Beyond Implementation: Enabling Sustainable Transformations of Digital Teaching and Learning in Higher Education

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Introduction

This chapter examines the following question: What does it take to develop sustainable, digitally mediated teaching in higher education? The COVID pandemic sparked what is often referred to as the largest digitalisation experiment in the history of higher education. However, transitions to online forms of teaching were shaped by the context of the crisis. Higher education institutions (HEIs) had to quickly produce emergency solutions to maintain basic educational services. On the face of it, this was a highly successful operation. From a large number of countries, reports emerged that HEIs had managed to put in place measures that allowed

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students to continue their studies. Some notable exceptions included courses centred on practical skills, and contexts where the infrastructure for internet was limited (Al-Kumaim et al., 2021; Tsang et al., 2021). Multiple concerns also emerged around academic, social and technological challenges. However, the turn to online teaching allowed a vast number of students to complete their studies in spite of a global pandemic.

As the higher education sector is moving from a pandemic "crisis mode" to a "new normal", questions are being raised about the limitations of the initial move to online teaching. Some argue that the situation has been characterised by "solutionism", in which responses were shaped by the need to provide quick fixes to a sudden crisis (Ajjawi & Eva, 2021; Teräs et al., 2020). During the initial months after the outbreak, key questions included which digital platforms to use, how to provide academic staff with the minimum level of skills to teach online, and how to engage students in online learning environments (Dhawan, 2020; see also special issue Goedegebuure & Meek, 2021). These are important issues, but in the heat of the moment, they appear to have been dealt with disconnected from broader questions about how digitally mediated teaching can be addressed in a long-term and more strategic perspective.

At the time of writing, more than two years have passed since the global closure of HEIs. Academics are now pointing to the need for more sustainable approaches to enabling and enhancing digitally mediated teaching and learning (Sharma & Sharma, 2021; Zuo & Miller, 2021). This chapter is a contribution to this debate. More specifically, the chapter examines how the notion of *sustainable transformation of digital practices in higher education* can be conceptualised and point to practical implications for HEIs. We use the term "sustainable" to denote particular characteristics of change processes, in which change efforts are to some extent irreversible and impact multiple levels of human activity. The key question informing our discussion is: How can sustainable transformation of digital practices in higher education be conceptualised and enacted?

We explore this question in two ways: The first is a theoretical discussion where we delineate the concept of sustainable transformation of digital practices, building on cultural-historical approaches to teaching and learning with technology (Kaptelinin & Nardi, 2006; Rückriem, 2009). Based on this discussion, we develop an analytical framework aimed to support empirical research and educational development.

Second, we illustrate the value of this analytical approach with reference to the experiences of one faculty at a research-intensive university in Norway, with specific attention to how this faculty addressed the COVID crisis over a period of nearly two years. As is the case with many Nordic universities, this is a tuition-free, state-funded HEI located in a country with a high rate of digital adoption. However, its teaching practices are to a great extent informed by its long history of face-to-face, "traditional" university pedagogies, which greatly impacted the emergency response to the pandemic (Langford & Stang, 2020).

Methodologically, our examination of this faculty draws on narrative inquiry (Mertova & Webster, 2019) to recount some key stages of the faculty's work with digitally mediated teaching over a two-year period. The narrative is primarily based on document analysis and qualitative interviews with the deanship, and emerges from a broader data material that documents the faculty's work during this period. Our analytical focus is not to evaluate whether the measures adopted were successful, but to trace the faculty's effort towards transformation from crisis management to strategic and sustainable approaches to digitally mediated teaching. The narrative therefore focuses on key stages of an almost two-year trajectory of developmental work at the faculty, with analytical attention to how these efforts aimed at integrating institutional practices and organisational levels that typically are de-coupled in HEIs.

Sustainable Transformations of Digital Practices: A Theoretical Perspective

Theoretically, we adopt a cultural-historical perspective that emphasises the contextual and situated nature of technological development. We start by briefly outlining some implications for how we conceptualise the development of digitally mediated teaching and learning.

First, the development of digitally mediated teaching and learning in HE is viewed not as a simple problem that can be solved via "solutionism" (ref), but rather as a complex and wicked problem (Bower, 2017; Rittel & Webber, 1973) that involves deeply conflicting motives among the involved actors (Engeström et al., 2022; Haapasaari & Kerosuo, 2015; Lund & Vestøl, 2020). As e.g. Rückriem (2009) and Lund and Aagaard (2020) have shown, digitalisation cannot be reduced to instrumentalism because it transforms conditions for human activity. How we

come to knowledge and under what conditions emerge as epistemological questions that accompany digitalisation.

