea or is there even one? The opening the author of the thesis outlined is called expedient digitalization.

To conclude the priorly presented literature and elaborate the evident problem points manifested in it, it seems that the whole process requires more systematic, controlled, and softer approach to not amplify the benefits in expense of the drawbacks. This approach begins by setting up the question which is: *“To what extent it is reasonable to replace no-tech/low-tech to high-tech in our culture?”* Superficially, the question may seem pointless, because isn't everything that increases pleasantness or effortless good, if it also reduces agony, because that is something digitalization at its best can do. The problem is the hegemonic position of specific ways to speak about the digitalization. For example, Nardi et al, (2018, p. 93) raises a notion that many people working in computing have tunnel vision of only one likely future, which is unsustainable in terms of increased growth and consumption. Speech about need of digital leap or using of digital platforms do not really aim to improve the learning experience of the individual, but rather to create new demand and boost the quality of employee material (Suoranta & Teräs, 2022, p. 34). A few obvious

fallacies can be quite easily spotted here. First, digital learning platforms or AI-based solutions won't in any significant way improve individual's learning without some kind of biotechnological solutions because learning itself as something socio-psychological won't change if the environment around the student changes. Secondly, the above-mentioned way of speech is very future-oriented, and it presumes that current development would continue, while at the same time the planetary boundaries are bending. Moreover, even though digital systems for the end-user can be light and easy to use, the ICT-infrastructure providing it can be quite heavy in an institution like university and the constant update of hardware is something that the Gaia would probably disagree.

The outlined alternative, expedient digitalization, stems from the post-digital theory. As an idea it isn't against digitalization or digital solutions, but it tries to reveal its hegemonic position and leaving the power structures providing it bare. In that way, it is a postmodern concept. As the Macgillchrist et al. (2023) put it, we shouldn't see digitalization as a magic formula for everything. Expedient digitalization is a systemic and critical approach to digitalization. It works as a counterforce for the solutionism that tends usually to offer temporary solutions. Solutionism offers superficial simplifications, that may just build a thin shade on top of the original problem. For example, the increase of anxiety among students is a significant problem for health care domestically and the solutionist approach would be to hire more staff to ease the treatment queue. As noble and reasonable as that solution is, it doesn't really solve the original problem; the fact that more and more students are suffering from the anxiety. This was an example from societal field of life, but in the digitalization these kinds of simplistic solutions can be more easily implemented. The easiest way to solve emergent problems is not to create them. In the context of university teaching, for example, there should be more attention to be paid what we are trying to improve with digital solutions: the learning experience, economic growth, the demand, comfort, or the staff costs?

2.3 Proposed framework and research question

As this chapter and the Appendix 1 have shown, the digitalization of higher education is complex phenomenon saturated with expectations from diverse groups, however without equal influence on the matter. In addition, there seems to lack the common understanding and literacy on the subject. Being so ubiquitous as the digitalization is, and having so enormous ideological as well as physical effects on the reality it is not trivial how it is understood or utilized. The initiative expedient digitalization works as instruction to help holistically comprehend digital literacy.

To carry out the research, the following conceptual framework has been constructed. In order to understand the framework, it is important to elaborate what factors have contributed to it. The main themes economic, societal, and environmental comes from holistic understanding of sustainability. The phenomena derived under these main themes have emerged as synthesis from political-theoretical literature review carried out in this current chapter. As the literature review has shown and as the framework in Table 1 will emphasize, the societal dimension of sustainability has significant importance in this research.

TABLE 1. The framework of sustainability in higher education from the perspective of digitalization.

Economic	Economic Interests Behind the Digitalization of HE	(Teräs & Suoranta, 2022), (Saari & Säntti, 2018), (Srnicsek, 2017)
Societal	Transformation in agency and teaching in HE	(Biesta, 2019), (Teräs et al. 2022)
	Digital Pedagogy	(Väättäjä & Ruokamo, 2021)
	Neo-Pedagogy	(Maunumäki, 2021)
	Higher education as the object of digital reform	(Teräs et al. 2022), (Saari & Säntti, 2018), (Suoranta & Teräs 2022)
Environmental	The physical and social foundation of digital artefacts	(Lange & Santarius 2020), (Macgilchrist et al. 2023), (Lopez, 2020a)
	The multidimensionality of sustainability	(Lange & Santarius 2020), (Santarius et al. 2023)

The research question of this study is: **How is sustainability understood within the context of expedient digital reforms at the university level?**

3 METHODS AND IMPLEMENTATION OF THE STUDY

This chapter presents both the subject and the context of the case study. This is followed by a detailed description of the data collection and analysis method. Finally, the list of themes that emerged from the analysis is presented.

3.1 Case Tampere University

This research is a case study, meaning a certain kind of research strategy that, however, does not refer to the research method (Laine et al. 2007; Eriksson & Koistinen, 2005). For instance, individuals, organizations and schools can be used as cases that reflect the more broader research subject (Laine et al. 2007, p. 11). In this case study, the case is teaching staff moving from Pinni A to Pinni B – These being faculty buildings in Tampere University City Centre campus – , and the research subject is the politically produced strategic narrative on digitalization in a university context.

Tampere University is a seat of learning for 21 000 students and employer for 4 000 staff members (Tampere University, n.d.). In a domestic comparison Tampere University is the second largest university in terms of number of students, University of Helsinki being the number one (Tilastokeskus, 2023).

The university's initiative a few years ago on the reduction of manageable facilities exceeded the news threshold in Finland and caused a stir among the members of the university community (see e.g., Koskinen, 2021; Härkönen, 2021). The University's Board of Directors justifies the policy of reducing real estate by appealing to economic, environmental, and social reasons. Firstly, renouncing facilities brings budget savings. Secondly, the real estates are the second largest, with 25% proportion, source of CO2 emissions with research infrastructure in Tampere University. Thirdly, Tampere University calls for socially responsible utilization of real estate, which can be reached with as efficient utilization rate as possible. (Tampere University, 2021)

This initiative led to Facility Development programme that, by the implementation of which the university will abandon the Virta and Pinni A buildings at City Centre campus. Criticism of the facility reduction policy stemmed partly from the unclear management of the project's consequences. The proposal was vague in terms of how the reduced facilities affect the operations of the university within the framework of teaching and working. Nevertheless, the initiative explicitly mentions the lessons learned during the Covid-19 pandemic from multi-locational working and utilization of digital learning contents as the basis for rethinking the facility policy (Tampere University, 2021, p.3). Since there are no plans to radically terminate employment contracts or reduce the student intake – if anything, it is the very opposite – there must be some assumption of a place where, for instance, the teaching work is steered to, that being digital learning environments. Other alternatives – building new facilities, crowding every learning event under same roof – seem somewhat implausible.

3.2 Research design

The research question in this paper is: *How is sustainability understood within the context of expedient digital reforms at the university level?* Research bases itself on a critical paradigm, which states that knowledge is never completely value-free, but always represents the interests of some social group (O'Donoghue, 2007, p. 10). The research is qualitative in nature, as opposed to quantitative, which is based on a quantitative examination of the material. A qualitative approach is justified, as the research question considers how the phenomenon is comprehended rather than trying to explain the phenomenon at hand. The emphasis is on meaning and not on explanation. (Cooper & White, 2012, p. 6)

Paradigm refers to the set of beliefs and assumption about the investigated reality or world and how that reality can be researched. Thus, it incorporates the determining epistemological, theoretical, and philosophical factors into itself (Punch, 2005, p. 27). Critical paradigm's goal – as well as interpretivist – is not to find one universal truth that could explain all the similar phenomena, but to understand a particular context. Since there are epistemological challenges in knowing the external reality directly, it is believed that different individuals hold different perceptions of the same situation, which is why the multiple perspectives are elementary for critical paradigm. (Willis, 2007) However, critical paradigm has features from both positivist and interpretivist paradigms, since the interest is to find instantized universals from these particular contexts (Willis, 2007).

In the acquisition of the data of this research, the thematic interview method is utilized. Thematic interview refers to interview modus that is half-structured, meaning it is not as strictly pre-determined as form interview (Hirsjärvi & Hurme, 2022). Room for manoeuvre is created by pre-set themes, within which the discussion takes place, but whose questions varies from one interview and context to another (Hirsjärvi & Hurme, 2022). This also tends to detach the perspective from the researcher (Hirsjärvi & Hurme, 2022), which is typical in interpretivist and critical research, where the distinction between researcher and participant is strived to dispel (Willis, 2007).

3.3 Research context and participant recruitment

The participants of this study – university instructors and university lecturers – all came from the same faculty. The leading requirements were that the participant had teaching duties and an office in a certain faculty building. Of all the positions doing teaching work at the university, two were concentrated after the delimitation, university instructors and university lecturers. This delimitation ensured sufficient readiness to answer questions related to teaching and pedagogy.

The latter mentioned requirement for the office relates to the plan implemented by the university to abandon the faculty building in question, in which case the interviewees consist of people moving to other premises. The sampling was carried out this way because it concretely connects the implementation of Faculty Development programme to staff members, consequently the moving being result of it. Thus, the participants are affected by the faculty reducing policy and are not neutral by-standers of the situation. The sampling materializes the conceptual framework – operating on a rather abstract level in some places – into concrete, built environment problem.

Within the framework of these determining selection criteria, the researcher sought on rather arbitrary grounds, as diverse set of participants as possible. Special attention was paid to a sufficiently balanced distribution of genders and representation of all the faculty disciplines, although these were not considered critical for the implementation of the research. Furthermore, in selection of the participants the emphasis was not on the academic expertise of the subject, but rather on the personal experience as an actor and object of the digital reforms in university level. Overall, the selection of participants was case study-led, meaning that the participant sample represents a narrow part of the entire academic field and forms a relatively one-sided and homogeneous group. The participants came from the fields of economics, administrative sciences, and political research.

Tampere University's people finder was utilized in a quest finding the fit participants. After the scanning, invitations were sent to potential participants via email. Invitation email included short

invitation text, background information and the abstract of the study. Invitation text's function was to answer the questions what, how and when. The invitation text included an explicit wish from the researcher that the interview would take place face-to-face in the participant's office, though this was not necessary. Background information provided more in-depth details of the study such as the name of supervisor, how the data will be processed and stored, and form options for interview. The summary reflected the literature review from which the interview questions were also derived. In addition to this, three participants requested the interview questions beforehand and those were formed to them from interview themes (See Appendix 2) that based on the framework of the study (See Table 1). For two participants the consent form was sent beforehand (See Appendix 3). The reasons for this were, in one instance wish and, on the other, the form of remote interview. For the rest of the participants the consent form was given to be read and signed at the beginning of the interview.

TABLE 2. Participants of the study

Name	Title	Length of career	Interview form
Simone	University lecturer	> 5 years	Face-to-face
Maurice	University lecturer	> 15 years	Face-to-face
Ann-Marie	University lecturer	> 5 years	Face-to-face
Olga	University instructor	< 5 years	Face-to-face
Albert	University instructor	> 10 years	Face-to-face
Dolores	University lecturer	> 20 years	Microsoft Teams
Robert	University instructor	> 20 years	Face-to-face

In order to guarantee anonymity, each participant got an alias that at the same time represented their gender identity. As the Table 2 presents, the sample consisted of four females and three males. The title refers to academic position. The main difference between the university lecturer and university instructor is that the previously mentioned position requires doctoral degree. The last personal data item included, length of the career, indicates the participants' work experience in academic duties. Other factors, informative yet not crucial for understanding the study, have been excluded to cherish anonymity.

3.4 Data collection

The data collection occurred during October 2023, at the turn of the first and second period of the academic year. The set of questions used in the interview were led from presented framework of the study (see. Table 1), which based on the literature review. The interview questions were formed in a way that they could produce data to answer the research question. Interview questions can be broadly divided into three categories: background information, policies and practices. However, since the experiences and understandings of the participant were the key interests, the questions considering practices were emphasized.

The pilot interview was arranged at the end of September 2023, and it took place in Microsoft Teams even though only one of the interviews that ended up in the study were ultimately conducted as virtually mediated in Teams. The purpose of the pilot interview was to test the functionality and comprehensibility of individual questions and the coherence of the interview structure. The benefit of piloting was the refinement of the presentation of some questions.

