

NOS-HS Workshop 1, 30-31 March 2021 - Understanding digital transformations of teaching and learning in Nordic higher education and beyond

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ABSTRACTS AND BIOS – OPENING TALK

Understanding Digital Transformations of Higher Education: Future Trends and Current Concerns

Neil Selwyn, Monash University, Melbourne

In this brief opener to the conference, Neil Selwyn will point to a few emerging trends associated with the increased digitisation of higher education that might well shape our experiences of higher education over the next decade and beyond. These include issues of personalisation; platformization; datafication; automation; and concerns over environmental sustainability. In keeping with the general approach of futures thinking, Neil reflects on what these anticipated issues might mean for how we engage with present forms of digital technology in the higher education systems of 2021.

BIO



Neil Selwyn is a distinguished research professor at Monash University, Melbourne. Recent books include: *'Should Robots Replace Teachers? AI and the future of education'* (2019), and *'Education & Technology: key issue and debates'* (2021, 3rd edition). His Twitter handle is [@Neil_Selwyn](#)

ABSTRACTS AND BIOS – TRACKS 1&3 DAY 1 SESSION

Digital Transformations in Higher Education as a Result of the Covid-19 Pandemic, Understood as a Disruptive Innovation – a Scoping Review

Sabine Wollscheid, Nordic Institute for Studies in Innovation, Research and Education (NIFU), **Antonia Scholkmann**, Aalborg University, **Marco Capasso**, NIFU & **Dorothy Sutherland Olsen**, NIFU

Background and objective

There is a growing understanding that upcoming trends in higher education should be regarded as divided by an invisible line marking world events before and after the Covid-19 pandemic (Laterza, Tomte, & Pinheiro, 2020). At the same time, there is increasing research addressing digital transformation in higher education related to the Covid-19 pandemic, and we can expect a growing amount in the nearer future. (Garcia-Penalvo & Corell, 2020; Pazos, Ruiz, & Perez, 2020).

Several studies have already investigated different aspects of digital transformation in higher education, among them a systematic review by Benavides et al. (2020). They show that this is an emerging field and point to that none of the digital transformation proposal included has been developed in a holistic way. Understood as a disruptive innovation, the Covid-19 pandemic has led to many initiatives, internationally, partly accompanied by research. A scoping search for the years 2020-2021 revealed a dynamic field of research comprising single studies and opinion papers. Drawing on this research, this scoping review will systematically retrieve, select, map and analyze the international literature on digital transformation in higher education in the period of the Covid-19 pandemic.

To capture the complexities and dynamics related with transformation processes, however, we will use the concept of “digital transformations” in plural according to Laterza et al. (2020). Laterza et al. (2020) argue that we live in a time when the speeding up of digitalization is leading to even more diverse and uneven paths of development. To speak of digital transformation in singular somehow reduces this complexity and multiformity, and at the same time reinforces some of the techno deterministic assumptions of much of the literature on digital transformation. From this backdrop, this review aims at describing and analyzing various forms of digital transformations in higher education during and in result of the Covid-19 pandemic.

Methodological approach: Scoping review

While traditional systematic reviews require the formulation of a specific, rather narrowly defined research question, a scoping reviews approach applies an alternative with the aim to systematically summarize a range of studies, covering breadth and depth of a research field or area, here: studies on digital transformation in tertiary education in result of the Covid-19 pandemic. A scoping review generally comprises the following processes: 1) the identification of the research question(s); 2) the retrieval of the relevant studies; 3) study selection; 4) data extraction and 5) summarizing and reporting (Levac et al., 2010). This approach is regarded as an appropriate for this project, as it allows a mapping and synthesis of studies of a wide range of design (including previous systematic reviews) and a broader scope. At the same time, this approach does not require standardized quality assessment of single studies and is suitable for identifying research gaps in the existing literature of an emerging field, as that of high-skilled migrants.

Drawing on the assumption of a highly developing research field this review aims to examine the extent, range, and nature of research activity, identify knowledge gaps and to synthesize the literature on digital

transformations in tertiary education in result of a disruptive innovation, by the means of a scoping review methodology.

Eligibility criteria

Inclusion: We will include primary studies dealing with digital transformations in higher education during the Covid-19 pandemic on different levels. We will include peer-reviewed journal articles/ research reports published in English, German or languages from the Nordic countries during 2020 and forward. The relatively short publication period is defined by the scope of this review, digital transformation in light of the Covid-19 pandemic.

Exclusion We will exclude studies on digital transformations in higher education before the Covid-19 pandemic and studies that address digital transformations in compulsory and upper secondary education. We will also exclude studies published in other languages than English, German and Scandinavian languages, non-peer reviewed and studies that are pure theoretical/conceptual.

Search strategy

Databases: We will conduct a search in Web of Science Core Collection (1975-present): Education Resources Information Center: Google scholar

Supplementary searches in Scandinavian databases, citation tracking forward, expert consultation, webpages.