The definition of digital transformations outlined in Chapter 1 (cf. Pinheiro, Tømte, Barman, Deg & Geschwind) takes *disruptions* that trigger *strategic responses* as the point of departure. An implication is that sustainable transformation does not merely involve single initiatives aimed at resolving concrete challenges, for example, in the form of the introduction of new tools or increased capacity development among university teachers. By contrast, we use the term "sustainable" in "sustainable change" to indicate a more profound nature of transformation. Drawing upon cultural-historical theory (Lund & Aagaard, 2020), we highlight three further characteristics as significant of such change processes. First, sustainable change indicates a transformation *of both the problem situation and of actors*. When breaking out of critical situations, the use of resources (material/digital, discursive, social) involves a learning experience that leaves the actor(s) with new insights, whether transforming the original situation was successful or not. "Learning", in this case, does not primarily denote the acquisition of a distinct knowledge or skill, but rather a qualitative change in how the problem situation is perceived and conceptualised.

Second, sustainable change indicates a transformation that is in some ways irreversible. For example, irrespective of actors' specific positions on the use of technology in higher education, the COVID pandemic has radically changed the terms of the debate about how technology should be used to support teaching and learning in the higher education sector. The terms of this debate cannot simply be "rewinded" to November 2019 even if the corona virus is eradicated. However, whether this qualitative shift in discourse implies a corresponding change to educational practices is highly uncertain and remains an empirical question.

Third, sustainable transformation of digitally mediated teaching involves the integration of multiple organisational levels and institutional practices of HEIs. In the Norwegian context, the development of digitally mediated teaching has often been driven by what we might term individual "pioneers", who have typically engaged in significant innovation but without being connected to institutional and organisational practices at their institutions. Hence, the practices they generate are prone to disappear with them. Longer-term, strategic change therefore requires a much stronger degree of embeddedness in institutional and organisational structures.

To conceptualise this notion of change further, we draw upon Hedegaard's notion of institutional practices (Hedegaard, 2014), which has been adapted for the analysis of HEIs (Hermansen, 2019). A cultural-historical approach assumes that human and societal developments operate along different trajectories that intersect in complex ways. In HEIs, this implies that a range of developmental processes are continuously being played out at different levels of the organisation, and within different institutional domains. Hedegaard offers an approach to analytically account for this complexity through different planes of analyses, recounted in an adapted version below in Table 5.1.

Below, we outline these planes of analysis in more detail. A key point is that they are empirically interwoven and that change at one level is insufficient for sustainable transformation. On the one hand, individual educators will rarely achieve institutional impact beyond transient novelty and "pockets" of innovation at the HEI. On the other hand, change initiatives on the societal or institutional levels need acceptance, legitimacy and enactment among academic staff for new practices to take hold. Sustained transformation emerges from the interaction between levels.

Table 5.1 Planes of analysis

Structure	Meaning structures	Empirical example
1. Society	Societal traditions	Social conventions governing the purpose of higher education Political legislations such as national reforms, privacy regulations, procurement legislation
2. Institution	Institutional practices	Epistemic, educational, organisational and governance practices of higher education institutions These practices shape how digitally mediated teaching is developed but can also be challenged by new conventions for digitally mediated teaching
3. Social situation	Activity settings	Recurring activities in HEIs, such as university teachers planning, enacting and evaluating digitally mediated teaching
4. Person	Actions	A university teacher introducing new digital tools and practices in a course module

Source Adapted from Hedegaard (2014)

Societal Traditions

Societal traditions refer to conventions that govern higher education on a societal level. This includes legal and political frameworks, but also societal notions about the purpose and role of HEIs. Digitalisation has to some extent challenged but also renewed established notions of what a university "is". For example, the earlier introduction of MOOCs led to predictions both about the fall of the university as an institution, and about the democratisation of knowledge and extension of knowledge to marginalised groups (Rhoads et al., 2013; Whyte, 2015). Both of these predictions engaged with notions of what the university should be and how technology can challenge those assumptions.

Institutional Practices

Institutional practices are understood as routinised actions that are historically shaped, value-laden and reproduced through engagement with conceptual and material artefacts (Edwards, 2010; Hedegaard, 2014). In cultural-historical theory, institutional practices represent a notion of structure, which stands in a mutually constitutive relationship to human agency. These institutional practices are associated with formal and informal demands that provide direction for human actions (Edwards, 2017; Hedegaard, 2014).

We analytically delineate some key institutional practices that have been widely documented in research on HEIs (Becher & Trowler, 2001; Blackmore, 2007; Knorr Cetina, 1999; Maassen et al., 2017; Mårtensson et al., 2014; Stensaker, 2018). In brief, these can be summarised as (1) *pedagogical* practices related to supporting student learning; (2) *organisational* practices regulating universities as organisations; (3) *epistemic* practices associated with developing and safeguarding knowledge; and (4) universities' *governance* practices, which in the Norwegian context remain characterised by relatively horizontal structures and "soft" modes of governance.

Pedagogical practices are conventions governing teaching and learning in higher education. They include established conceptions of "good teaching", ideas about appropriate student and teacher roles, as the roles that digital tools should play in teaching. New digital practices may challenge such conventions. For example, many academics experienced that the lecture format did not work well when it was directly

transferred to zoom. The phenomenon of "teaching to black screens" has been much discussed and exemplifies how digital platforms can fundamentally transform the conditions for social and academic interaction (Damsgaard, 2020; Heaton, 2020). More generally, a shift from face-to-face to online teaching requires the re-contextualisation—and potential transformation—of existing teaching practices (Royle, 2021).