All the other interviews except Dolores' were executed as face-to-face at the participant's office. The idea behind this practice was to carry out the interview in the premises of the exiting faculty building and to talk about topics such as education technology without mediating in one, so that could on one hand offer a moment to reflect these topics from *a distance* and on the other hand create context where the spatiality is present, since that separates built environment from digital ones. Each of the face-to-face interviews were recorded with iPhone's recording function. In the remote interview Microsoft Teams' transcription feature was utilized. Finnish was the used language in every interview. It was a natural choice since Finnish was primary language for all participants – the researcher included – and thus offered more relaxed way of speaking, and perhaps, more rigorous language.

All the interview events followed the same pattern. First, the printed consent form was handed out to be read and signed – except for two participant who had received the form in advance. Second, the researcher gave a briefing for the participant, where they were told why they were chosen to this study. The briefing included references to faculty development programme and its links to this thesis topic. At the end of each briefing, the researcher emphasized that this is not an exam, but an interview. That was to say, focus is not on the hard skills or knowledge of the subject, but rather on individual experiences and understandings. The aim with this was to create a more relaxed situation. The duration of the interviews ranged from 29 minutes to just over an hour. In general, the duration of the interviews lay between these extremes. In the interviews themselves, the participants were

asked the questions in roughly the same form and order. In addition to this, follow-up questions may have been presented to the participants.

3.5 Data analysis

After the data collection each of the interviews were transcribed to text. This was done by using Microsoft Word Online's transcription tool. The automatically produced transcription was proof-read while listening to original recording to achieve the required accuracy. This served as the preparation of the data for the actual analysis, although in fact – and in hindsight – the analysis started already at this stage. The data preparation phase resulted in 98 pages of interview transcriptions to take to the analysis.

The analysis itself was carried out following a six-step thematic analysis guideline created by Braun and Clarke (2006). The six steps of the guideline are:

1. Familiarizing with data
↓
2. Generating initial codes
↓
3. Searching for themes
↓
4. Reviewing themes
↓
5. Defining and naming themes
↓
6. Producing the report

The first phase, familiarizing with data, began straight after each interview, when the recording was transcribed to text. Before the beginning of the formal analysis, the researcher had got familiarized with all the transcriptions individually. After this refinement of the data, researcher read all the transcriptions one more time, to form an overall picture of the data. During this concentration into the data, the researcher did some initial highlighting to the data had they found something intuitively interesting.

The second phase, generating initial codes, took place in ATLAS.ti data analysis software which was provided for the researcher by the university. The data set were also exported to Microsoft Excel, thus the analysis was conducted on two fronts, utilizing both Atlas.Ti and Excel. At Atlas.ti, interviews were analysed as separate entities while in Excel, comparisons were made between interviews at the level of questions. When an essential aspect of the research question emerged in the material, it was coded and named in a way that bound it to the conceptual framework. At this stage of the analysis, little attention was paid to the emphasis on certain aspects, but all relevant data was collected and named. After the second phase, there were 77 initial codes.

Third phase was searching for themes. After coding, preliminary themes were created, where the codes were divided under an economic, environmental, and social dimension – those being the three dimensions of sustainable development. Not all encodings ended up under these since some remained unclassified. There was a clear emphasis between the dimensions, with the social dimension by far getting the most coding, the economy the second most, and the environment the least. This essentially describes the nature of the interview questions, but also the respondents' angle of entry into the topic. After a more detailed assessment, this division was felt to be forced as well as incomplete, as such a one-eyed examination would not have reached the multidimensionality of the phenomena. A more truthful division turned out to be raising the materiality, practices, and management as the main themes.

Reviewing the themes, which is the fourth phase, the main themes materiality, practices and management were revised in a way that they grasp all the essential factors constituting them. In short, theme analysis was reversed so that the previously mentioned main themes would operate as converging titles, that the subthemes would exhaustively clarify. The main themes are therefore defined through sub-themes. However, this phase resulted one data-driven subtheme – as distinct from other themes derived from the conceptual framework – named axiological vacuum. The figure 1. shows the illustration of this thought process.

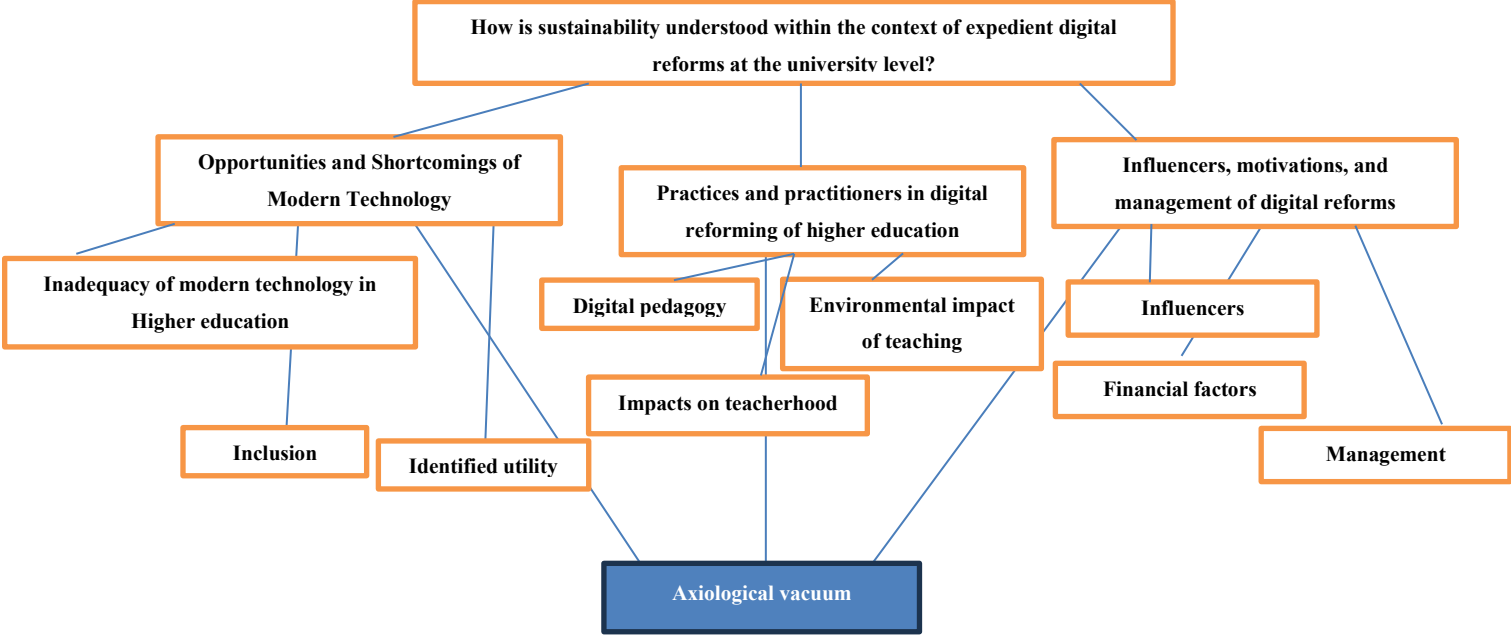


FIGURE 1. Map of themes and sub-themes

Defining and naming themes was the fifth phase of the process. The theme names are listed in the Table 3 in their final form. The data-driven theme, axiological vacuum, was eventually placed as one of the main themes – as some sort of conclusive theme. On the one hand, the axiological vacuum did not seem to fit any of the already existing main themes, and on the other hand, it was perceived as too significant to be a sub-theme. Each theme in Table 3 reflected it in part and, moreover, the absence of this value debate or the absence of recognized and shared values dominated the different responses.

TABLE 3. List of themes

Opportunities and shortcomings of Modern technology	<ol style="list-style-type: none">1. Inadequacy of Modern technology in Higher education2. Inclusion3. Identified utility
Practices and practitioners in digital reforming of higher education	<ol style="list-style-type: none">4. Digital pedagogy5. Impacts on teacherhood6. Environmental impact of teaching
Influencers, motivations, and management of digital reforms	<ol style="list-style-type: none">7. Influencers8. Financial factors9. Management
Axiological vacuum	

Producing the report was the sixth phase. The result of this phase is presented in the next chapter, entitled Findings. The chapter consists of a metatext that backgrounds the findings along with illustrative quotations.

4 FINDINGS

This chapter describes the findings of the study, which are presented according to the list of themes presented in Table 3 at the end of the previous chapter. The content of the main themes is discussed through the sub-themes.

4.1 Opportunities and shortcomings of modern technology

This theme discusses findings related to the material side of digital reforming of the higher education; Through what possibilities and limitations the technologies themselves are perceived from the perspective of the interviewees.

4.1.1 Inadequacy of modern technology in higher education

When asked about the utilization of educational technology in their work all the seven interviewees mentioned Moodle in their response. The next most mentioned educational technologies were Microsoft Office's presentation software PowerPoint along with virtual meeting software Teams and Zoom. The evaluation of educational technology, but also of digital reforms, occurred largely through these technologies, meaning that, whenever interviewee referred to technology these previously mentioned technologies mainly created the sphere of understanding.

One recurring concern about the educational technology was the lack of sufficient interaction during the teaching situation. On one hand, there were concerns about the importance of close contact covered in traditional teaching that is not reached virtually. For instance, Albert outlined the lack as follows:

“But if you think about MOOC-course solutions, where the rather classic argument and perhaps a bit an idealistic argument is that, in this way, scientific-based teaching is made available for people who may not have had the opportunity to develop and gain knowledge in the traditional educational tradition tied to physical location, but then

again, it also involves quite big challenges from the point of view of, say, guidance and social interaction.”

On the other hand, concerns were also related to the difficulties to carry out informal social interaction in digital environments: “When people are not together, they don't see each other's body language, they don't see how a teacher can so as to deliberately provoke and so on, so well it just doesn't work”, said Robert. The responses from all participants reflected a certain need for close contact, mainly because it was seen to have beneficial effects for learning and people participating in learning. Reasons for this insufficiency in digitality were seen as two-way by Ann-Marie:

“When you asked earlier if our current technology enabled (the conversion of higher education into digital form), they do not actually... It is this interaction that.... I don't know if it's about this infrastructure or if it's just that we don't know how to behave like in an online environment or in some Teams or elsewhere in the same way that we know how to behave in this kind of face-to-face interaction.”

In this case, the limitations associated with the technology itself were identified as factors contributing to the deficiency, but also a broader cultural setting that is not directly transferable to the digital environment. Filling this gap was also seen as a challenge:

“...The common misconception that now that we are taking teaching online, it is somehow very advantageous and cost-effective and so on, but it is not true that when you start to consider the interfaces of this kind of informal learning environment and formal learning environment as part of it. The positive hidden learning plan that we have, which relates to the way in which students are integrated into the academic community as younger members, so if you take that seriously in a purely online environment, then it begins to require a lot of resources and attention.” (Albert)

At the same time, while enabling many things educationally and interactively, educational technology and digital tools were also seen as a limiting element by a few participants. “Technology defines, it defines the context, then the question is what to do within that context”, grounds Maurice. “... discussion is often the best way (in complex cases used in teaching), so yes, in principle, they can be implemented there in Zoom, but there is perhaps only the risk that if you are very conversational in Zoom, so there may remain then part of the students in a different way obscure”, states Olga. The same view was shared by Robert, who said that: “... when there is never a right answer to the

questions and the most important thing is the discussion and at the height of the time when these were then tried to implement over the internet, so yes, the discussion was pretty light.”

Then again, the issues connected to the fulfilment of adequate interaction were not the only ones perceived in the modern technology. The use of educational technology was also seen as disturbing factor by four participants. According to participants, the use of educational technology can, at its worst, lead to a kind of overload, hiding of the substance and abuse enabled by the circumstances. As an example of overload Maurice uses PowerPoint and says: “It is then a distraction to the substance itself. So, it's a fog screen if you put something like a PowerPoint presentation full of animation and blinking and so on. So usually there may not be a lot of substance and it is covered up... And the more stuff there is on the slides, the harder it is to read them and then people will read them and not focus on the face-to-face interaction which is more important than the technological stuff and everything that technology enables.” Dolores also made a similar observation about the impact of the slides on the teaching situation, perhaps more from the teacher’s perspective: “These slides so they kind of also captures your thinking, so you can not necessarily create a spontaneous discussion. When then comes a question: `well hey I have it in the upcoming slides let's not go into it now` then that already prevents any kind of spontaneous discussion.”. Educational technology may cause unwanted methods of application as well. Educational technology can give rise to undesirable uses, among which Robert cites the example of exams during the Covid-19 pandemic, which took place remotely and allowed cheating.