Possible search terms: digitalization, transformation*, innovation; higher education, tertiary education, university; pandemic, Corona, Covid-19. Search terms will be validated by an external expert on the field and different searches will be conducted for different databases in collaboration with a research librarian.

Study selection and screening of full-text articles, coding

Two reviewers will independently screen titles and abstract for a first selection (T1); Full-text articles for potentially eligible studies will be screened independently by two reviewers (T2) applying the same eligibility criteria as with the first screening. The included studies will be coded according to descriptive characteristics (e.g., country, author, source) and perceptions of digital transformations.

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BIOS



Norwegian Social Research Institute (NOVA).

Sabine Wollscheid is a senior researcher at NIFU (Nordic Institute for Studies in Innovation, Research and Education) and holds a PhD in sociology from the University of Trier, Germany. Her research interests comprise inequalities in education, digital transformation in education and systematic review methods. She is main author of a range of systematic reviews on topics like gender differences in education, flexible learning in adult education, and the use of digital and analogue devices in education. She has previously worked on systematic reviews at the Knowledge Centre for Health Services and at the



her talk are:

Antonia Scholkmann (Dr. Phil, Dipl. Psych.) is an associate professor within Learning and Innovative Change at the Centre for Educational Policy Research (CfU), Department of Culture and Learning at Aalborg University, Denmark. Previous positions were at the Faculty of Education, Universität Hamburg, and at the Center for Higher Education at TU Dortmund University. Antonia's research interests are in the areas of learning and change in higher education, on the potential of Problem Based Learning as a blueprint for innovative educational change and on the meaning and outreach of enacted practices for a digitally transformed higher education.

Antonia has published widely on topics such as higher education development,

(digitally facilitated) inquiry-based learning and educational development. Recent writings related to

Scholkmann, A. (2020). Why don't we all just do the same? Understanding variation in PBL implementation from the perspective of Translation Theory. *Interdisciplinary Journal of Problem-Based Learning*, 14(2). <https://doi.org/10.14434/ijpbl.v14i2.28800>

Scholkmann, A. (2021). Resistance to (digital) change. Individual, systemic and learning-related perspectives. In D. Ifenthaler, S. Hofhues, M. Egloffstein, & C. Helbig (Hrsg.), *Digital Transformation of Learning Organizations* (S. 219–236). Springer. doi.org/10.1007/978-3-030-55878-9_13

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Council of Norway (2017-2018). He has previously worked on econometrics at Scuola

Marco Capasso is a senior researcher at NIFU (Nordic Institute for Studies in Innovation, Research and Education). He is currently principal investigator for the project "[The role of research, skilled labour and innovation in the Coronacrisis](#)", financed by the Research Council of Norway (2020-2022). He has recently been principal investigator for the project "Analysis on socioeconomic indicators of the Norwegian bioeconomy", financed by Innovation Norway and the Research Council of Norway (2019), and for the project "The dynamics of technology, trade and regional economic restructuring", financed by the Research

Superiore Sant'Anna (Pisa, Italy), on economic geography at Utrecht University (Utrecht, the Netherlands), on innovation studies at UNU-MERIT (Maastricht, the Netherlands) and on international economics at Maastricht University (Maastricht, the Netherlands).



Dorothy Sutherland Olsen is Senior Researcher at the Nordic Institute for Studies in Innovation, Research and Education (NIFU), Norway.

Dual Digitalisation – a Framework for Digital Transformation of Higher Education

Bendik Bygstad, Egil Øvrelid, Sten Ludvigsen, & Morten Dæhlen, University of Oslo

While universities have been at the forefront of using digital technologies, they still appear as traditional organisations. One reason is that digitalisation has been employed locally in research and fragmentary in education. Inspired by the corona crisis we propose the concept of *dual digitalisation* to understand in more depth the challenges and solutions for digital transformation of higher education.

Building on IS research we conceptualise *dual digitalisation* as evolving along two axes; one process-oriented (focusing on teaching and communication) and one knowledge-oriented (focusing on digitalization of the academic subject). The process-oriented leverage mainly communication technologies. It demonstrates how digital web pages, canvas, and after the corona shock zoom and teams, gradually is used as regular tools for teaching and communication. The axes describing the academic subject are data-oriented and illustrate how STEM subjects, medicine, biology, humanities, and law increasingly becomes digital from 2010-2020.

The study is longitudinal and qualitative. We first reviewed relevant literature on digitalisation of teaching and communication and digitalisation of the academic subject between 2005 and 2020. We found that the literature was quite broad but mainly focused on how the digitalisation process is proceeding in each of the axes.

We then interviewed expert users and professional experts at various faculties such as medicine, law, humanities, and natural sciences. We saw that although the respective academic subject leverage IT to extend the research tradition according to their own goals, the various fields have similarities in how they develop when they are digitalized. We also saw that this development was deeply conditioned by the external shock caused by the corona pandemic. The pandemic was a “wake-up call” that triggered an extreme internal mobilisation needed to maintain regular university services. The outcome from this process was a graphical map describing the evolution of the two axes from being entirely separate to become gradually integrated.