Epistemic practices refer to the practices that characterise the production, organisation and safeguarding of knowledge in higher education (Knorr Cetina, 1999), and are specific to particular disciplines and professional fields. Existing research has highlighted how digitalisation of teaching and learning involves the re-contextualisation of epistemic practices (Lund et al., 2014). For example, in legal education, practically all data sources now appear in digital format, opening up for machine learning and artificial intelligence to accompany human epistemic work. In STEM subjects, simulations allow for work with models in which a high number of variables can be manipulated without any fear of unwanted real-world consequences. When languages go online, languages emerge as multimodal texts that provide opportunities and affordances that differ radically from linear texts. In the social sciences, the sheer amount of available data, often in the form of competing narratives and contested information (US elections and Covid vaccine debates are prime examples), results in the need for new forms of expertise for assessing, organising and analysing data.

Thus, the need for epistemic recontextualisation is another reason why a linear understanding of "moving teaching online" is problematic. For university teachers, epistemic recontextualisation requires creative and constructive work with their respective knowledge domains as they design forms of digitally mediated teaching. However, the subject-specific dimension of technologically mediated teaching and learning has received limited attention in higher education.

Organisational practices refer to the organisational roles and routines that characterise HEIs. Over the past decades, the organisational and administrative management of academic work has significantly increased in complexity. Such routines are typically justified with reference to quality assurance. However, it is well documented that tensions can emerge between the organisational and academic logics of HEIs (Shields & Watermeyer, 2020). One example is the introduction of quality assurance systems, which has been found to become administrative systems

that are de-coupled from academic work (Stensaker et al., 2011). This de-coupling of systems, which is widely documented in HE literature, presents a potential challenge to sustainable approaches to digitally mediated teaching. If innovative practices are to have a transformative effect and span beyond pioneering individuals, they need to be supported by the organisational infrastructure of HEIs, including routines related to ICT support, exam regulations and the organisation of academics' working hours.

Finally, *governance practices* in HEIs are complex in the sense that historical modes of self-governance and collegial autonomy co-exist with formal governance structures. Educational leaders who set out to support collective change processes related to technology-mediated learning will often be in situations where they have relatively limited formal authority and few explicit incentives to present to teachers (Ellis & McNicholl, 2015). In an international perspective, academic autonomy remains strong in the Nordic region. Hence, the ability to navigate taken-for-granted conventions of informal leadership while simultaneously mobilising formal incentives—typically a challenging balancing act—is key to facilitate transformative change processes. This further complicates initiatives aimed at transformative change, since this balancing act requires a strong combination of interpersonal skills and the capacity to navigate complex formal and informal political systems (Fig. 5.1).

At the general level, two questions are important to conceptualise the role that these practices play in the development of digitally mediated teaching. The first question is to what extent new approaches to the use of technology challenge or align with existing institutional practices. This is likely to significantly impact developmental efforts, both in the short and long term. The second question is to what extent, and how, these institutional practices interact. Universities have for a long time been characterised as loosely coupled systems (Weick, 1976), which implies that these institutional practices can exist somewhat independently of each other. However, they may also interact in ways that create tensions and contradictions. The characteristics of this interplay, or lack of such, can be important for how conditions are created for the development of digitally mediated teaching.
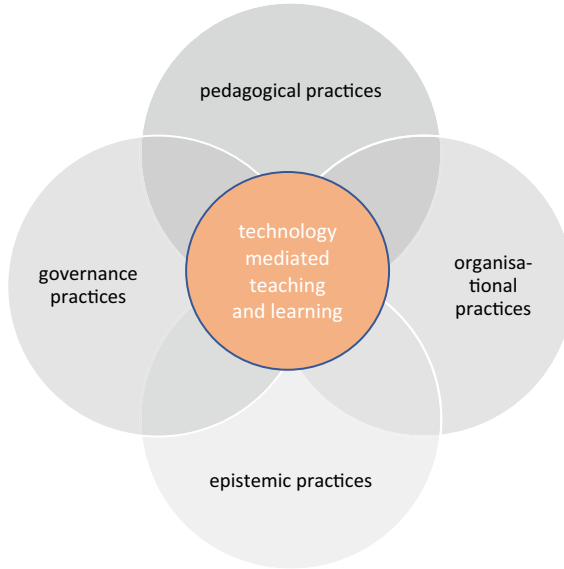
Fig. 5.1 The intersection of institutional practices in the development of digitally mediated teaching (*Source* Authors own)

Activity Settings

Activity settings refer to the recurrent activities that typically characterise HEIs. These include the planning and enactment of teaching, research group meetings, work in laboratories, the development of academic texts, and different forms of supervision. As staff and students engage in such recurrent activities, they simultaneously reproduce and renew the institutional practices of universities. The COVID pandemic significantly challenged the constitution of activity settings related to teaching. For example, the use of zoom drastically changed the conditions for teacher–student interaction, and the turn to digitally mediated teaching more generally altered the established routines for planning and enacting teaching.