Two of the interviewees in the study, Dolores and Albert, both identified security as a concern in the face of increasing digitalization in higher education. The interviewees' concerns about security were divided into three dimensions: physical vulnerability, ethical challenges, and lack of understanding. Physical vulnerability was associated not only with everyday failures such as system crashes, but also with wider geopolitical threats. When asked about the environmental impact of digital manifestations, Dolores brought a security aspect to the discussion:

“Because of this geopolitical situation, what is in store for us? Does anyone know? Has anyone foreseen risks of this kind? We haven't had to think about these risks let's say 10-15 years ago, but now that we see that these pipes are being cut under the Gulf of Finland, it's quite risky for the vulnerability of the university... there can be quite easily done some kind of cyber-attack on the university and then nothing can be done here, except to stop the teaching and research (for the time being).”

Albert, too, recognised the flimsiness of resilience in this direction when he spoke of the university's dependence on external private sector actors. This also aroused reflection on the ethics of university work. As an example of this, Albert questioned how appropriate it is to assign students tasks related to artificial intelligence, if we do not have complete certainty that who controls and handles the data that accumulates from it. By and large, the ethical concerns related to information security, but Albert also mentioned in passing the imposition of market economy logic and its impact on sustainability. In terms of data security, Dolores also mentioned research security and the question of who is ultimately responsible for the storage of research material. Even though, the university owns the studies carried out in it, it can by no means control how the data is processed because it's all behind these systems, she claims. As an example-situation, Dolores uses employment expiration, and asks who will in that case take care of the proper handling of the accumulated data? The observations made by Dolores and Albert above indicate a third dimension of security, which is also in its own way embedded in the two dimensions presented above, namely uncertainty or lack of understanding. For example, Albert lamented, after the AI comment above, that some tool may seem intuitively a good addition to teaching but may involve wider ethical issues that a rank-and-file teacher may not have time to ponder. Dolores talked about the university engine rooms, referring to servers and other digital infrastructure, and said that she can't even think of what can happen to them, but also stressed that it's not really important for day-to-day work, but that at some level it has to be understood. Dolores in particular expressed concern that the lack of staff's knowledge and understanding of the digital infrastructure and systems could have a detrimental effect on the security of the university.

4.1.2 Inclusion

All participants mentioned accessibility in one way or another when discussing the benefits of digitalization in higher education. Often this accessibility referred to the inclusiveness enabled by technologies: "Well, of course, the first aspect is always the fact that digital education is, in a way, more accessible and through that there would be opportunities for more and more of us to have the opportunity to participate in education", said Ann-Marie. The same observation was repeated in different ways and several times by many participants in the interview material. However, this inclusiveness or accessibility was also broken down by the participants into smaller parts, which seemed to be driven more by practicality. For instance, interviewees often associated time and place independency with digital pedagogy, which, according to them, allows flexibility in terms of both time and money. Robert comments on the time and money perspective: "...the benefits of

digitalization, first, it enables students to learn in a different pace. They can combine work and studying better when they can watch lecture recordings later and sometimes when they don't have work, they can do their studies more intensively, self-directed, and so on.” Time and place independent teaching is seen here as a friendly gesture for students that have possibly many things competing for their time. In his interview, Albert opens more profound layer in the discussion of the links between digital education and economic flexibility:

“I think that, in fact, a lot of those questions come back to the fact that it is a way to make education more accessible to a larger number of people, that it has effects in terms of economic sustainability, because it may, in the long run, help to ensure that learning is not dependent on the level of income or the current economic situation, of course, but then again these may have social effects.”

On the one level time and place independency improves the ability of blending work and student life, and on the other, it lowers the financial threshold for studying, which of course, has many other factors affecting it also.

When talking about the links between digital education and social sustainability, Simone and Dolores mentioned linguistic accessibility enabled by technology. Respondents felt that technology supported individuals suffering from both language uncertainty and language illiteracy. For example, Simone pointed out that digital education can help timid and shy people who: “feel that the language (english) is a problem, then participating in such a discussion can be difficult and then it may be that in such situations it may be easier if you can participate by commenting on the Moodle or something similar”. On the other hand, Dolores mentioned how modern technology makes it easier for individuals without language skills to cope: “This is not related to teaching, but there was a faculty meeting, so there is then the possibility that the program will translate it for you into English. The fact that this administration's intricate language is a bit difficult also for the deans as well... That it is not always easy to understand, so then you have technology available for these international participants... that this is certainly a way of providing (social) sustainability and, in a way, inclusiveness of this kind.”

Several participants also linked accessibility and inclusion to the personalisation of learning. In a way, the personalisation of learning, made possible by educational technology is precisely what produced accessibility according to many. Robert noted that this personalisation of teaching does not come without a cost: “...I can see that digitalization could help to diversify teaching, so that learning is individual for everyone. But then again, when it comes to mass courses of this kind, yes, the

teacher's resource limits are quite a bit against it, and then there's also the fact that students should be on the same page when it comes to assessment, fairness and so on.” The difficulties of evaluation were also shared by Albert: “...with these online courses one can actually get much more tailored, more individualized tasks and... not so much that individual students are tailored to separate tasks, because it is a bit problematic then from the point of view of the assessment of the achievement of the common learning objectives.”. In addition to the accessibility aspect of personalising learning, the resource-intensive aspect for teachers was also identified. Moreover, according to Robert the lack of resources was the biggest obstacle to the personalisation of learning, that in itself is a good and desirable thing, he says.

Maurice takes a different view, arguing that there has not been any particular breakthrough in technological development that enables today's ways of working, but rather an increase in the use of already existing technologies. “And on the other hand, it's good that such electronic means have already increased in terms of being able to organise some guest lectures from the other side of the world. But so, it was possible then forever ago already when I was in my first official job in the university”, said Maurice. In this sense, the topicality of digital reforming is to some extent fictitious.

4.1.3 Identified utility

Participants identified several different benefits, of varying magnitude, from the use of educational technology in the teaching profession. Simone, who uses guest lecturers for her courses, says that thanks to the technology, she can recruit them also from outside Finland. She nevertheless continues reflecting that it is a new opportunity created by technology rather than an emission-reducing replacement by technology:

“...because I would not in any case have invited a speaker from Brussels to Tampere for one lecture and flown them here and then make the subject pay for their flights and so on. It would have been both financially stupid and ecologically stupid, but then, however, it is now possible to get the speaker from there without these effects.”

Robert also shared the same point of view on educational technology as a method to reduce emission load of teaching work: “...yes, I do think a lot about in my own case, whether I should drive to campus, and of course, then so as well as for students also...sometimes I wonder whether we can implement something remotely, because of all the mobility so then the environmental impact arises.” When discussing about the sustainability of digital education, Simone points out that the impact will

not be significant one way or the other if it does not fully replace face-to-face teaching: "...I would perhaps see that the most significant sustainability effect would be if we moved to distance learning again, which would reduce the need to move from one place to another. Of course, then these services would be used more and that has its own environmental impact...". Simone also recognizes that digitalization opens a lot of opportunities for students for example in a way of Massive Open Online Courses.

Four of the participants linked efficiency to digital education in one way or another. According to Robert, digitalization is seen as a remedy for certain problems: "It's a well-known fact that there should be a more diverse, continuous supply of education. And at the same time resources should be reduced. And in my opinion, there is no other solution to this than digitalization.". The same rationality had also been noted by Ann-Marie, who said: "this digital education is perhaps offered as something like a way to save resources or as if it is seen that well, 'but now that we have this digital teaching, so you can do it more effectively'". Albert also agreed with the efficiency rationality, adding, however, that behind it there may be a genuine concern and aim to bring more people under counselling, even if a certain efficiency rhetoric characterises this development.

From the teacher's point of view, one of the efficiencies Maurice mentioned was the recycling of teaching events, which is made possible by utilizing the technology available. When asked about the workload comparison between face-to-face and digital teaching, Maurice saw the benefits in the fact that a digitalized learning event can be used in more ways and thus pays off better. Whereas a physical lecture cannot be moved from one place or time to another as it is always a unique case. However, he stresses that a lot depends on whether it is designed to resist the ravages of time, as preparing this content takes time and digital learning content is therefore not always a better option pedagogically or even in terms of efficiency.

Albert and Maurice who both came from same unit limited the use of educational technology to an auxiliary role. Both argued in favour of appropriate use of educational technology.

"I've been using, for example, some referencing software for who knows how many years and I mean decades... I recommend to my students that they should familiarize themselves with this or that or something like that as a very basic thing that the computer is not a typewriter that technology should be used, but once again when it is genuinely useful and not just to get flickering lights and something colourful without any substance to it. "
(Maurice)

Albert reflects on his own teaching method as follows: “For me, teaching is more student-oriented, problem-oriented teaching, I prefer interactive, dialogic, critical discussing, that in that sense it is perhaps not as if the technology is the most important pedagogical method. Perhaps technologies are then only in a supportive role in it.” Neither of them saw any significant potential in terms of content or pedagogy for the digitalization of teaching in their subject area. To give this perspective some context, Maurice also says in an interview that his sector has relatively modest requirements for the successful organisation of education: “If the purpose is, for example, to promote critical thinking, it does not require any shocking resources. But such certain basic things, such as the facilities and time and the opportunity to focus on it and a reasonable library and so on.”

Compared to traditional classroom teaching, the undoubted advantage of digital education was scale according to few participants. The scale advantage was reflected not only in number of students, but also in the amount of interaction in the teaching situation itself. Robert, who is responsible for teaching a lot of mass courses at the bachelor's level, saw a lot of benefit in the fact that digitalization allows an almost unlimited number of students to take a compulsory course. As an example of this, Robert used a course that was previously held in computer class that had capacity of 25, but since it can now be held in digital learning environment there had been 70 students at best. Maurice saw a surprising benefit of technology during the pandemic, when he had a remote lecture with 100 people and a real-time verbal conversation and a simultaneous chat conversation that he could follow. Equivalent he said would not have been possible in a face-to-face teaching event.

4.2 Practices and practitioners in digital reforming

This theme focuses on the practices and practitioners of the digital reforming in university. This main theme is addressed through three sub-themes, which are: digital pedagogy, impacts on teacherhood, and environmental impact of teaching. While the previous chapter focused more on the technologies themselves, this theme takes a closer look at the practices, consequences and actors involved in digital reforming.

4.2.1 Digital pedagogy

Of the interviewees, Maurice and Olga said that educational technologies have not changed teaching and Simone could not say. Of those who answered negative, only Olga had a relatively short career in academia. On the other hand, respondents who said that educational technologies had changed

teaching (Robert, Dolores, Albert, and Ann-Marie) generally had a teaching career of more than ten years. The survey of attitudes towards digital pedagogy is also important because digital pedagogy is one of the focus points mentioned in the strategy of Tampere University.

There is little vision of alternative systems or ways of working, but digitalization and digital pedagogy are discussed within the limits of existing systems. This makes it difficult for participants to assess the quality of development. This, however, is understandable, as it can be difficult to talk about what does not exist. Most respondents said that they do not influence on educational technology used, but that much of that comes as a given from the university. On the other hand, Simone, Ann-Marie and Olga acknowledged the strong autonomy of the teacher in deciding whether or not to use these technologies in their teaching – nothing is forced by the university either. In their responses, several participants pointed to a kind of missed potential, i.e. the underuse of educational technology, partly due to the difficulty of familiarising themselves with digital pedagogy because of lack of time. In her response, Ann-Marie gives an account of the everyday reality of teaching:

“...yes, in a way, you also get used to the fact that here they (educational technologies) are like these and with them we must live. Only if there would be more time again, then... I feel that there may not be enough time to even visualize what it could be. That you just think that these are what they are now, and these are OK. I can manage with these. “

Both Albert and Robert felt that there was underutilization of digital pedagogy in their line of work. Albert saw great potential in digital tools also in traditional teaching, where the digital tools could operate as an extra layer on top of face-to-face interaction. However, in earlier part of his interview, he mentioned that he sometimes finds himself in a situation where there might be a cleverer educational technological solution to an issue, but either because of lack of time or lack of desire to rearrange the teaching event, he does not pursue this alternative. Amidst all the new systems and the plethora of workshops, Robert for his part wondered: “how does a teacher have time to reflect on the possibilities offered by digitalization?” One of the sustainability gaps, he said, is that digital education lacks a kind of on-demand support for teachers.