Based on our qualitative and longitudinal study, we conceptualize and elaborate on *dual digitalisation* through two contributions. *First*, we use our findings regarding the historical development of the two axes, to describe the development through three phases. While the two axes operating independently of each other characterize the first phase, the second phase introduces a

convergence between the axes. In the third phase, digital coordination of teaching and communication on one hand, and the academic subject on the other, is made possible. Through this, we suggest, *dual digitalisation* is becoming institutionalized.

Second, building on critical realism we explore the causal explanations for the institutionalization of *dual digitalization*. We identify three causal mechanisms: digital flow, boundary resources, and digital representation, and describe each of them in-depth. While we understand digital flow as the logistics of information and people, boundary resources facilitate the linking-up of technical and educational elements. The digital representation mechanism is crucial in understanding the ongoing digitalization of the various research fields in higher education in that it emphasises the transition towards data science. Doing this, the paper demonstrates and discusses how dual digitalisation in higher education is caused by contingent mechanisms that are triggered to solve emergent challenges.

BIOS



Bendik Bygstad is a Professor at the Department of Informatics, University of Oslo, and an Adjunct Professor at the Norwegian School of Economics. His main research interests are IT-based service innovation and the relationship between IS and organizational change. He is also interested in IS research methods, in particular the methodological implications of critical realism. His preferred empirical approach is longitudinal process research, and he has published articles in *MIS Quarterly*, *Information Systems Journal*, *Journal of Information Technology*, and *Information & Organization*.



Egil Øvreid is a Postdoctoral Researcher in Informatics at the Department of Informatics, University of Oslo. He has a Ph.D. degree in information systems, and his main interest is currently digital innovation in the health sector and the higher education sector, and the relationship between digitalization, IS, and organizational change. He is also interested in IS research methods, in particular, the methodological implications of critical realism. His preferred empirical approach is longitudinal process research. He has published articles in the *Journal of Information technology*, *the European Journal of Information systems*, and *Scandinavian Journal of Information Systems*.



Sten Ludvigsen is a Professor in Pedagogics at the Department for Pedagogics. He has been chair of the program board for the evaluation of the Knowledge Promotion and the National Research School in Educational Sciences. From 2013 to 2015, he was the leader of the so-called Ludvigsen committee, which was to assess the subjects of basic education against the requirements for competence in a future society and working life. He was also dean at the faculty of Pedagogics from 2016 to 2020.



Morten Dæhlen is a Professor in Informatics at the faculty of Mathematics and Natural Sciences at the University of Oslo. From 2021, he is the manager of the new dScience research centre at University of Oslo. He was a dean at the faculty for Mathematics and Natural Sciences from 2016 to 2020. Dæhlen worked as a researcher at SINTEF until 1998, when he transferred to a position as professor at the Department of Informatics. He has also been involved in the construction of the Simula Research Laboratory. He has also served two terms as head of department at the Department of Informatics at the University of Oslo.

Toward a Framework for Understanding Technology Enabled Change in Education

Rasmus Leth Jørnø, Peter Gundersen & Bjarke Lindsø Andersen, University College Absalon

This article aims at examining different discourses on transformations of education under the influence of technological innovations.

Technological innovations have brought us to the cusp of a new techno-economic paradigm – the ensuing social, economic and cultural consequences of which we have only recently begun to see, including transformations in the world of education. There are many voices participating in this and similar discussions. However, it is not easy to discern whether or not these voices are engaged in the same discussion or if, in fact, they are speaking from different premises on what revolution and transformation means? In order to properly map the different conversations taking place, we need to frame how the different conversational partners' views on technology interact with their views on education. In this paper we construct a framework for understanding different discourses on transformations and revolutions in education.

Building on Carlota Perez's (2002) work on technological revolutions and Jasanoff's ideas (2015) on imaginaries, we examine different models for differentiating types of innovation, technological change and technology adoption. Finally we present our own proposal for a framework.

This model can be considered part of the groundwork to have a fruitful discussion on educational revolution. The model also constitute an opportunity to separate the wheat from the chaff, as there is a risk of becoming engulfed in discussions over the qualities, dangers and possibilities of a specific (new) technology. We argue against having such discussions in terms of the question of technology's place in education. To do so increases the likelihood of a debate that sees new technology as an incursion, whose merits and drawbacks should be carefully weighed against the existing merits and drawbacks – as if the transition from horse carriage to horseless carriage necessitated a discussion of the qualities of horse reins vs. a steering wheel. Rather, we attempt to frame a discussion of the core concepts at work instead of their specific embodiments as components in a specific architecture. This will enable us to refrain from discussing the merits of fx. big data or the sinister agenda behind it or discussing its impact on classroom design or curriculum thinking. Rather we can engage in a discussion that acknowledges that the classroom and curriculum are (also) consequences of a particular discourse and logic. By doing so, we enable a better framed discussion of what revolution and transformation of education means.