Actions

Actions refer to the specific things that staff and students say and do as they go about their work at HEIs. The important point here is that these actions are shaped by the demands of a range of institutional practices, which are sometimes disconnected and sometimes conflicting. To understand how academics respond to expectations of increased digitally mediated teaching, we therefore need to understand how they interpret and respond to such demands and how they enact different forms of agency to shape the conditions of teaching in HEIs.

We find Hedegaard's planes of analysis to be useful because it provides a heuristic to conceptualise the intersections of different analytical layers of HEIs. This provides analytical depth to the more general assertion that HEIs are complex institutions that are notoriously difficult to change (Jónasson, 2016; Niedlich et al., 2020; Stensaker, 2018), also with regard to the development of digital practices (Aagaard & Lund, 2020; Selwyn, 2014; Stensaker, 2018). The model also outlines the relations between individual agency and the institutional practices that shape how such recurrent activities at HEIs are carried out. This allows us to analytically and empirically examine the mutual interactions between structure and agency, and hence to examine how change occurs. Finally, attempts to develop digitally mediated teaching and learning can be understood as efforts to align divergent approaches to teaching and learning that have strong historical and cultural roots. Hedegaard's planes of analysis provide a perspective for exploring what this work of re-alignment might involve for actors working in HEIs, through multi-level analysis.

Towards Sustainable Transformations? Exploring Change Efforts at a Faculty of Education

In this section, we illustrate our analytical approach through the empirical example of change efforts undertaken at a Faculty of Education at a Norwegian, research-intensive university. At the national level, the Norwegian response to the pandemic was quite swift. One month after the lockdown, a survey showed that 80% of HE educators used Zoom or similar video conferencing applications, even though 70% of the informants had not done so previously (Langford & Stang, 2020). More generally, the Norwegian population broadly complied with state measures against the pandemic. As outlined in Chapter 1 (cf. Pinheiro,

Tømte, Barman, Deg & Geschwind), HEIs are state-funded and offer tuition-free education, which also carries significance when analysing the Faculty's response to the emergency. The pandemic did not constitute an immediate or long-term loss of revenue for HEIs. These facts correspond with the image of Norway as a high trust—low accountability society (OECD, 2013), which can be said to characterise all of the Nordic countries.

The Faculty is an interesting empirical case because it attempted to move away from solutionism and "quick fixes" towards more strategic responses to digitally mediated teaching quite early after the outbreak of the pandemic. We start by briefly outlining the overall context of the development processes carried out by the Faculty. We then discuss some selected change dynamics, with a view to demonstrating (a) how the different planes of analysis in Hedegaard's framework interacted in this process, and (b) how different institutional practices informed the change efforts.

Our data material on the change process at this Faculty includes relevant documents, interviews with two Deans at the Faculty, six interviews with selected academics and a group interview with student representatives. In this chapter, we zoom in on the part of the data material that provides the most insights into the strategic changes efforts. This includes relevant documents (task force reports, faculty web pages), qualitative interviews with two Deans at the faculty, and participant observations of meetings conducted by different task force groups that worked towards developing digitally mediated practices at the faculty after the outbreak of the pandemic. Relevant documents and other documentation include a Canvas space for the entire Faculty (an outcome of the first task force), which aimed to support the exchange of digital approaches to teaching and learning; the final report written by the second task force, which responded to the call by one of the Deans for more strategic approaches to digitally mediated teaching; and the web site of a Faculty support unit that was established to support the ongoing change efforts. Combined, such documentation provides insights into the strategic choices that were made by Faculty during the period of spring 2020 to fall 2021. The interviews with the two Deans were conducted in the fall of 2021, and generated their retrospective reflections on the Faculty responses to the covid pandemic. This is interesting because, as Pinheiro et al. point out (confer Chapter 1), we know little about how HE management attempts to shape bottom-up processes of digitally mediated teaching.

Fig. 5.2 Overview of key stages in development process (*Source* Authors own)

As was the case around the world, the Faculty converted to online teaching in response to the COVID pandemic. The initial period of the pandemic was oriented towards crisis management and finding solutions to the immediate demands of the lockdown of HE institutions. However, the Deanship soon started emphasising the need to engage in more strategic and longer-term thinking around digitally mediated teaching. This resulted in a series of initiatives that aimed to develop more comprehensive and sustainable approaches to digitally mediated teaching at the Faculty. Figure 5.2 provides a brief outline of some key events in this process. In the next section, we account for the qualitative changes in these responses, as they developed over time towards more strategic approaches that aimed to foster sustainable change.

Initial Responses to the Crisis Situation

The initial response was characterised by managing the rapid conversion towards online teaching. This included how to introduce Zoom at the Faculty, providing staff with infrastructure such as headsets, cameras and digital boards for handwriting, and emergency competency development for staff in the use of new technologies. According to the Dean, this initial crisis management phase took a couple of weeks and went, in his words, "surprisingly smooth". In this phase, digitally mediated teaching was primarily addressed as a technological-logistical issue, combined with a focus on developing organisational support structures for digitally mediated teaching such as adequate IT support. Staff competence development was aimed at supporting individuals to master the technological affordances of new digital tools (Level 1 in Table 5.1), as opposed to addressing these tools as mediators of established pedagogical and epistemic practices (Levels 2 and 3 in Table 5.1).