Robert, who has over 20 years of teaching experience, has seen first-hand how digital technology has replaced pen and paper as the main medium of teaching. He says that technology has, above all, diversified teaching and opened a range of possibilities. However, this development has affected both the teaching event and its content. According to Robert, digitalization has accelerated the pace of teaching, which has a negative impact on learning. He shares an example from 4-5 years ago when he taught a rather challenging matter from his subject. First, he had taught it with slides

that included animation, but when the students didn't seem to get it at all, he turned off the projector and drew it on the whiteboard. The drawing had the same things included in it as the slides, but rhythm of the teaching was:

“...probably three times slower, giving your brain a better chance to get involved. And I think that this is an important thing related in the whole digitalization and learning, as what our brains are really capable of and when I know that students watch my lecture recordings at 2x speed so I really do not think that they can learn anything.”

The reason for this, he sees, is that there may be too much substance, because everything is unloaded up on slides and if everything had not been done in advance, the teaching event would probably not contain so many things, leaving the student with the capacity to reflect on what he or she has learned. Robert also found the digitally produced material tiring and the human ability to concentrate in front of a screen limited. This latter point about people's tendencies and abilities to work within digital environments echoed also in other participants' viewpoints. For example, Ann-Marie and Dolores both reflected on the skills required of both teachers and students in digital education. In order to unlock the full potential of digital pedagogy, a certain level of skills is also required of those involved in the teaching situation and these are not self-evident according to Dolores and Ann-Marie.

This concern about the adequacy of digital skills, expressed by several interviewees, found its most tangible verbal expression in Albert's response, where he reflected on the conditions for successful digital pedagogy, but also for digital reforming. On the question of whether it would be possible for a student to integrate into the academic community in a fully digital environment, Albert is cautiously positive, recognising the challenges beyond the university's remit:

“But when you talk about academic community, you talk about the highest level of education and inevitably the students who come there have gone through certain patterns, traditions, practices, understandings of the lower levels of education, starting from how the relationships and hierarchies or non-hierarchies between the learner and the teacher are built, and that is perhaps the great challenge in such a completely unlimited, open online education, that how to get all the cultural traits and such involved, since the student mass is inevitably more heterogeneous.”

The success of digital education at university level therefore goes down to the lower levels of education. Albert also points out at another part in his interview that universities do not live in a vacuum and that the skills needed there are not acquired only there.

On the part of the success of digital pedagogy where teachers have a real opportunity to influence, the content of teaching, there was a consensus among several respondents on the question "how?". Ann-Marie, Maurice, Olga, and Albert considered a genuinely new approach to digital education to be an essential starting point, i.e. a rethinking of educational issues in a new context rather than simply digitising the old. In her interview, Ann-Marie refers to the time of the pandemic and "forced distance teaching", when a sudden change in the form of teaching and, again, lack of time meant that courses were not as pedagogically sound as in the pre-pandemic period. Maurice, from a different discipline, noted comments like Ann-Marie's among his colleagues:

“Many of my colleagues complained that ‘Oh dear, this is not at all a course of the same level’, if, for example, during the pandemic there was online teaching and so on. ‘It was just a correspondence course or something’, but I think it was not understood that if it is well done, a course by mail can be extremely good. The question is how to organise it. How is it done?”

Maurice stresses that one should not just relocate the lecture course to internet, but to think about the new medium, the new environment. When asked about the differences in quality between traditional and digital education, Olga replied that if courses are built online with enough effort and clarity, the same objectives can be achieved, but through different routes. According to Albert, digital teaching is neither better nor worse than traditional teaching, but the quality is affected by the resources used for planning, which, according to him, are currently more demanding in digital teaching than, for example, seminar-based teaching.

4.2.2 Impacts on teacherhood

The most significant change in teaching, according to most interviewees, was the increase in workload. The increase in workload manifested itself in different ways for different interviewees and this increase was examined at both the micro and macro level. For instance, Robert, whose teaching responsibilities include mainly undergraduate mass courses, sees the particular benefit of digitalization in better reach of course announcements, but the downside is the volume of messages from students, which is a major concern for him. He also says that there has been change in attitudes of students: “Then also such a more difficult thing to notice is that students own will, the desire to make an effort for things has also decreased with digitalization, on the contrary, the request is to the teacher's direction all the time to give everything ready for them today, preferably yesterday.”

The participants clearly outlined in their interviews the factors related to the increase in workload. On the one hand, Ann-Marie and Robert report that their subjects are chronically understaffed. On the other hand, Simone predicted that the increase in student numbers would increase the workload of individual teachers. At the same time, the attempt is solely on individual teachers to ensure more diverse learning, too. Ann-Marie explains:

“I’ve now gone a bit to the point that my courses are largely executable by either way (contact or remote teaching). So then, of course, it just means that from the teacher it may take even more resources, because now I have like two modes of study to choose from, whether you come and do group work and present cases and everything else in class or do this independent work, which then includes this and this and this and this and then I carry out these two modes within one course.”

She also adds that hybrid teaching is also more work than just traditional or the digital teaching. During the pandemic, Maurice converted his course into an online course and said he recorded the lecture in advance into "reasonable listening pieces" instead of three-hour monologues and used the time together to discussion. He saw no problem with that: “...if you compare the learning outcomes of this version with traditionally delivered courses, but it required that I had done a lot of preliminary work and that the course was implemented in different way.” Olga, who has had the shortest career of the interviewees, said that the abolition of support services has meant that teachers have had to take on a lot of secretarial work – keeping grades, creating a comprehensive syllabus, building Moodle – which also affects what can be done in the classroom. She sees the situation as paradoxical. While it might seem good in numbers that a whole department is abolished in university, it is not realised that there are no resources elsewhere, but that more staff should be hired or what is being done should be reduced. This leaves all the work to the teaching staff and professors, who do this on top of their previous work tasks – and at a much higher salary than the support staff would make, she says. In her view, this intensification has led to inefficiency. As a result, the work efficiency of the expensive teaching staff is reduced. Albert also recognised the root cause of the flood of work into the laps of teaching staff is the abolition of support services. He elaborates: “...in general, the problem is that micro-tasks that used to belong to administrative professionals have been piled on the shoulders of teachers, such micro-tasks and the meta-work that comes with it, and that you move cognitively from the world of teaching and researching to the world of administration, which is a bit different mindset, is in fact cognitively quite burdensome and the understanding of it even though we have

given feedback on this, it does not seem to go through to those who are responsible from the design of this overall architecture.”

So, on the one hand, the increase in this kind of meta-work was due to the transfer of new tasks to teaching staff, but on the other hand, at least according to Albert, the use of digital tools has also increased the amount of meta-work. According to Albert, with the increase in information systems and management systems, more data is being collected, not necessarily directly related to the teaching itself, but for example to monitor the quality of education or similar. He did not see this as a positive thing. The measurability of the work had also been noted by Dolores and specifically that it was an economic language when it came to measuring. According to her, financial issues have gained an increasingly strong foothold in the teaching profession: “Then when there are unit meetings, where we go through the same things I mentioned earlier, that a certain kind of funding model and measurement thinking is drained right down to the individual level and into everyday life”. She suspects the national funding model of universities is the reason for this kind of measurement thinking.

In their responses, both Ann-Marie and Olga highlighted the fragmentation of teaching, linked to the proliferation of educational technologies and the lack of their management. According to Ann-Marie, teachers have a great deal of autonomy in teaching matters, i.e. nothing is imposed by the university, and she appreciates this. However, both Ann-Marie and Olga recognized that this leads to situation of “helter skelter” since it rests solely on the individual teacher’s inclination and hobbyism how much the digitalization is implemented in teaching. Ann-Marie thinks that:

“But yes, I still feel that it would be important that, for example, at the unit or degree programme level, even now when the new syllabus is being made, that there would be some kind of general guidelines on things like how we relate to them and what kind of solutions we have, so that there would be some kind of consistency and some kind of clarity, and perhaps also a discussion from the point of view of sustainability.”

Olga also recognises the difficulty of leadership and argues for smaller scale management, as: “I don't know how the university could help more than just offering support and tips how to use Zoom. Maybe more like sharing good practices among colleagues, sharing what has been successful in certain types of group work or so”. She argues that the teacher in charge of the course always has the ultimate course-specific expertise that the university administration does not have, and she does not see that this would make university's interference in teaching an act in its favour. Both Olga and Ann-Marie

argued for more active peer support, as they saw challenges in the success of cross-subject guidance, that would come from above.

4.2.3 Environmental impact of teaching

Interviewees were aware that the teaching work and the used educational technology had some environmental impacts, but there was no precise scale or comparison to any alternative – existing or envisaged. Most responses operated at the level of schoolwork, i.e. the emissions generated by carrying out a lecture, and at the deepest level, the emissions generated by building and maintaining a digital infrastructure. All these answers were characterised by acting on a hunch, as no one had any actual knowledge on the subject.

Five out of seven respondents said that they consider or at least ponder the environmental impact of different manifestations of digitalization in their work. Simone, who minimises the environmental impact of her work by avoiding travel and favouring forms of remote participation, contemplated: “But then there is the environmental impact of these devices, so it is, of course, that none of this happens, as if this kind of emails and use of Moodle or Zoom, so it is not as if it will happen without emissions. And in that sense, I think it is responsible, because I, for example, do not want new devices before it is absolutely necessary that I now have a phone screen a little broken and another usb-port on the computer does not work.” Maurice, on the other hand, wondered at the time of the pandemic how little discussion there was about the energy consumption of remote teaching: “Let's take the pandemic era as an example. I mean, I found it quite shocking that no one seemed to discuss how much energy HD video takes and where that energy comes from... And I do not now remember whether it is a thousandfold difference in the number of bits when it is just audio, a high-quality audio versus HD quality picture and audio, but it is at least a thousandfold difference in what you have to transfer.” Olga also admits that she sometimes wonders about the environmental load of her teaching sessions if they are in Zoom for 6 hours with the cameras on.

Some interviewees also noted the environmental impact of the university's digital infrastructure and questioned the sustainability of adding technology from this perspective. For example, Simone and Albert mentioned the minerals required creating technology in their responses. Albert, who, in his own words, takes almost no account of the environmental impact of digital manifestations in his work, mentions: “But then the negative effects may also be that the more we export stuff to the cloud and the more we have these systems and others, so the more we need to

mine some rare minerals, in those areas of emerging economies and the more we need the cloud storage space, which requires energy and other things.”

Not too many interviewees felt that the pace of renewal of the university's digital equipment was too frequent. However, many respondents called for accountability in the replacement of equipment. Maurice, Ann-Marie and Dolores reflected on what happens to equipment when it is taken out of service and saw this as a particular area of environmental responsibility. In their answers, however, they were operating at a speculative level, as they had no actual knowledge of the university's equipment recycling protocol – whether it is sufficient or not. For example, Ann-Marie would like to believe that the equipment being removed will be recycled properly. Maurice also had the same concerns: “Perhaps the bigger question is what happens to them after that? How do we ensure that those appliances are recycled properly don't end up in poor countries?”

With a few exceptions, interviewees took a very single-minded approach to sustainability, looking only at energy efficiency. Simone, perhaps because of her background, also considered sustainability in the university context in a more multidimensional way:

“...my own background shows that we are always talking about how technology is developing and how our energy systems are becoming more efficient and more effective, instead of talking about how energy consumption should be reduced all the time. And it is not a technological solution, but the fact that we consume less and it does not require any technology, so perhaps the same discussion in all areas, perhaps even in universities, as if what is the technological level that is thought to be good.”

In his interview, Albert put some brakes on the assumptions that might be associated with the sustainable development of digitalization and universities: “...the fundamental reason why I want to develop my online course, for example, is not because it would have some positive environmental impact, for example, that it reduces mobility and traffic. But, yes, it is purely related to the degree structure and the fact that it is really an appropriate way to implement a certain piece of the degree structure and curriculum, but fine, it's nice if it will then have some such positive environmental effects.” According to him, such matters should not be followed up by individual teachers but should be dealt with at a higher level in the administration. He concludes his interview by summarising his understanding of the equation between digital education and sustainability:

“...if in this context it can be shown exhaustively that these digital pedagogical solutions somehow solve this problem of wasting resources and thus somehow promote planetary well-being, produce more equal solutions that would be socially sustainable and would

have some probably economic impact, then I would be ready to accept this kind of a pretty complete paradigm shift. But I am not at all convinced that this is the case. This is so because no reorganization of education does not solve any of these global sustainability problems.”