BIOS



Rasmus Leth Jørnø is an associate professor at University College Absalon. He holds a PhD in Human-Computer Interaction and has a background in Philosophy, Humanistic Informatics and Economics. He has published and researched primarily at the intersection of technology, innovation and design with a specific focus on education, design-based research and the interplay between technology, artefacts and learning environments. Jørnø has participated in and led research projects in the areas of educational innovation, learning design, playful learning and data-saturated learning environments.



Peter Gundersen is an associate professor at University College Absalon. His research is centered around education and technology as well as design-based methods to improve educational practices. Peter has published several articles on novel educational formats such as MOOCs



Bjarke Lindsø Andersen is an assistant professor at University College Absalon. He works in the intersection between novel learning technologies (such as learning analytics and adaptive learning) and local educational cultures (from primary school to higher education) and has a particular interest in how design and use of technologies reveal and conceal values and ideas in practice.

Translating Digitalization into Organisational Narratives – Sensegiving and Framing Digitalization in the Nordics

Lise Degn, Aarhus University

Digitalization has been on the political agenda in the Nordic countries for years, and due to the Covid-19 pandemic the focus on digitalization of (higher) education has increased concurrently with the national lockdowns. However, even before the pandemic forced HEIs to adopt digital solutions to a unseen degree, digitalization was a significant and powerful policy idea, and could be seen as an obvious arena for strategic profiling in an increasingly competitive market of higher education.

Most studies of digitalization in higher education has focused on digitalization as top-down processes – influenced by international agendas or government policies, or as bottom-up initiatives, driven forward by dedicated individuals (Tømte, Fosslund, Aamodt, & Degn, 2019). In this paper, the aim is

to look not at the implementation of digitalization to search for effect, nor to explore digitalization initiatives, but to explore how the policy idea of digitalization is used strategically by HEIs and how individual HEIs translate policy drives towards digitalisation - and how these translations are used strategically as sensegiving attempts from the top level management of HEIs?

Using strategic documents from a selection of Nordic HEIs (2 in DK, 2 in NO and 2 in SE), the paper will use the framework of Scandinavian institutionalism to explore how different national policy drives for digitalization as well as internal pressures for digitalization is translated into organisational narratives through strategic documents.

The theoretical lens focuses the gaze on both the material translation of policy and the sensemaking and giving of organizational leaders. Scandinavian institutionalism, and particularly the concept of translation has, in the aftermath of the wave of functionalism and structuralist-oriented organizational theories, become an increasingly popular concept in the study of complex organizations. Translation, as it is understood and developed within what is known as Scandinavian institutionalism (Czarniawska & Joerges, 2011; Sahlin & Wedlin, 2008) is mainly concerned with exploring and understanding how ideas, and more specifically policy ideas, e.g. about efficiency or accountability, move across time and space, and how this travelling process affects both the idea and the context it enters into.

The paper thus sets out to explore how dual pressure, i.e. from within the sector (from the increasing number of dedicated individuals and students demanding digital solutions) and from the political system is navigated and how it affects the organisational narratives and identity constructions. This is important because it sheds light in how digitalization may be translated inside the HEIs, i.e. the premises of sensemaking (Degn, 2015)

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BIO



Lise Degn is Associate Professor at the Department of Political Science – Danish Centre for Studies in Research and Research Policy (CFA), Aarhus University in Denmark. Her field of expertise is the study of higher education governance, leadership and management, particularly with a focus on qualitative investigations of transforming roles and structures. She is currently working on projects e.g. relating to Responsible Research and Innovation and quality in higher education.

The Rapid Digital Turn: An Exploration into the Tight and Loose Coupling of University Structures

Len Ole Schäfer, University of Hagen, **Bronwen Deacon & Melissa Laufer**, Humboldt Institute for Internet and Society

The COVID-19 pandemic created a shock moment for universities around the globe. From one day to the next, the rules changed and scientists and academics had to adapt their daily routines of deeply established face-to-face teaching practices to digital formats. The introduction of digital elements into university classes was the result of a temporary and still ongoing change of the deep structure of the contemporary university (e.g. the organization of teaching, central-level support mechanisms and collaborative networks). In this context, we developed a qualitative study to investigate these rapid and far-reaching changes in university teaching. In our study, we conducted focus groups with lecturers from different disciplines and from a variety of different higher education institutions located in Germany in order to understand the change process that occurred in the inner core of the university. Our research question focuses on how lecturers cope with the rapid digital turn fuelled by the corona crisis and the factors that determine change at universities in uncertain times.