Shortly after this phase, a task force was established to address key issues in digitally mediated teaching. The task force consisted of the Vice Dean of Education, Heads of Education at the three departments at

the Faculty, and a member of the university's Centre for Teaching and Learning in Higher Education. The task force cooperated with the Deanship to further develop the technical infrastructure at the Faculty, such as equipment needed for so-called hybrid teaching, where some students are on campus while others attend via Zoom. Through this work, they extended efforts towards developing the organisational infrastructure to support new practices, but the infrastructure was primarily addressed from a tool perspective. The task force discussed what kind of digital tools were needed, but they did not go into depth on how such tools would interact with established pedagogical or epistemic practices.

The task force also attempted to facilitate collegial support among academic staff, with an aim to create support structures that could help teachers address emerging pedagogical and epistemic issues. Typical questions included how to facilitate student–teacher interactions on Zoom, how to actively engage students in online learning environments and how to use the university's learning management system (Canvas) in ways that could support the teaching carried out on Zoom. Some meeting arenas for experience sharing had already been established at one department, and such practices were extended to other units. The task force also established a Canvas space accessible to all staff members, to facilitate the asynchronous sharing of experiences and resources. The Canvas room included links to relevant resources, discussion threads, and practical examples of online teaching from the different departments at the Faculty.

Through such efforts, attempts were made to re-frame staff members' orientations towards the new tools. Whereas the initial transition had focussed on the technical aspects (such as where to "click" to share a screen or organise break-out groups in Zoom), attention was now directed to more underlying questions, such as how tools like Zoom could support student learning. The Canvas space also represented an attempt to support more collectively based approaches by making individual experiences visible, and to connect individuals with organisational resources such as web pages with technical and pedagogical content. In these ways, the relationship between the digital tools and established institutional practices were placed more strongly on the agenda. This implied a shift in focus from individual competencies and approaches (Level 1 in Table 5.1) to established practices of teaching in the context of specific knowledge domains (Levels 2 and 3), as well as efforts to connect academics with newly developed organisational support structures (Level 3). However,

these efforts did not reach all staff members, and there was significant variation in how initiatives aimed at experience sharing were taken up at the departmental levels.

During the spring of 2020, the Deanship, in collaboration with the task force, also initiated measures to support the social and academic learning environment for students. Students were assigned to groups intended to provide social and academic support. Financial resources were made available for the departments to hire student assistants that could support online teaching, for example by facilitating chat conversations and break-out rooms in Zoom. These efforts were based on the recognition that established learning environments for students had been greatly disrupted. However, according to the Dean, both staff and students struggled to mobilise these emerging practices in ways that were experienced as meaningful for students, and there continued to be disruptions between individual actions, activity settings and the new emerging organisational structures for social and academic support (Levels 1–2–3 in Table 5.1). The students reported significant variation in the organisation and interaction of the support groups, and the student assistants were only used to a moderate extent.

Continued Efforts Towards More Systemic Change

In the fall of 2020, the Deanship intensified efforts to develop more strategic and transformative approaches to digitally mediated teaching, with increased attention paid to multiple levels of the organisation. In the interview, the Dean also emphasised a desire to address what he saw as a significant variation across the Faculty in the quality of online teaching, and that simple "delivery" of content online needed to be replaced with more rigorous pedagogical course designs. A new task force was established, consisting of the Vice Dean of Education, one academic staff member from each department, and a member of the university's Centre for Teaching and Learning in Higher Education. In this task force, the academic staff members were selected due to their track record of working innovatively with teaching.

The mandate of the task force asked them to produce a "strategic policy paper" which could address three challenges: (1) lack of coherence across offline and online sites of learning; (2) the need to strengthen students' opportunities for online collaborative learning; and (3) the need

to strengthen social relations among students in online learning environments. This mandate reflected a more in-depth focus on transforming existing pedagogical and epistemic practices, by targeting key aspects of teachers' work such as course design, the facilitation of subject-specific collaboration in small student groups, and an increased emphasis on students' learning environments. In theoretical terms, it represented a clear ambition to connect several levels of analysis in Table 5.1, by more tightly coupling institutional practices and emerging representations of digitally mediated teaching both at the levels of individuals and activity settings. Online teaching was no longer to be treated as an emergency measure. In the interview, the Dean stated that he purposefully asked the task force to develop a *strategic policy paper* in order to balance short- and long-term needs at the Faculty. He also emphasised the need to de-privatise teaching practices at the Faculty, and to re-frame notions of autonomy from an individual to a collective perspective: "we need to preserve our autonomy not as private individuals, but as an academic collegium". In the interview, the Dean also emphasised how this strategy entailed bringing the epistemic dimension of digitally mediated teaching to the fore. This was a topic he had been concerned with for several years, reflected in his research and in opinion pieces published in higher education newspapers. From his perspective, the characteristics of specific knowledge domains needed to be the driving force behind digitalisation of teaching. In this way, he positioned epistemic institutional practices as a key factor shaping digitalisation efforts at the Faculty.