Simone and Olga felt that the current technology and practices limit the ability to be more environmentally friendly. According to Olga, while full distance learning would reduce emissions from mobility and buildings and could increase social well-being for some, it would probably increase the demands on housing and reduce social well-being for others due to lack of contact and meeting places.

The responses were characterised by a lack of awareness of the emissions and environmental burden of university education. Maurice, Ann-Marie and Olga, for example, each mentioned in their interviews that there is very little discussion of these issues, although they are strongly present or at least in the background of many of the speeches. When asked whether the digitalization of higher education takes sufficient account of the multidimensionality of sustainable development, Olga replies: “Probably not. Because these are not really talked about anywhere, that even though I work in the field of sustainability and I'm somewhat familiar with sustainable development, I do not know what kind of environmental load these machines have. Of course, I acknowledge all the basic battery material matters and others, but I have no idea how much of this equipment is in use at the university and whether it is unnecessary or is it all in use?” Ann-Marie, for her part, used the university's faculty development programme and the discussion arranged regarding it as an example: “And in all those conversations I feel that there is a) like the economy and then of course the biggest thing is that everyone is worried about whether I have space and office space and everything else. But in these discussions, and these discussions have been very many, so in none of them has there been a focus on what this means from a sustainable development's perspective, what this kind of faculty reducing mean?”. She also mentions at another point in the interview that she says there is not much thought given to the sustainability aspects of digital education at all, that it came with a bang with the pandemic, but nothing concrete is reported. A few respondents deplored the lack of guidance and information on the environmental impact of teaching. For example, Ann-Marie says that teachers are not aware that digitalization and digital teaching are being considered from a sustainable development perspective at university. Along the same lines is also Olga: “...anyway, when we talk about these faculty development programmes, that they are justified by sustainable development to reduce the building stock, then on the other hand, it would be nice to get some concrete data on how much of these facilities and equipment are actually used.” The responses reflected that many interviewees had

an interest in knowing about the environmental impact of their own work, but the information did not exist, or it was not communicated to them.

4.3 Influencers, motivations, and management of digital reforms

This theme addresses the influencers and motivations behind the digital reform of the university, as well as the management of this process as a whole.

4.3.1 Influencers

A few factors emerged when interviewees were asked about the reasons for the increase of digital reforming and digital education. Most of the factors can be traced back, at least indirectly, to the policy maker.

Four of the interviewees said that they were not familiar with the Tampere University's strategy and what it says about educational technology and its use. Maurice, who was not familiar with the strategy, believed that the idea is to use digitalization to enable better connections between other universities' supply of education. In his response, he mentions Digivisio-project that is also mentioned by Dolores. In her response, Dolores starts by equating continuous learning with digitalization, as they have roughly the same ambition. She then goes on to discuss the impact of Digivision on the university:

“But yes, it's there and it comes from this digital. It's then implemented there and the ministry takes care of it with its own steering mechanisms. We are concerned that we are moving towards a digivision and then there is talk of these European Union universities, some kind of wonderful platform to which anyone can have an access and you can get a degree by collecting courses there. Well, it's probably a nice thing and may seem good on paper, but how is it then in practice?”

Dolores continues to reflect that stepping up towards a Digivision is a good thing, but we should always think about the consequences for students, learning and the nature of higher education.

In her interview, Dolores also mentions the increased work-life relevancy, suggesting that higher education should increasingly include skills for the work-life and prepare students for the world of work. She is dubious about this, as it is a very good task for universities of applied sciences, whose mission is job-oriented, but it is not entirely suitable for universities. Olga, too, acknowledged

the increased work-life relevancy, but from the student's side. She says there is a desire on the part of students to know how to get a job in a particular field and what is wanted in the world of work. In his interview on sustainability, digital education and the economy, Albert also touches on the work-life relevancy and the ideology behind this thinking: "I know that, of course, if you read the government programme, the level of education is almost directly equated with the fact that we are now getting more top experts, we are getting more drivers of the national economy and more innovations and other such things, but surely those will also be created along the way, but I see even more fundamental values for which education exists." Albert also notes that the aim of increasing digital education seems to be to: "...that the teaching method itself would somehow teach the future experts to work in the same environments, so it has grown and perhaps it should be taken into account, but we must remember that it is only one environment." As one of the drivers for digital reforming, Dolores highlights the forces of global competition and the benefits that digital can bring to this competition. Behind this, she sees the 'top tier university' narrative and says that all universities aspire to be internationally recognised research universities.

The factors identified by respondents have in common that they are linked in one way or another to the policy maker. Digivision, work-life relevancy, more efficient graduation and international competition are linked to universities, either through a government programme or a funding model. In other words, the strongest drivers for digital reforming are identified as coming back to the funding model of the university and not, for example, to some more profound values.

4.3.2 Financial factors

Interviewees were very unanimous that the economy is the main driver of digital reforming of the three dimensions of sustainable development. Five out of seven participants directly identified the economy as the most important factor, while two other answers can be related to the economy, talking about resources and competition.

According to Maurice, the dominance of the economy has been helped by sustainable development, from which he says: "People don't seem to understand that we're building a better mousetrap instead of rethinking things. The two things are related precisely because it is another market area into which capitalist thinking can expand." According to him, the fundamental nature of capitalism involves expansion and intensification, both of which are currently seen in the equation of digital education, sustainable development, and the economy. The education market is opening to sales-based activities, through which financial logic is trickling down to the university. "...and the

idea that this is now something like sustainable development, but it is sustainable growth that we want to achieve here”, Maurice states. In addition to Maurice, Robert recognised the growing presence of economic rationality in the university and the consequent opening of the teaching market: “I would put it in terms of the economy, that companies in general develop digital technologies to make a profit and then they are used in different contexts to make savings.”

Economic dominance was linked by many interviewees to the funding model of universities. According to Maurice, this development stems from government level, because although universities are autonomous, they have certain budgetary constraints. Ann-Marie also says that the university's funding model is also behind the justification for using digital pedagogy. A more efficient use of resources results in more credits, faster pass rates and faster graduation: “And these are all factors that directly affect our funding and that's where it comes from, that this is what I think is the strongest reasoning for why we should use digital pedagogy.” Albert, on the other hand, says that funding has become somewhat of an end in itself. Activities have to be organised within financial constraints, leading to a situation where: “...in sports terms, the eye is no longer in the game itself, but a little bit of a strange shadow game and then with it we must try to cope, at the same time as there are then some of those a little more passionate things that want to develop, which is a kind of self-driven development, so in that way it quite clearly affects (the economy).”

Economic efficiency is also reflected in the teaching curriculum. According to Ann-Marie, economic talk is reflected in teaching and talk leads to action: “We have increased our intake quite significantly in our subject, but we have not increased our teaching resources. So, we have more students in the courses and more students with the same number of staff”. Albert, who holds a position in another subject, shares the same observation. He says that the underlying factors are wider and longer-term developments in higher education policy: “in terms of the economy and the demands placed on the organisation of higher education, it is the case that they have risen, but the resources have remained relatively the same, and even fallen. Through it can be seen that, say, over the last 10 years, cuts in education have not at any time been followed by such as a corresponding increase in level.” According to Albert, the first argument in the debate on digital pedagogy is, if not outright saving resources, then at least rationalising resources, which he says is somewhat misleading. There is a slight disagreement about the impact of economic language. For example, Robert says that economic constraints are present in everything, but whether they have had any practical impact, he says no.

Close to Albert's shadow play metaphor is Dolores' observation of the everyday life of university researchers, in which she says:

“...they don't ask what you did? Or what you found in the study? What did you find, but what funding did you apply for last time?”

According to her, universities have been taught to compete. Efficiency, measurement, and economic discourse stem from this competition. “...the money is competed for, it is described as a zero-sum game, that if one university makes a better result, then someone else loses”, she adds. At least according to her and Albert, funding has become an end in itself.

4.3.3 Management

In interviews with participants, the pandemic era when distance learning was a necessity, was often repeated. The researcher has named this phenomenon as pandemic benchmark. In other words, when assessing the opportunities, advantages and disadvantages of digital pedagogy, interviewees often drew on the pandemic, when distance learning was forced by circumstances. This pandemic benchmarking exercise often highlighted the shortcomings and observations that made education at that time unsatisfactory. Robert shares his thoughts on the subject:

“But I could just say here that the corona time is a terribly good benchmark for what digitalization really means and how difficult it is for both the teacher and the participant. I started to do at some point that even though I only used a computer camera, I had a flipchart at home, so I went to the flap and drew on it and people commented that this was so welcome that this is real life and not that there is the speaker's little head and they all stare to the screen.”

Simone, in her interview, said that the pandemic showed that there is still a demand for face-to-face interaction in the university world, and that this contradicts with the current faculty development programme. For example, she says, the learning of cooperation skills was lacking during the pandemic period. Olga, who uses cases in her teaching, said that while all the courses were taught remotely during pandemic, there was some mixed feedback that they were not very liked, and many people were quite happy to return to face-to-face teaching. The experience of the large-scale implementation of digitalization was overwhelmingly negative, influenced by the fact that it was entered into unprepared.

As discussed in the chapter 4.2.3. the lack of communication or the failure about communicating the sustainability aspects is also related to management. Ann-Marie refers to the teaching and learning centre ran by the university as a support service for teachers. It talks about when

digital teaching is more effective than traditional classroom teaching, but she says there is no consideration of the sustainability differences between the two, which she thinks would be relevant information. When asked whether the digitalization of higher education takes enough account of the different dimensions of sustainable development Ann-Marie says that this digitalization has made the economic aspect visible and then: "...social sustainability very little or it seems to have been the last of these perhaps. but somehow, I feel that you would think that the environmental issue would now have been more strongly presented, but very little here within the university it has appeared." According to Robert, too, in sustainability, certain dimensions dominate at the expense of others: "But anyway, if I now think about digital education and its social dimensions of this kind: inclusion and even what can be presented there now, I've never heard anyone talk about it from that point of view." He deepens his thought: "But if I now think again like this: university, digitalization, the multidimensionality of sustainable development, so in my opinion, it is quite clearly dominated by the economy. Environmental issues... perhaps something at least locally in the field of study, but then again in terms of social aspects, that's pretty lightweight."

4.4 Axiological vacuum

The fourth theme axiological vacuum derived as a data-based finding. The research framework did not include any sources on internal axiological review of the universities, so the interview questions did not seek to explore this dimension. However, many responses referred to a mismatch between the national development of higher education and the higher education ideal. This tearing element which is linked in one way or another to all the themes discussed above – between educational practitioners and strategic digital reforming – is what the researcher has named the axiological vacuum.

Simone concerned it unpleasant the fact that science and research are only discussed in economic terms: "...that it is a source of innovation and productivity, and not like it has value in itself, and that science in itself is important and that it has intrinsic value that we are a civilised nation and state. It's not nice.". Maurice also criticised the intensified economic talk when talking about higher education:

"Well, they are now the keynote speeches from the technology industry, which politicians have also seized on, and there is no understanding at all of what really is important in university education. The idea in these speeches is that knowledge or skills could be

transferred from one head to the other, but, in fact, most of the learning takes place inside one's head."

Albert too was unenthusiastic to the development narrative that dominated higher education policy, stating that the idea that the education system was run solely to serve national economic interests was alien to him. According to him, for example, civilization, the possibility of social uplift, and social cohesion, are much more important from a sociological point of view. According to some of the participants, the ultimate purpose of higher education is being obscured by economic talk.

In her responses, Dolores reflected on the impact of digital reforming on the fundamental nature of higher education. She said that teaching in her field could be converted to digital, but questioned whether it could be replaced. She stressed the importance of ex-ante assessment of the impact of the reform on students, learning and the nature of higher education. She was not alone with these thoughts, since many other participants considered certain characteristics of traditional teaching to be worth cherishing. The most important of these were the face-to-face interaction, proximity and communality. The responses suggest that educational technology has not been able to deliver these to a high enough standard and that its impact on these has been adverse.