In order to answer our research questions, our study draws on a theoretical perspective inspired by organizational theory. In our theoretical framework, we expand upon two concepts, which combine two separated theoretical paradigms, namely tight coupling and loose coupling of elements in higher education organizations (cf. Meyer/Kirchner 2016). Tight coupling is characterized by a high density of interactions among heteronomous and reciprocally linked elements in an organization, which establish formal structures and that adhere to central authorities. The formal structure is composed of official positions that are organized in a hierarchical manner within an underlying authorized network. This is typical of the formal part of the university, namely the university administration (cf. Weber 1922; Mintzberg 1989; Gumpert/Snydman 2002). Loose coupling, on the other hand, is characterized by a high density of autonomous reciprocally linked elements in an organization, which consists of informal structures that adhere to decentral authorities. Loose coupling is common in the sphere of teaching and research at the university (cf. Weick 1976; Hautala/Helander/Korhonen 2018). The informal structure is composed of informal positions and is vertically organized - among different levels of an organization. In an ideal world, there are degrees of coupling between different positions at the university. The aim of our study is to analyze the interplay of tight coupling and loose coupling mechanisms at German universities, through an investigation of the rapid digital change evoked by the COVID-19 pandemic.

In the empirical part of our study, we consider the aforementioned theoretical assumptions and investigate the tension between tight and loosely coupled elements in German higher education organizations. On the one hand, the function of the university is to provide resources to carry out its operations (e.g. teaching and research) by means of a strong coupling of elements via strong formal structures that enable the flow of resources to different subunits. On the other hand, the university must not interfere with the holy grail of academic freedom when it comes to teaching and creativity. Yet, the findings revealed that the lecturers required resources from the university to ensure their freedom of teaching. Consequently, there is an economic determinism of central values of the lecturers observable. Furthermore, a tight coupling was visible in issues surrounding data protection and the university administration. The university administration controlled the spectrum of usable tools available for lecturers. The lecturers resisted the centrally-led data security restrictions as they hindered their ability to create free spaces and innovation. Additionally, they perceive data security as a barrier for change. Other interviewees reported the opposite: The implementation of data security rules was a driver of change. With our study, we also formulate recommendations for practice. The university administration

needs straightforward communication guidelines from the university management. Furthermore, there is a need for technical support staff and a stable infrastructure. Lastly, universities should pursue cooperations with other institutions regarding best practices for implementing digital tools.

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BIOS



Len Ole Schäfer is a researcher in the research cluster „*Digitalization, Diversity and Lifelong Learning – Consequences for Higher Education*“ (D²L²) at FernUniversität in Hagen (Germany).

Len was a visiting doctoral scholar at the University College London (UCL), at the Institute of Education (IOE) and the Centre for Global Higher Education (CGHE). He completed his doctorate in sociology at the University of Bamberg (Germany). In his dissertation he analysed the effects of the Research Excellence Framework (REF) on academic practice.

Currently, he is a project leader of the research project “*Permeability Between Vocational Training and Bachelor’s Degree - From IT Specialist to Bachelor’s Degree in Computer Science Through Adapted Study Design*”, conducted at the FernUniversität. Additionally, he leads the research project “*Organizational Adaptivity in the German Higher Education Context*” (OrA), which is a cooperation project between D²L² and the Alexander von Humboldt Institute for Internet and Society.



Bronwen Deacon is a doctoral student and researcher within the research program "Knowledge & Society" at the Alexander von Humboldt Institute for Internet and Society. She studied at the Universität of Arts Berlin (UdK) and at the Stockholm University (SU) and holds a bachelor and a masters degree in "Communication in Social and Economic Contexts" (GWK). Her research focuses on the adaptability of higher education institutions in times of digitalization and the involvement of different stakeholders in such change processes.



Melissa Laufer is a senior researcher and project leader in the research program “Knowledge & Society” at the Alexander von Humboldt Institute for Internet and Society, where she investigates how higher education institutions may successfully adopt and adapt digital innovations in teaching and learning. Melissa completed her doctorate in sociology at Ghent University (Belgium). In her article-based dissertation, she explored the role university culture plays in the internationalization of higher education. Specifically, her research focused on change communication at the university, academic mobility, and academic careers. Previously, she earned a master’s degree in Intercultural

Communication & European Studies at the Hochschule Fulda University of Applied Sciences (Germany). She completed her undergraduate work at the University of Oregon (USA), where she studied International Studies, German and Anthropology.

Digital Transformation in Higher education in Times of Turbulence: a Scandinavian Tale

Rómulo M. Pinheiro, Cathrine E. Tømte, Vito Laterza & Michael Asante, University of Agder

Throughout Europe governments have undertaken a series of policy initiatives to foster digitalisation across the public sector. As a key sector of society and economy, higher education has not been immune to these trends, particularly following the covid19 pandemic. Yet, as of today, little is yet known as regards the chosen policy instruments and their inherent logics, as well as the short to mid-term impacts such initiatives have had at the university level. This chapter takes stock of the existing literature on the topic, elaborating on the different policy approaches and logics within the Scandinavian context: Denmark, Norway, and Sweden. Theoretically, we adopt an ‘institutional work’ perspective, illuminating on the dynamic and complex interplay between actors and institutions in the context of daily practices, and in the light of deeply institutionalised (taken for granted) rules, logics, values and preferences. The chapter illuminates on ongoing developments by resorting to a set of illustrative case studies from the region. The analysis is relevant to a wide audience; ranging from social science academics interested in digital transformation/higher education as a sector, to practitioners within universities to policy makers tasked with governing the sector.