The task force delivered their report to the Faculty the first week of December 2021. For each point addressed in the mandate, the task force outlined overall approaches based on relevant research and practical implications. This document situated ongoing digitalisation efforts at the Faculty in relation to existing research on teaching and learning, thus positioning these efforts not as a question of emergency measures, but as a developmental process that should be research-based and founded on key insights from educational science. In theoretical terms, the process was connected both to institutional practices and general societal expectations that emphasise teaching at universities as a research-based activity. This document thus spanned all levels represented in Table 5.1. The document also explicitly framed digitalisation efforts as being shaped by, and having the potential to shape, existing pedagogical and epistemic practices at the Faculty. The task force also added a fourth point to their mandate, which addressed organisational and institutional factors for digitally mediated

learning. In this section, the task force addressed organisational routines and practices that they considered necessary conditions to support the other recommendations in the report. This intervention from the task force represents an effort to more closely link organisational practices (Level 3 in Table 5.1) with the emerging activities that were developing around activity settings and individual work with teaching (Level 1 and 2 in Table 5.1).

The Deanship decided to follow up on several of the recommendations from the task force. In January 2021, a new Dean took over the Faculty, and the Deanship was expanded with an additional position entitled Vice Dean for Innovation and Digitalisation. Based on the report of the previous task force, a new unit was also established with the overall objective of supporting innovation and digitalisation in education. This unit emerged from the immediate needs caused by the pandemic, but was established with more longitudinal and strategic goals in mind: fostering research-based innovation in the Faculty's study programmes and developing student learning and academics' teaching practices via digitalisation. The establishment can be said to represent a further institutionalisation and strategic approach to digitalisation efforts. This initiative was complemented by relatively extensive changes to the digital and physical infrastructure of several classrooms at the Faculty, that served to strengthen the material and technological support structures for digitally mediated teaching. Finally, in the interview, the new Dean emphasised that lasting changes had taken place not only in the organisational infrastructure but also in established pedagogical practices, exemplified through the transformation of campus-based exams to home-based, digitally mediated examinations.

Discussion

Following this condensed narrative of a two-year trajectory, we return to our key question of how sustainable transformation of digital teaching practices in higher education can be conceptualised and enacted. The case of this Faculty does not provide any firm conclusions about the extent to which long-term, transformative change was achieved, and this remains an empirical question as change efforts are still ongoing. However, this empirical example illuminates some key points about how transformative change can be understood and pursued in the context of HEIs pursuing strategic change in the area of digitally mediated learning.

First, this case exemplifies a shift from techno-centric and emergency measures towards attention to more fundamental questions about how digitalisation efforts shape—and are shaped by—established pedagogical and epistemic practices of universities. A key concern of the first Deanship and the task force working during the fall of 2020 was to produce a tighter coupling between the emerging use of digital tools and established principles for teaching. This included directing attention to how digitally mediated teaching challenges key aspects of teaching processes, such as social interactions with and among students, representations of disciplinary knowledge and approaches to curriculum development that align on-campus and online teaching activities. These efforts recognised the shortcomings that phenomena such as "black screens" on zoom represented, namely a failure to re-contextualise existing pedagogical and epistemic practices in the transition to online teaching.

Second, these efforts to link digitalisation to pedagogical and epistemic practices were also institutionalised in organisational and material terms: in action plans (the task force), in the establishment of a new unit dedicated to connecting digitalisation and innovation, and in the material and technological development of classrooms to facilitate new forms of teaching. New forms of technical support structures were also established, together with online resources that highlighted pedagogical principles for digitally mediated teaching. Whereas the long-term results of such interventions remain an empirical question, the approach of the Faculty recognises the importance of organisational routines and support structures for the sustainable transformation of teaching.

The Deanship's change efforts also included a shift in governance practices. A key concern for the first Dean was also to promote more collective approaches to teaching, in which autonomy was positioned within academic communities rather than individual staff members. This involved the establishment of new routines that de-privatised emerging digital teaching practices and supported experience sharing among academics. The Dean also temporarily shifted some decision-making authority away from the departmental level up to the faculty level. A general implication is that the pursuit of transformative change in higher education is likely to, at least to some extent, challenge established power relations and the established division of labour in formal and informal decision-making authority.

In summary, our narrative inquiry has revealed how a range of institutional practices and activity settings (Levels 2 and 3 in Table 5.1)

were subject to strategic transformative efforts at the Faculty. The relations between individual agency and the institutional practices that shape human activity, were persistently and systematically addressed by the Faculty in an attempt to "couple" systems that have historically been decoupled (Weick, 1976). We propose that these attempts to couple systems and pursue changes across different planes of analysis (confer Table 5.1) is at the core of enabling *sustainable* and *transformative* change. It is sustainable because it aims at a change that is not easily reversible, and transformative in the sense that both the problem situation at hand and the actors involved undergo qualitative changes in the course of the development process.