According to Simone, digital reforming is also driven by technology itself, as there is a perception that technological progress is good in every sector. She hoped for: "...critical thinking about why technological development is better and whether there is a point at which it is no longer better." She asks what is the level of technology that the university can be satisfied with. The opportunities and needs for digital reforming also vary from subject to subject. According to Maurice: "There are areas of science in which high technology is definitely present and we are now talking about microscopes for example, and they are indispensable. Well, for us the essential things are literature, time and some kind of community where we can discuss and talk about things."

5 DISCUSSION

In this chapter, the findings of this study are brought into discussion with the scientific research presented in the literature review. The division of this chapter is rooted in the conceptual framework defined at the end of chapter 2 (See Table 1.). This chapter establishes the main findings of the study.

5.1 Economic interests as the driving force of the digitalization in gentrified university

A majority of the participants argued that the economic interests are the key driving force in the digital reforming of the university. According to participants the digitalization and the educational technologies are becoming more common, because of the financial benefits induced by it. Thus, the findings of this study support the claims made by Suoranta & Teräs (2022) that digitalization in higher education is progressing because of the new demand and cost-benefits it creates. The participants of this study did not recognize that other desired benefits such as environmental or social sustainability or digital pedagogy played any significant role in the digital reforming of the university. What makes the finding more interesting is that the softer values and benefits, such as sustainability, highlighted in the background study preceding the one at hands (see Appendix 1.) and reflected in university strategies, had not penetrated teachers' everyday lives and awareness. The efficiency and savings measures recognised by the participants in this study were then again overlooked in university strategies. Based on this study and the background study, there seems to be a mismatch between strategies and teaching reality, which one participant suggested was due to the strategy remaining a top-level statement of principles rather than a guiding document.

Saari & Sääntti (2018) along with Suoranta & Teräs (2022) presented in their papers that the ultimate motivation for digital renewal is the national economic benefits of having a larger share of the population in higher education. Of the participant sample, Albert and Simone mentioned that government programmes often equate the two issues of higher education and economic benefit, which then creates the need to accelerate the former. A few of the participants mentioned that the pressure for digital reforming of university comes from the political decision-maker. Not necessarily

in the form of a clear command, but by steering the action in the desired direction using the control methods available. However, this study did not find any evidence for the perspective that the need for digital reforming of the university would be genuinely intrinsic. For the matter, this observation supports the notion presented in Appendix 1, that the political decision-maker tends to use one project to achieve another in strategic development of university.

There was comparatively little concern about the increase of the commercial agents in the education market among the participants. There were, however, concerns about the increase of market logic in organizing the university education, but this, according to participants, stemmed from the funding model of the university. But for example, platform capitalism (Srniczek, 2017) a capitalistic mechanism to facilitate infrastructures of society, cannot be considered as a noteworthy development based on this study.

One of the key findings of this study was that economic speech and financial logic has spread in university even up to the teaching profession. As one of the participants said university management justifies most things through economics. Such a development indicates a gentrification of the university. The researcher refers to gentrification as a line of reasoning, where things are measured and valued strongest through the economy, making it the main steering factor. Alternative situations were rarely discussed by the participants, since everyone accepted the fact that educational technology and digitalization is needed to meet the requirements set by the ministry of education and culture. However, the expediency of this development was questioned, since many found more profound values from university education than the ones connected to economics. These more timeless ideals are overlooked in the gentrified university. Another finding can be drawn from this, namely that the university has not been able to communicate these other benefits of digitalization to its staff – if they are forthcoming.

5.2 Transformation in agency and teaching

As one of the study's presumptions was that teacherhood is in state of flux, due the educational technology and the new learning environment surrounding university education. Of the participant sample a narrow majority thought that teacherhood had changed because of the educational technology.

The prior research pointed out that teachers are treated more as objects of digitalization than active participants (Teräs et al. 2022), which impairs the integrity of professionalism of teaching (Biesta, 2019). The findings of this study are ambivalent in relation to previous research. On one

hand, a recurring notion in the participants' responses was that they have full autonomy when it comes to arranging their courses. Nothing is forced from above. On the other hand, according to the study, all software and other resources are provided by the university and many reported that they have no influence on the educational technology used. The study suggests that teachers have a choice to use or not to use educational technology in their work, but the pressure to do their job with limited resources is likely to drive them towards more effective digital solutions.

The illusion of cost-efficiency, that more independent learning for students in online environments would decrease the teacher's workload (Teräs et al, 2022) found to be an illusion in this study as well. This study's findings are in alignment with the previous ones stating that digitalization of higher education increases the amount of work. According to this study, the main factors behind the increase in workload were two-fold: the transfer of new tasks to teaching staff on top of the old ones and the use of the digital tools. The preceding refers to the tasks assigned to teachers by the abolition of university support services, such as administrative work-task characterized as secretarial work, among other things, which has led to situation of paradox of efficiency where expensive teaching staff become less efficient when they are obliged to perform these administrative tasks. The latter refers to utilization of digital tools to provide sufficient learning experience for example in remote teaching. The findings of this study strengthen the previous studies in that the invisible workload such as meta-work has increased also in the form of course redesign and maintenance of flexible learning supply.

From the field of post-digital theory, there is a counterforce to the above, which argues that the technology- and solution-centred narrative should be abandoned, as it creates the illusion of progress and efficiency (Macgilchrist et al. 2023). The findings of the study would suggest that a good start for more expedient digitalization would be found in collegial interaction and smaller-scale digitalization management, as a few of the participants wished for the refining of best practices and attention to sustainability.

5.3 Non-utilized potentiality in digital pedagogy

Tampere University states in its strategy (Tampere University, 2020) that it's developing its learning environments more accessible and digital. They also want to increase the development of digital pedagogy and digital solutions for education. This study suggests that this is justified, as the results question that increasing digital pedagogy is superior to its alternatives in terms of quality or effectiveness.

In their paper, Saari & Sääntti (2018) argued that though school systems have gone through reforms – such as digital leap – the methods have not developed along with the reforms. Moreover, an explanatory factor is that the focus has been on technological rather than pedagogical development (Kupiainen, 2022). This study partly confirms these views. The results suggest that the motivation for e.g. utilization of educational technology often comes from outside, for example, dictated by resources, rather than by pedagogical need. Interviewees were moderately positive about digital pedagogy, although the responses did not indicate high expectations. The expedient digitalization in part of digital pedagogy seems to require addressing the pain points that emerged as a result of the study. On the one hand, digital pedagogy seemed to be underused in education, thus losing its potential. On the other hand, there is a digital skills gap, meaning that the success of digital education is ensured at lower levels of education and digital solutions at university level will not change this significantly. According to this study, digital education is not perceived as better or worse *per se* than traditional education, but for the reasons mentioned above, and because of the lack of resources available for planning, there is a risk that its implementation will be of poorer quality. Expedient digitalization would take note of the benefits that are being pursued and reject the disadvantages. The study suggests that there is a need for such a critical approach.

Although, according to the participants, digital pedagogy does not automatically produce better learning outcomes compared to alternatives, it has some features that are highly valued by the interviewees, such as inclusiveness, accessibility, and personalisation of learning. On the other hand, the development of digital pedagogy was identified as being partly constrained by the technology itself, i.e. material constraints, but also by practical and managerial shortcomings. As an example of the former, interviewees mentioned lack of sufficient interaction in digital learning environments. The presence as a feature of face-to-face teaching was highly valued by the participants. As an example of latter is the lack of instructions. These are discussed in more detail in sections 4.1.1. and 4.2.1. of the results chapter.

Maunumäki (2021) uses term Neo-pedagogy to describe the situation where efficiency is emphasised, and learning is quantified in higher education. The results of the study give some confirmation of this, but it was not felt to be very clear. For example, few of the participants made remarks that some subjects have always been more performance-oriented and more work-life relevant than others. Then again, it was largely acknowledged among the participants that work-life relevancy and efficiency have become more prevalent in the discussion about universities. This study failed in shedding light on the impact of digitalization on neo-pedagogy.

The data-driven finding of the study is that very few of the interviewees were interested in research on digital pedagogy. This was reflected in the fact that the interviewees hardly referred to research done on the digital pedagogy in their answers but operated at the level of their personal experiences. What makes this finding interesting is that although the university is a major user and researcher of digital pedagogy, this study shows that it pays little attention to the scientific research that has been done on the subject in organizing the teaching.

5.4 Environmental sustainability of digital reforms

In its strategy for 2030, the Tampere University (2020) states in its values that it wants to lead the way in sustainable development. Tampere University also mentions the creation of a digital campus as one of the breakthroughs to be implemented in the strategy period. In line with these are also efforts to develop digital pedagogy and to introduce digital solutions for education. Moreover, these aspirations are also supported by the faculty reduction measures presented as the background of the case study, which were justified on the grounds of economic, environmental, and social responsibility. In other words, this was seen as a measure to support sustainable development, together with increased digitalization, as the latter follows from the former in the search for new platforms for teaching in the face of declining built space.

Participants of this study did not recognize this connection between sustainable development and digitalization of teaching although digital pedagogy was identified as having an emission-reducing effects. The results show that there is a lack of awareness among teachers about the environmental burden of digital education. One interviewee mentions that they don't not feel that the two issues are related, although they are often equated in discourse. According to another participant, it would be interesting to have reporting on the environmental load on these properties, as this would justify the faculty reductions.

Arnold et al. (2021) claimed based on their research that only half of the university staff paid attention to environmental side of digital services. This study is in line with this source, as only a few interviewees considered in-depth the environmental impact of digitalization manifestations in their teaching. Most considered the impact of educational technology in terms of, for example, reducing transport emissions when there is no physical mobility, but few had considered the emissions of educational technology itself or of teaching itself. For example, little thought was given to the environmental impact of maintaining infrastructure that guarantees the current quality of teaching.

A literature review highlighted the environmental impacts of ICT infrastructure manufacturing and disposal (Lange & Santarius, 2020). The interviewees were widely aware of the existence of these emissions and environmental impacts, but the results did not provide any concrete information about these emissions or their magnitude. For instance, some participants hoped that the university has sufficient disposal policy for decommissioned devices but did not have any actual knowledge about the existence or content of these policies. The interviewees' knowledge of the environmental impact of university digitalization can be described as speculative.

In their interviews, the participants, with a few exceptions, took a very one-sided view of sustainability, without considering the multidimensionality of sustainability. This finding sits well with findings from the systematic literature analysis on ICT made by Santarius & Wagner (2023) that studies usually lack the dimensions of consistency and sufficiency, while solely focusing on the energy-efficiency aspect. However, some exceptions occurred noting that these other dimensions, for example, reducing overall consumption should also be considered in the university context.

One interviewee doubted that the restructuring of university teaching would have much impact on sustainability unless it completely replaces face-to-face teaching. This observation fits well with the one made by Santarius et al (2023, p. 12) that digital services tend to come alongside old media instead of replacing them completely. In such cases, on the contrary, the environmental burden of teaching increases when new technologies and systems are added on top of old ones.

The claim raised in the literature review that digitalization has not actually been able to solve any of the alarming existing environmental crises (Santarius et al, 2023) would seem to be supported by this study, as the two – digitalization and sustainable development – were not perceived to be very much mutually supportive in the university context at current state. As a kind of counterpoint to the sustainability and efficiency discourse, one participant argued that any reorganization of higher education will not solve these global sustainability problems. This comment includes a criticism of the instrumentalization of the university institution, since the university institution must primarily carry out its tasks, which entail a certain environmental – but also economic and social – cost. From this point of view, it would therefore be unacademic to allow any other objective, however lofty, to regulate the university's activities.

6 EVALUATION AND THE ETHICAL ASPECTS OF THE STUDY

6.1 Trustworthiness and limitations of the study

In this chapter, the trustworthiness and limitations of the study are assessed using a set of criteria specific to qualitative research. It is necessary to subjugate the research done to some general criteria to evaluate the rigor of the findings. The criteria are the four perspectives defined by Lincoln and Guba (1986), which are designed to respond to the study's truth value, applicability, coherence, and neutrality. The criteria are the four perspectives defined by Lincoln and Guba, which are designed to respond to the study's truth value, applicability, consistency, and neutrality. The four criteria used to evaluate the study are: credibility, dependability, confirmability, and transferability. The sub-chapter concludes with a discussion of the limitations of the research.