Backdrop and research questions

Digitalisation has swept across the public sector, including higher education. The ongoing Covid19 crisis has exacerbated the urgency and saliency of adopting digital tools in the teaching realm. Governments and higher education institutions (HEIs) in Scandinavia have responded differently to these challenges, in the light of domestic traditions, strategic priorities and resource constrains. In contrast to Anglo-Saxon contexts where digitalisation (e.g. in the form of MOOCs) is mostly seen as a means of increasing future financial revenues for universities and other types of HEIs, the Scandinavian countries have tended to approach digitalisation in terms of the historical imperative given to equity-related dimensions such as widening access to non-traditional student groups and/or as a means of re-skilling certain parts of the labour market. That said, the many negative reactions towards the ‘forced’ adoption of digital tools within teaching following the covid19 pandemic, reinforce the need to critically assess both the intended and unintended effects derived from the adoption of a digitalisation agenda in, and for, HE. As early adopters, the Scandinavian countries provide important lessons to other countries on both the benefits and pitfalls associated with the digitalisation of HE, as well as help shed light on

the pros and cons of specific (implementation) models and approaches. What is more, the preliminary findings suggest that HEIs' responses to the Covid19 pandemic often result in important, sometimes unanticipated lessons about both actors' behaviours and HEIs as organisations and institutions.

Given this backdrop, the following (2) research questions are addressed in this paper:

1. *How have governmental agencies responsible for higher education and actors within universities responded to the opportunities brought by digitalization?*
2. *What types of implementation problems and bottlenecks (university level) have been identified, and have these changed following the covid19 pandemic?*

Data, Method and Cases

The study draws on different types of datasets. Firstly, we undertake a systematic literature review on the topic (knowledge base), with focus on the Scandinavian region. This encompasses both the extant scientific literature, as well as publicly available documentation (legislation, expert reports, directives, strategies, etc.) at the level of government policy. Secondly, we complement this desktop analysis with semi-structured interviews with key stakeholders at three case universities, two in Norway and one in Sweden, both at the central and departmental level. The cases include two comprehensive, research intensive universities (one in either country) and one more vocationally oriented and regionally embedded one located in Norway. The respondents (about 25 in total) encompass senior academic administrators (like Faculty Deans or Heads of Program), administrators responsible for driving digitalisation across the board and within teaching, in addition to implementers such as academic staff responsible for coordinating programs at the bachelor and master's level as well as IT staff.

Theoretical lens

The study adopts an institutional perspective of organisations (Greenwood, Oliver, Lawrence, & Meyer, 2017), shedding light on the importance of formal and informal rules in the behaviour of social actors. Following the seminal works by Thomas Lawrence, Roy Suddaby, and Bernard Leca, we adopt a relative novel perspective - *institutional work* - examining the *practices* of individual and collective actors aimed at creating, maintaining, and disrupting institutional arrangements. Given traditional institutional arguments (Powell & DiMaggio, 1991), institutional work maintains a fascination with the relationship between institutions or *rules* and action or *agency*. Following classic structuralist underpinnings, this tradition maintains as central the notion that all action is embedded in institutional structures, the so-called 'paradox of embedded agency' (Battilana & D'anno, 2009); which it simultaneously produces, reproduces, and transforms. Yet, in contrast to other institutional traditions focusing on the role of certain key agents, like institutional entrepreneurs (Battilana, Leca, & Boxenbaum, 2009), in enacting "successful" institutional change, institutional work embraces the complexity and ambiguity inherent to agentic behaviour within organisations, particularly those operating in highly institutionalised fields, as is the case of HE (Pinheiro, Geschwind, Ramirez, & Vrangbæk, 2016). In so doing, it moves away from grand accounts of institutions and agency preferring, instead, to pay close attention to "the myriad, day-to-day equivocal instances of agency that, although aimed at affecting the institutional order, represent a complex mélange of forms of agency - successful and not, simultaneously radical and conservative, strategic and emotional, full of compromises, and rife with unintended consequences." (Lawrence et al. 2011, pp. 52-3)

In short, institutional work focuses on the interplay between agency and institutions by focusing on micro-level dynamics with an emphasis on *practices* and *processes* rather than simply ideas and discourses. In terms of analytical focus, the perspective encompasses a number of dimensions with *rules* and *logics* ranking high in the research agenda, but also *meanings*, *values*, *identities* and *power relations*; depending on the scope of analysis and ambition of the study (c.f. Rojas, 2010). In the context

of the current study, and given that universities are highly institutionalised organisations (laden with multiple norms, values, and preferences), the primary focus of analysis is given to the complex relation or interplay between rules, logics, values and preferences in the context of the adoption/resistance of a digitalisation agenda within teaching. As for the main actors engaged in changing and/or maintaining existing institutional arrangements within universities in the light of digitalisation, these include: *Externally*; the government and its respective agencies as well as other relevant include non-governmental actors like rectors' conferences, labour unions and students interest organisations. *Internally*; academic leaders and administrators; teaching staff; and IT/support staff.