Third, the combination of our conceptual framework and narrative inquiry makes it possible to unpack human agency as a driver for sustained transformation. While the pandemic materialised as an exocentric intervention and with an impact that initially stunned educational institutions, our study reveals how human agency became an increasingly powerful resource in breaking out of dilemmas and impasses. All through the narrative, we trace efforts that span Levels 2, 3 and 4 in Table 5.1; agency that is sometimes executed individually but more forcefully in collaborative and collective/institutional modes and with a future-oriented and strategic objective. The interplay between structure and agency at the Faculty demonstrates actors who "may challenge and transform situational contexts of action themselves (although, given the contingency and uncertainty of interactions, the consequences of their actions cannot be controlled and will often 'feed back' in ways that necessitate new agentic interventions)" (Emirbayer & Miche, 1998, s. 994). Thus, there is no end point of transformative efforts.

While transformative agency with strategic aims can be identified at this Faculty, there are also indications that the accumulated impact of the pandemic on educational systems has brought about non-reversible changes on an international level (Schleicher, 2020). While these are not pursued in the present chapter, it indicates how the Faculty's local efforts are embedded in the larger societal level (Level 1 in Table 5.1). Analysing counter-pandemic agency across nationally diverse institutions would seem to emerge as a pressing research initiative. We have not pursued in detail how the individual student or teacher has perceived or been agentive in transformative efforts (but see e.g. Börgeson et al., 2021; Byrom, 2020). This, too, calls for further research in order to get a truly multi-level representation of sustained transformations in HE.

References

Aagaard, T., & Lund, A. (2020). *Digital agency in higher education: Transforming teaching and learning*. Routledge.

Ajjawi, R., & Eva, K. W. (2021). The problem with solutions. *Medical Education, 55*(1), 2–3.

Al-Kumaim, N. H., Alhazmi, A. K., Mohammed, F., Gazem, N. A., Shabbir, M. S., & Fazea, Y. (2021). Exploring the impact of the COVID-19 pandemic on university students' learning life: An integrated conceptual motivational model for sustainable and healthy online learning. *Sustainability, 13*(5), 2546.

Becher, T., & Trowler, P. (2001). *Academic tribes and territories*. Open University Press/SRHE.

Blackmore, P. (2007). Disciplinary difference in academic leadership and management and its development: A significant factor. *Research in Post-Compulsory Education, 12*(2), 225–239.

Börgeson, E., Sotak, M., Kraft, J., Bagunu, G., Biörserud, C., & Lange, S. (2021). Challenges in PhD education due to COVID-19-disrupted supervision or business as usual: A cross-sectional survey of Swedish biomedical sciences graduate students. *BMC Medical Education, 21*, 294. https://doi.org/10.1186/s12909-021-02727-3

Bower, M. (2017). *Design of technology-enhanced learning. Integrating research and practice*. Emerald Publishing Limited.

Byrom, N. (2020). The challenges of lockdown for early-career researchers. *eLife 9*. https://doi.org/10.7554/eLife.59634

Damsgaard, H. L. (2020, April 27). Svarte skjermer i digitale undervisningsrom [*Black screens in digital classrooms*]. *Khrono*. Online at: https://khrono.no/svarte-skjermer-i-digitale-undervisningsrom/482814. Accessed 06 June 2022.

Dhawan, S. (2020). Online learning: A panacea in the time of COVID-19 crisis. *Journal of Educational Technology Systems, 49*(1), 5–22.

Edwards, A. (2010). *Being an expert professional practitioner: The relational turn in expertise*. Springer.

Edwards, A. (2017). The dialectic of person and practice: How cultural-historical accounts of agency can inform teacher education. In J. Clandinin, & J. Husu (Eds.), *The SAGE handbook of research on teacher education* (pp. 169– 285). Sage.

Ellis, V., & McNicholl, J. (2015). *Transforming teacher education: Reconfiguring the academic work*. Bloomsbury Academic.

Emirbayer, M., & Miche, A. (1998). What is agency? *American Journal of Sociology, 103*(4), 962–1023.

Engeström, Y., Nuttall, J., & Hopwood, N. (2022). Transformative agency by double stimulation: Advances in theory and methodology. *Pedagogy, Culture & Society, 30*(1), 1–7.

Goedegebuure, L., & Meek, L. (2021). Crisis-What Crisis? *Studies in Higher Education, 46*(1), 1–2.

Haapasaari, A., & Kerosuo, H. (2015). Transformative agency: The challenges of sustainability in a long chain of double stimulation. *Learning Culture and Social Interaction*, *4*, 37–47. https://doi.org/10.1016/j.lcsi.2014.07.006

Heaton, M. (2020, December 14). Academics must not rage against 'death by blank screen'. *Times Higher Education*. Online at: https://www.timeshighereducation.com/blog/academics-must-not-rage-against-death-blank-screen. Accessed 06 June 2022.

Hedegaard, M. (2014). The significance of demands and motives across practices in children's learning and development: An analysis of learning in home and school. *Learning, Culture and Social Interaction*, *3*(3), 188–194.