Credibility

Before starting the actual research, a fundamental exploration of the phenomenon was carried out in the form of a background study. The narrative derived from the background study was challenged in the literature review in as many ways as possible, within the constraints of the locality of the research topic. The methodological chapter provides a detailed explanation of the criteria that influenced the selection of the interviewees and justifies the limited diversity of the sample limited by the case study. The factors relevant to the interview situations and their content are described in detail in the methodology chapter.

Dependability

The method of the study is extensively reported in the methodology chapter alongside with the chronological phases of the study and the analysis tools utilized in the study. Methodology chapter

also includes loggings of changes done during the data-analysis to ensure transparency and improve the dependability of the study.

Confirmability

In the discussion, a literature review based on peer-reviewed research was brought in to discuss the results of the study. The conclusions produced by the study are therefore based on an assessment of the compatibility between the scientific literature and the findings produced by the thematic analysis, which is a prerequisite for confirmability. Each section – literature review, analysis, and conclusions – are subjugated as subject of evaluation since they are sufficiently clearly explained in the thesis.

Transferability

The results chapter include in-depth descriptions of the contexts in which interviewees responded. This has been done purposely to soften the intentional crudity of the views and to facilitate the neutral interpretability of the findings. This, however, has resulted in the length of the section. Transferability has also been promoted by, among other things, explicitly expressing the chosen critical paradigm of the study, which was formalised in the objective statement in the introduction. These support the transferability of research by highlighting the researcher's background assumptions. Even though the language of this study is English, the transferability is impaired by the case study -setting of the study. Results can be generalized only as far as other domestic universities with similar faculties.

Limitations

A weakness of the study is the homogeneous sample of interviewees, which consisted of representatives of different disciplines within the same faculty. However, all these different disciplines were academically quite close to each other being humanities. For the sake of generalisability, it would have made more sense to increase the diversity of disciplines in this study since the needs and understandings of digitalization varies between different fields of study. Then again, the sampling strategy was case study -led and this rather one-sided review of disciplines enabled reasonable saturation of data for thesis this size.

The second major weakness of the study is the asymmetry of the data. In the results section, some interviewees received considerably more space than others. This is because the most quoted interviewees approached the questions in a more analytical way, presenting not only their claims but also their arguments and background assumptions vs. mere assertions or conjecture. The previously mentioned style was more meaningful and relevant for the study, and these have been strived to include to the results section in reasonable degree.

Another limiting factor was the scope of the research topic and its lack of clarity, which led to different understandings of it by the interviewees. From the researcher's perspective, such loose definition was intentional, as the interviewees' own understanding was also the subject of the study and served as a meaningful internal tension in the data for thematic analysis.

6.2 Ethical considerations

This research followed the ethical principles defined by TENK (2019). The general ethical principles are researcher's respect of the dignity of participants, researcher's respect of material and immaterial cultural heritage and biodiversity and arranging the research in a way that it does not cause significant risks, damage, or harm to stakeholders of the research. No violations of these principles have been detected by the researcher himself or have been reported to the researcher by any other party.

Participation in the survey was voluntary for the interviewees. The Finnish National Board on Research Integrity, TENK (2019), points out that research situations can be stressful for participants. To minimise the physical and mental distress of the participants, the researcher strived to arrange the meetings in the interviewee's office. The ethical guideline also stresses full respect for voluntarism. All participants were given a consent form to sign before the interview, making it clear that the participant had the option to withdraw at any time without giving a reason. In the interview invitation, the interviewees were provided with comprehensive information about the research topic and background.

The TENK (2019) data management and processing guidelines are largely based on the rules set out in the GDPR. In the survey, participants were only asked for personal data that were relevant to the study. All interviews were anonymised, and the researcher deliberately omitted certain information about the participants, such as what subject they taught. The raw data such as the recordings as well as the transcriptions were held in Microsoft OneDrive -cloud storage service until the thesis has been accepted. After the acceptance, the data was destroyed. Once approved, the study

will be made public, and all parties will have access to its contents on Trepo. In addition, the researcher sent the thesis to those interviewees who had specifically asked him to do so.

7 CONCLUSION

7.1 Summary

The aim of this study was to bring knowledge from the field of university teaching into the universities' policy-making process and to break down the beliefs that underpin the strategic narrative of digital reforming. The study was carried out in a case study format since Tampere University had mentioned creation of the digital campus as one of the breakthroughs to be achieved in 2030 in their strategy. The strive for this assumes certain set of values and takes as granted the ever-advancing superiority and sustainability of digital reforming. Moreover, this strategic narrative has contributed to changes in the way education is delivered, for example through faculty development programme, which is shifting education from a built environment to a digital one, which served as the context for this case study. This in turn places increasing demands on those involved in teaching, on educational technology and on the content of teaching. This study was born out of the need to find out the validity of the assumptions of this strategic narrative and to identify the conditions for expedient digitalization in university context.

The research question for the study was “*How is sustainability understood within the context of expedient digital reforms at the university level?*”. To answer this question, a qualitative study was conducted using a thematic interview as the methodology. The data was collected through interviews with seven university teachers and lecturers on the sustainability of digital reforms of university education. The collected data were then analysed using thematic analysis. In this chapter, the research question is answered through a data-driven disposition, namely materiality, practices, and management.

A key finding of the material review of the university's digital reforms was the inadequacy of current technology to meet the multi-dimensional needs of university teaching that the research participants required and valued in their work. For example, the interactivity enabled by face-to-face teaching was highly valued by participants and its erosion through educational technology was seen as a social sustainability gap. On the other hand, the accessibility feature of digitalization was seen as a good and desirable thing to invest more in in the future. However, this should not be a mere side effect of digitalization, but its main driver, since, as this study found out, despite the increase of

digitalization, the personalisation of learning to enable accessibility ties up resources that are being saved in the wake of digitalization. This study claims that digitalization does not currently allow for both effective and high-quality teaching at the same cost.

The study of practices of digital reforms revealed the untapped potential of digital pedagogy, i.e. its under-utilisation. This may be influenced by the fact that educational technologies were not indispensable for teaching in the subjects represented by the interviewees. Another finding related to digital pedagogy was that the success of digital pedagogy is ensured at lower levels of education. The use of digital pedagogy should therefore always be assessed in relation to the digital skills of parties participating in teaching situation. This study is also in line with previous research that digitalization has increased teachers' workload, for example in the form of increased meta-work. Thus, educational technology has not been successful in reducing the workload of teaching staff. The researcher calls this the paradox of efficiency. Digitalization is not taught as such but comes in the form of technology. The technology itself remains unquestioned and distanced from the teaching. From an environmental perspective, the digitalization of higher education and sustainable development were not really seen to support each other at current state in the university context – and especially not if sustainability is understood holistically. This study strengthens the previous ones about the lack of awareness in environmental burden of educational technology.

The findings considering the management of digital reforming related to the economy as the main driver of digital reforms in universities and the lack of management of this change. This study suggests that even if there are other objectives behind the digital transformation of universities, such as better learning experiences or a reduction in emissions, this has not been successfully communicated to the field, and according to participants the desired financial benefits dominate this development. The researcher calls this phenomenon as gentrification of university, which refers to a situation where economic benefits and financial interests are uncritically seen as the strongest arguments for any issue. The pandemic era emerged in the interviews, as an example of what can happen when digitalization is not managed properly. There was dissatisfaction with the pandemic era's forced digital education, for example because it was delivered unprepared, did not meet cultural needs of different parties and the digital skills of the participants were not at the required level. Partly based on these findings, the data-driven finding of the study, the axiological vacuum, was derived, which surrounds the phenomenon of the thesis. The costs to the meaningfulness of teaching and learning of improving efficiency and sustainability are not comparable to emission targets or savings. Therefore, there should be a debate in universities about what university education should be. On the one hand, the university does not exist to generate economic benefits, but on the other hand, it

does not exist to minimise its carbon footprint either. The core purpose of the university lies elsewhere, but even this is not entirely clear or shared based on this data. What is clear, however, is that the definition of that mission should not be outsourced, but that the debate on values should take place at all levels of the university: in the disciplines, in the faculties, in the university's board and ultimately in the government. Predicting the future is difficult, if not impossible. Therefore, it is always incomplete to assess in advance the success of different technologies and the digitalization of higher education. Technologies and conditions are in a constant state of flux, making it difficult to derive normative statements from them. It would therefore be important to base any form of university reforming on values that are far more durable than electronics, people, or economic growth. This study suggests that the lack of a debate on values makes such reforms short-sighted and therefore unsustainable. Moreover, the expediency of digitalization can also be questioned from the point of view that its development and implementation is driven primarily by the cost benefits sought and not by the pedagogical need.

Furthermore, this study gives an indication that the problem that constitutes in the aspiration of expedient digitalization does not solely reduce into technology, organizational savings targets, or lack of management – meaning it being complex entity on which different objectives are projected depending on the stakeholder. This research indicates that successful digital reform is achieved by investing in processes, staff skills and content of learning, which interviewees say are being compromised. Ultimately, it's a question of which voice gets to be heard, who gets to define reality.

7.2 Implications

The findings of this study point the way to more expedient digitalization in the university context. In the following, the researcher outlines the conditions for more appropriate digitalization derived from this study.

These findings suggest an increase of critical value-based debate, which would also have an impact on development. Even at present, the digitalization of higher education in certain subjects could be fully achieved, not to a very high standard, but it could be done. For example, the pandemic period showed that it is very much possible to deliver education digitally, but the experience of this period was generally seen as a failure. From a macro perspective, greater use of digitalization will help to achieve many of the objectives set for universities, but the boundaries of its use are not clear,

and a broad value-based debate on the purpose of the university is needed to draw them. And preferably across faculties.

The second implication relates to educational technology itself. Based on this study, evaluating the quality of educational technology is in itself very difficult, if not impossible. Economic realities, and in this case the scarcity of resources, lead to a one-eyed development in which other factors play the role of statistician while the economy dominates. When studying educational technology, one should always study the economy and bring out the economic realities, i.e. the economic context in which educational technology is applied. One should perhaps try to examine educational technology in a kind of vacuum, in which the benefits and drawbacks of the technology itself are better identified, because when applied to the real world its virtues seem to be determined by the benefits it brings to the economy, i.e. efficiency indicators.

The third implication relates to the scale of expedient digitalization of higher education. Based on this study, it is wrong to talk about digital renewal of the university, but rather about digital renewal of the disciplines, as the needs vary from faculty to faculty. It is not possible to draw any very categorical conclusions about the benefits of digitalization. Needs vary from unit to unit and from faculty to faculty, and in areas where technology is an underling and not a necessary tool for learning, there is a risk that it will be used by an external party to solve a problem of its own making, which in turn will erode the university's autonomy. The need to produce more degrees with the same number of resources drives towards more efficient teaching solutions and the need to consider pedagogical needs is bypassed.

7.3 Future work

In hindsight, the topic of expedient digitalization in university context was oversized for master's thesis. It would have made more sense to explore the topic in an academic paper of a different size. On the other hand, where the substantive contribution of this study was light – due to the scope of the topic – its most significant lesson is precisely the interdisciplinary nature of digitalization in higher education. Meaning that subjects are not commensurable in an expedient digitalization. A human sciences perspective on the topic under study, such as the one in this thesis, is too broad for anything other than an attitudinal survey. Expedient digitalization should be explored on a subject-by-subject basis if pedagogical quality is the most desirable value.

It would also be important to address the value gap that emerged in this study and to map the views, hopes and concerns university community regarding the digitalization. On the other hand,

this study fell short in terms of assessing the environmental impact of higher education and teaching technologies. The actual environmental burden of these was also unclear to the interviewees, so there is clearly room for research on this topic.

The concept of expedient digitalization seems to be a viable one for the future. To avoid it remaining a hollow alarmism, its usefulness should be tested in the development processes of different organisations. In other words, the possibilities of methodizing it, for example by deriving heuristics from it, should be explored.

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APPENDIX 1 (REVIEW OF FINNISH UNIVERSITY STRATEGIES)

Introduction

The operations of Finnish universities are guided by the university law that is threefold. The Finnish university law states that duties of universities are to enhance free research and intelligence both in academic and artistic context, to provide the field's highest education and raise students to serve their country and civilization in general (Yliopistolaki 1:2 §). In addition, it states that university must interact with society and advance the impact of academic results. Finnish university law allows autonomy for the universities, which means decision making autonomy for internal governance (Yliopistolaki 1:3 §). For instance, universities can allocate the granted funds independently (Opetus- ja kulttuuriministeriö, n.d.a). Juridical approach is essential; it sets the boundaries to a space where university operates. This is also the space where the strategy is implemented.