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BIOS



Rómulo M. Pinheiro is Professor of Public Policy and Administration at the University of Agder, Norway. Rómulo co-heads Public Governance and Leadership Group. His research interests are located at the intersection of public policy and administration, organizational- and higher education studies.



Cathrine Edelhard Tømte is Professor at the Department of Information Systems; member of the Center for Digital Transformation (CeDiT,) and of the ProDig – Network for professional digital competence for teachers and teacher education at University of Agder. Tømte has a PhD from the NTNU. She has previously been affiliated with the Norwegian Center for ICT in education and the OECD. Before joining Dep. of Information Systems at Universtiy of Agder, she worked at the Nordic Institute for Studies in

Innovation Research and Education, NIFU. Tømte's research interests include digital transformations of society and education.



Vito Laterza is Associate Professor in the Department of the Global Development and Planning, and the Centre for Digital Transformation (CeDiT), University of Agder. He is Senior Research Associate at the Centre for Education Rights and Transformation, University of Johannesburg. He holds a BSc from LSE, and a MPhil and PhD from the University of Cambridge. Vito is an interdisciplinary anthropologist working on higher education, digitalisation and political economy. He has been studying the digitalisation of higher education since 2006, when he was the lead researcher on a large-scale project on the use of the SAKAI platform

as a virtual research environment at the University of Cambridge. Full profile: <https://www.uia.no/en/kk/profile/vitol>



Michael Oduro Asante is a research assistant at the University of Agder, Norway. His research interest lies in Trust in Organization, Organizational Resilience, Higher Education, Public Sector Leadership, Nordic regions, New Public Management and New Public Government, Organizational Reforms, Governance and Administration, Labour and Labour Movements, and Globalization. A motivated and energetic individual with strengths in research, leadership, communication, and team-management.

The Triad of Good Education in Times of COVID-19 Caused Online Learning Environments in a PBL-Based University

Anette Lykke Hindhede & Vibeke Harms Andersen, Aalborg University

Contemporary paradigm on teacher professionalism reflects the postmodern professional as someone who is able to demonstrate flexibility and democratic inclusion. At the same time, the university world - like other places in society - is increasing met with demands for expanded digitalization. Educators have therefore been required to address how digitization can improve the quality of learning. With the outbreak of COVID-19, both teachers and students found themselves thrown into online study environments having to upgrade and adjust their teaching and learning skills to online learning.

This paper takes its point of departure in a university where the pedagogical ideal is defined by the university management. In this context, students are exposed to problem-based learning (PBL); a practice where they in groups engage actively in problem-solving by extending existing knowledge to find a solution to the problem. In this collaborative activity, inquiry entails critical analysis and synthesis of the new information gained when confronting opposing discourses. In relation to the goal of democratic formation, we find it interesting to draw on Biesta's threefold division of education, namely qualification, socialization and subjectification. The point here, then, is that education has a triad. However, we hypothesize that the balance in times of digitization often tends towards qualification, and to a certain extent socialization, while the subjectification aspect generally does not have a particularly large place in today's school systems.

Drawing on a survey of 51 postgraduate students, we explored the aspects of digital technology use that students themselves see as particularly helpful and/or useful. We were also interested in their reflections on what benefits their learning in an online environment. Our findings show that some study elements seem to be more suitable for digital teaching than others. In our mapping of the students' online learning experiences, we find that they have very different participant prerequisites which impacts negatively on their qualification. In terms of socialisation, some students get very passive, feel isolated and study less when teaching is online, while others takes more responsibility for own learning and reflecting; showing an interest in elements associated with more complex levels of learning, e.g. co-involvement in decision making, dialogic collaboration and critical, reflexive skills. These students also envisage intentional means to break with the image of the student as an online anonymous, passive receiver of learning content thus requiring emancipation as humans and providing them with agency as citizens. While our data confirm digital technologies as central to the ways in which students experience their studies, they also suggest that digital technologies may challenge what could be considered the purpose of education. As we see it, digitalization has both transformative and reproductive traits. These inequalities risk to be accentuated in times of sudden transitions to the detriment of some students. Therefore, there is a need to develop greater differentiation and active learning strategies when integrating an online learning environment.

BIOS



Anette Lykke Hindhede is an Associate Professor of Health and Education at Aalborg University in Denmark. Her field of research is in the area of education and she is interested in the intersections between medicine, education and technology. Her priority is to engage in research with a strong social justice agenda that addresses social inequalities of all kinds.