Hermansen, H. (2019). In pursuit of coherence: Aligning program development in teacher education with institutional practices. *Scandinavian Journal of Educational Research*, 1–17. https://doi.org/10.1080/00313831.2019.1639815

Jónasson, J. T. (2016). Educational change, inertia and potential futures. Why is it difficult to change the content of education? *European Journal of Futures Research, 4*(7), 1–14.

Kaptelinin, V., & Nardi, B. A. (2006). *Acting with technology: Activity theory and interaction design*. MIT Press.

Knorr Cetina, K. (1999). *Epistemic cultures: How the sciences make knowledge*. Harvard University Press.

Langford, M., & Stang, E. (2020). Slik gikk den store digitale omstillingen etter koronakrisen [How the great digital transformation played out after the corona crisis]. *Aftenposten*. Accessed 21 Feb 2021.

Lund, A., & Aagaard, T. (2020). Digitalization of teacher education: Are we prepared for epistemic change. *Nordic Journal of Comparative and International Education (NJCIE), 4*(3–4), 56–71. https://doi.org/10.7577/njcie.3751

Lund, A., Furberg, A., Bakken, J., & Engelien, K. (2014). What does professional digital competence mean in teacher education? *Nordic Journal of Digital Literacy, 9*(4), 281–299.

Lund, A., & Vestøl, J. M. (2020). An analytical unit of transformative agency: Dynamics and dialectics. *Learning, Culture and Social Interaction*, *25*, 100390.

Maassen, P., Gornitzka, Å., & Fumasoli, T. (2017). University reform and institutional autonomy: A framework for analysing the living autonomy. *Higher Education Quarterly*, *71*(3), 239–250.

Mårtensson, K., Roxå, T., & Stensaker, B. (2014). From quality assurance to quality practices: An investigation of strong microcultures in teaching and learning. *Studies in Higher Education*, *39*(4), 534–545.

Mertova, P., & L. Webster. 2019. *Using narrative inquiry as a research method. An introduction to critical event narrative analysis in research, teaching and professional practice*. Routledge.

Niedlich, S., Kummer, B., Bauer, M., Rieckmann, M., & Bormann, I. (2020). Cultures of sustainability governance in higher education institutions: A multi-case study of dimensions and implications. *Higher Education Quarterly, 74*(4), 373–390.

OECD. (2013). *Government at a Glance 2013*. OECD Publishing. Online at: https://doi.org/10.1787/gov_glance-2013-en

Rhoads, R. A., Berdan, J., & Toven-Lindsey, B. (2013). The open courseware movement in higher education: Unmasking power and raising questions about the movement's democratic potential. *Educational Theory, 63*(1), 87–110.

Rittel, H. W. J., & Webber, M. M. (1973). Dilemmas in a general theory of planning. *Policy Sciences, 4*(2), 155–169. https://doi.org/10.1007/BF01405730

Royle, K. (2021). What's good what's bad? Conceptualising teaching and learning methods as technologies using actor network theory in the context of Palestinian higher education. *Postdigital Science and Education, 3*, 120–143.

Rückriem. (2009). Digital technology and mediation: A challenge to activity theory. In A. Sannino, H. Daniels, & K. Gutiérrez (Eds.), *Learning and expanding with activity theory* (pp. 88–111). Cambridge University Press.

Schleicher, A. (2020). The future of education and skills. OEB20 opening keynote. In *OEBcast Series*. YouTube.

Selwyn, N. (2014). *Digital technology and the contemporary university: Degrees of digitization*. Routledge.

Sharma, M. K., & Sharma, R. C. (2021). Innovation framework for excellence in higher education institutions. *Global Journal of Flexible Systems Management, 22*(2), 141–155.

Shields, R., & Watermeyer, R. (2020). Competing institutional logics in universities in the United Kingdom: Schism in the church of reason. *Studies in Higher Education, 45*(1), 3–17.

Stensaker, B. (2018). Academic development as cultural work: Responding to the organizational complexity of modern higher education institutions. *International Journal for Academic Development, 23*(4), 274–285.

Stensaker, B., Langfeldt, L., Harvey, L., Huisman, J., & Westerheijden, D. (2011). An in-depth study on the impact of external quality assurance. *Assessment & Evaluation in Higher Education, 36*(4), 465–478.

Teräs, M., Suoranta, J., Teräs, H., & Curcher, M. (2020). Post-Covid-19 education and education technology 'solutionism': A seller's market. *Postdigital Science and Education, 2*(3), 863–878.

Tsang, A. C. O., Shih, K. C., & Chen, J. Y. (2021). Clinical skills education at the bed-side, web-side and lab-side. *Medical Education, 55*(1), 112–114.

Weick, K. E. (1976). Educational organizations as loosely coupled systems. *Administrative Science Quarterly, 21*(1), 1–19. https://doi.org/10.2307/2391875

Whyte, W. (2015, February 02). Does the MOOC spell the end for universities? *OUPBlog*. Oxford University Press. Online at: https://blog.oup.com/2015/02/mooc-end-universities/. Accessed 06 June 2022.

Zuo, L., & Miller Juvé, A. (2021). Transitioning to a new era: Future directions for staff development during COVID-19. *Medical Education, 55*(1), 104–107.