Finnish Ministry Education and Culture (Opetus- ja kulttuuriministeriö, n.d.a) states that the income structure of universities consists of indicators based on number of graduates and completed studies. Additionally, Ministry of Education and Culture allows portions to be financed based on university's strategy. Finnish Government renewed form of financing for the universities in 2019. In the current form 42% of the financing comes from education, 24% from research and 24% from the aims of education and science politics (Opetus- ja kulttuuriministeriö, 2019a). All these categories have their own subcategories that provides more specific metrics for certain category. According to minister of education and culture at that time, Sanni Grahn-Laasonen (2019b), the renewed form of financing emphasizes the amount of continuous learning.

With these notions of university's duties and form of financing it is necessary to concern university institute in its entirety. The concept of university changes if some elements of it are detached. University that doesn't provide teaching is a research institute, while plain teaching would

prune it to college. Separate operations of university are lumped together in to one totality by the form of financing. As the renewed form of financing shows, the different operations of university are not emphasized equally but with clear focusing. By this, it is evident that even though universities have the autonomy over themselves the financial side fasten them to projections toned with expectations and governmental policy formulation.

Since the strategy-based portion of financing is structural for the university, it is appropriate to present what kind of goals in the strategy the universities are appealing the funds for.

Strategy in Finnish university context

In this review, strategy is understood as the direction and practices based on the selected ways to reach the desired goals (Gray, 2013, p. 2). From this one can conclude that strategy is a tool to achieve the vision that the stakeholders of strategy find worth pursuing for. Thus, it is purposeless to review strategy detached from the desired aims, whence interest steers towards the vision itself, which is a matter of volition and belief.

Ranki has done research on strategic leading in Finnish universities by interviewing executive teams of universities and government officials of Ministry of Education and Culture (Ranki, 2016). According to the report, strategy is seen as a document that defines the key focus areas that build competitiveness in order to stand out among other universities (Ranki, 2016, p.44– 45). Interviewees recount that competition takes place on two fronts: globally about prodigies with other universities and domestically about government funding.

The duality of competition has been strengthened by the different views between agents in the field of university governance. Whereas representants of Ministry of Education and Culture sees strategy's main point being in global competition, the directors of Finnish universities on their behalf sees it in the domestic competition (Ranki 2016, p. 71). This gives reasons to assume that the strategy of Ministry of Education and Culture has supervenience over the strategy of a university. This evidently impairs the autonomy of university. In order to succeed in the domestic competition university has to manage in the global competition. Finance-wise, strategy thus tries to fulfil the aims in global and domestic competition. It is evident that university cannot step out of its purposes ordered by the law, whereas Ministry of Education and Culture and other societal demand can step to university's leverage in the terms of law stating that universities must interact with society and enhance the social impact of its studies (Yliopistolaki, 1:2 §).

Another notion of the complex relation between Ministry of Education and Culture and universities is the double role of the Ministry. As it has been pointed out hitherto, funding and guiding – in the sense of content in strategy – are coming from the same source. This has caused contradictory feelings among the directors of universities, pointing out that the autonomy provided by the law has diminished to ostensible (Ranki 2016, p. 78). In this connection it is significant to open the anatomy of Ministry of Education and Culture. As an institution Ministry of Education and Culture has its own internal strategy that overlaps the term of government (see Opetus- ja kulttuuriministeriö, 2019c). This strategy is the ministry's officials' collection of focus points relevant in the future (Opetus- ja kulttuuriministeriö, n.d.b). In other words, operation of Ministry of Education and Culture is guided by the government policies, but it also has long-term strategy for operations identified as requisite. To conclude, Ministry of Education and Culture have their own long-term strategy, but it is subordinate to government policy, whereas universities' strategies are in the sphere of influence of both political decision-maker and ministry's officials. (Ranki 2016, p. 81) This is the limited area where universities make their strategies.

Report on Education policy

The report on Education policy gives guidelines for education and research to achieve the preferable situation in the year 2040. (Valtioneuvosto, 2021, p. 7) The report on Education Policy states that Finland will be number one in utilizing digitalization in higher education (Valtioneuvosto, 2021, p. 32). According to the report, digitalization enables the action as network for the universities both domestically and internationally. Universities collaborate with each other, but each university specializes in their own strength area (Valtioneuvosto, 2021, p. 37). This fits well with the notion from Ranki (2016) about ministry's interest to boost international competitiveness with finding the key focus areas of research for each university.

As one step towards the goals, report on Education policy names building of united digital learning environment. In practice it means, that universities will offer broad digital learning supply for everyone, no matter the status of individual (Valtioneuvosto 2021, p. 38). This is done to avoid unnecessary gap years and to lower the thresholds of higher education. Undoubtedly, the universities' common digital learning environment also eases the movement for university student with independence of time and place. To meet the need, the Ministry of Education and culture along with all the universities in Finland have started the Digivision 2030 -project. The goal for Digivision 2030 -project is to make Finland as an example for flexible learning (Digivisio 2030, 2021).

It is essential to acknowledge the cross-well of interests where the university strategies are created in. Literacy review hitherto has shown that university strategy is not merely an indigenous product, but document that reflects the desires coming from the ministries and politics.

A review of university strategies

In the reading of the university strategies, interest on the one hand was related to the presentation of digitalization and supposed matters drove by Ministry of Education and Culture on the other. With the wider interest of this research being in digitalization in academic education and studies, the content of strategies reveals the extent to which the visions of the future of different universities are in line with one another. The material has been processed using the content analysis method. Tuomi & Sarajärvi (2018, p. 117) states that content analysis is textual by its quality. Content analysis aims to find meanings in texts. The content analysis carried out can be considered data-driven with a few reservations. First, the research extract cannot be considered purely data-driven, as the reading focused on a relatively narrow part in the strategies. Thus, the method of reading ignored certain aspects of strategies. Secondly, the above-mentioned education policy reports and the guidelines of the Ministry of Education contributed to form of this reading. The work itself progressed through the reading of documents to find and underline similarities. The analysis then focused on how these similarities have been justified or presented in the text. The final analysis produced a table (See Table 1) presenting the differences and similarities between strategies. In the table 1 the “x” means that it has been mentioned in the strategy and “-“ the opposite. Qualitative descriptions have been used in the table – if possible – to clarify terminological diversity.

TABLE 1. Review on university strategies

University	Characterization	Work-life relevancy	Life-long learning	Multi-disciplinary	Entrepreneurship	Policy document / Digistrategy	Digi-pedagogy	Digi-infra
Aalto University	Research University	-	Life-wide learning	-	Entrepreneurial mindset	-	-	x
University of Turku	University of Science, University of Entrepreneurship	x	Continuous learning	x	University of Entrepreneurship	x	x	x
University of Vaasa	University of Science	x	-	x	-	-	-	x
Hanken	Business School	x	x	-	-	x	x	x
University of Helsinki	University of Academic education	x	Continuous learning	x	x	-	x	x
Tampere University	University of Science	x	x	x	-	-	x	Digi Campus

This overview consists of strategies from Tampere University, Aalto-University, University of Turku, University of Vaasa, University of Helsinki, and Hanken School of Economics. These universities have been selected due their prominent position in Finland, but not forgetting the lingual and geographical diversification. Most of the documents are publicly available via the Internet, but the University of Turku and the Hanken School of Economics offered additional material to support the strategies.

Main features in all presented strategies are quite alike. For instance, all the strategies highlighted certain matters such as work-life relevancy, life-long learning and multidisciplinary – last one of the listings was not included in the Hanken’s strategy since it is a stand-alone school of economics. The differences between the strategies came mainly from the different focus points.

As the Table 1 imply digital infrastructure is mentioned in every university's strategy, while policy document or Digi strategy is missing from most of the universities. Only the strategies of Hanken and the University of Turku considered the importance of investing in digital pedagogy in the context of increased digitalization of the university (Hanken, 2020, p.8; Turun yliopisto, n.d.). According to the University of Turku, the development of digital skills in the university community goes hand in hand with the development of a digital learning environment (Turun yliopisto, n.d.).

The increased digitalization is justified in strategies, inter alia, appealing to sustainability, accessibility and enhancing the quality of learning. For example, University of Helsinki and University of Vaasa link the digitalization of learning and working environments to sustainable development (Vaasan yliopisto, n.d.; Helsingin yliopisto, n.d., p.21), whereas Aalto University, the Universities of Turku and Helsinki justified digitalization by referring to accessibility (Aalto-yliopisto, 2021; Turun yliopisto; Helsingin yliopisto). As an example, The University of Turku's strategy justified digitalization in terms of time and place -free learning (Turun yliopisto, n.d.). In addition to these, Aalto University mentioned in its strategy that digital learning environments ensure, among other things, higher quality learning and better learning outcomes (Aalto-yliopisto, 2021). This may refer to the matter that digitalization is seen as something vague for the time being, multipurpose, and something that one can easily project different kind of desires to. What all these projections on digitalization have in common is that they are mentioned in the objectives of the government's education policy report. According to the report, the aim is for education to be sustainable, equitable and digitally inclusive in the future (Valtioneuvosto, 2021). In addition, Table 1 underlines the power that policy makers have over university strategy and hence action. Work-life relevancy, lifelong learning and increasing digitalization are all political projects that are intended to guide university action. This is supported by the fact that only a few universities have a digital strategy and that the strategies provide a broad justification for digitalization. Indeed, it seems that one policy objective is justified by appealing to another. To make education more sustainable, more digitalization is needed. In other words, political decision-maker tends to use one project to achieve another in the field of university policy. How digitalization contributes to sustainable development in all three areas (Valtioneuvosto, 2021) remains unexplained, as does how digitalization should be used in the university context.

An interesting conclusive thought is that digitalization in university context has become self-fulfilling prediction, because investing to digitalization is rationalized cursory and there is not a clear future vision of the development. In other words, it is expected that society becomes more and more digitalized which requires actions from the academic world and the resource allocation to digitalization is seen as inevitable in university without clear understanding why, how and when. This thought is supported by the Tampere University's strategy (2020), which places considerable emphasis on digitalization, including the creation of a digital campus, but does not justify its creation in any way. The strategy text creates an image of the Tampere University as an organisation that pursues digitalization as if it were an end in itself.

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APPENDIX 2 (INTERVIEW THEMES)

- **Background information**

Subject, gender, length of career

- **Aspects of social sustainability in digital reforms in university context**

Questions related to digital pedagogy, educational technology and teaching as a profession in the digital age.

- **Aspects of economic sustainability in digital reforms in university context**

A wide range of questions on the links between the economy and the sustainable organisation of education in the digital age.

- **Aspects of environmental sustainability of digital reforms in university context**

Questions related to the environmental impact of university education and how to take it into account in the digital age.

- **Questions summarising the topic (Synthetic questions)**

Questions that approached the digital reforms of university from a perspective of holistically understood sustainability.

APPENDIX 3 (CONSENT FORM)

Suostumuslomake

Työotsikko: Sustainability in higher education's digital reforms

Suostumus tutkimukseen osallistumiseksi:

Minua on pyydetty osallistumaan yllä mainittuun Pro gradu -taseiseen opinnäytetyötutkimukseen ja olen saanut kirjallista tietoa tutkimuksesta sekä mahdollisuuden esittää siitä tutkijalle kysymyksiä.

Ymmärrän, että tutkimukseen osallistuminen on vapaaehtoista ja että minulla on oikeus kieltäytyä siitä sekä peruuttaa suostumus ja keskeyttää tutkimus väliaikaisesti syytä ilmoittamatta. Ymmärrän, että minua koskevaa ja tuottamaani aineistoa voidaan edelleen käyttää tutkimuksessa, vaikka päättäisin keskeyttää tutkimuksen väliaikaisesti tai vetäytyä siitä. Olen saanut tiedon siitä, että tutkimuksessa kerätty tieto pidetään luottamuksellisena ja anonyymina sekä tiedon siitä, että haastattelun tallenne säilytetään Tampereen yliopiston pilvipalvelu OneDrivessa, kunnes opinnäytetyö hyväksytään.

Annan suostumukseni tutkimukseen.

Paikka ja päivämäärä

Allekirjoitus