Vibeke Harms Andersen is an Associate Professor of Organizational Learning at the Department of Culture and Learning at Aalborg University in Denmark. Her field of research is mainly within analysis of Work Life connected to organizational, technological development and learning. At the moment she has a special interest in the intersection between technology, organization, collaboration, learning and professions within the health care sector.

Relevant publications:

Hindhede, A. L. (2020). [Medical students' educational strategies in an environment of prestige hierarchies of specialties and diseases](#). *British Journal of Sociology of Education*, 41(3), 315-330.

Hindhede, A. L., & Højbjerg, K. (2020). [How Teachers Balance Language Proficiency and Pedagogical Ideals at Universities in Indigenous and Postcolonial Societies: The Case of the University of Greenland](#). *Journal of Language, Identity & Education*, 1-14.

Gnaur, D., Hindhede, A. L., & Andersen, V. H. (2020, October). [Towards hybrid learning in higher education in the wake of the COVID-19 crisis](#). In *European Conference on e-Learning* (pp. 205-XV). Academic Conferences International Limited.

Hindhede, A. L. (2020). [Cultural boundary work when inviting constructivist pedagogy into polytechnic schools](#). *Interdisciplinary Journal of Problem-Based Learning*, 14(2).

ABSTRACTS AND BIOS – TRACK 2 DAY 1 SESSION

Failure to Disrupt: Why Technology Alone Can't Transform Education

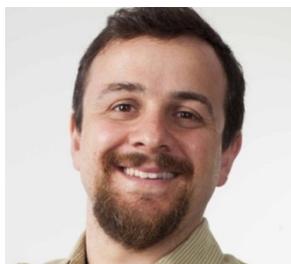
Justin Reich, Massachusetts Institute of Technology

This presentation is based on the [homonymous book](#) published in 2020 by Harvard University Press. Proponents of large-scale learning have boldly promised that technology can disrupt traditional approaches to schooling, radically accelerating learning and democratizing education. Much-publicized experiments, often underwritten by Silicon Valley entrepreneurs, have been launched at elite universities and in elementary schools in the poorest neighborhoods. Such was the excitement that, in 2012, the New York Times declared the “year of the MOOC.” Less than a decade later, that pronouncement seems premature.

The book delivers a sobering report card on the latest supposedly transformative educational technologies, and takes readers on a tour of MOOCs, autograders, computerized “intelligent tutors,” and other educational technologies whose problems and paradoxes have bedeviled educators. Learning technologies—even those that are free to access—often provide the greatest benefit to affluent students and do little to combat growing inequality in education. And institutions and investors often favor programs that scale up quickly, but at the expense of true innovation. It turns out that technology cannot by itself disrupt education or provide shortcuts past the hard road of institutional change.

Technology does have a crucial role to play in the future of education. We still need new teaching tools, and classroom experimentation should be encouraged. But successful reform efforts will focus on incremental improvements, not the next killer app.

BIO



Justin Reich is an assistant professor of digital media in the [Comparative Media Studies/Writing](#) department at MIT and the director of the Teaching Systems Lab. He is the author of [Failure to Disrupt: Why Technology Alone Can't Transform Education](#), and the host of the [TeachLab Podcast](#). He earned his doctorate from the Harvard Graduate School of Education and was the Richard L. Menschel HarvardX Research Fellow. He is a past Fellow at the Berkman-Klein Center for Internet and Society. His writings have been published in *Science*, *Proceedings of the National Academy of Sciences*, *Washington Post*, *The Atlantic*, and other scholarly journals and public venues. He started his career as a high school history teacher, and coach of wrestling and outdoor adventure activities. Follow Justin on [Twitter](#) or [Google Scholar](#).

Exploring the Potentials for New Kinds of Learning: The CGScholar R&D Project

Bill Cope, University of Illinois – Urbana-Champaign

Common Ground Scholar (CGScholar) is a social knowledge ecosystem for teaching and learning across all subject areas, from grade 4 to university, and work or life-embedded learning. CGScholar is the product of a series of research and development projects supported by the Institute of Educational Sciences in the US Department of Education, the Bill and Melinda Gates Foundation and the National Science Foundation. Developed by educators and computer scientists at the University of Illinois, its main points of focus have been collaborative learning, big data and artificial intelligence. Available through the developers' not-for-profit based at the University of Illinois, CGScholar is an integrated suite of apps that supports the following pedagogical functions: an inclusive class engagement space for ubiquitous learning; a collaborative, multimodal workspace, driven by a "help economy"; dynamic, just-in-time, AI-driven learning analytics engine, an anywhere/anytime web portfolio; and a place for interactive course design and delivery: <https://newlearningonline.com/cgscholar>

BIO



Bill Cope is a Professor in the Department of Education Policy, Organization & Leadership, University of Illinois, Urbana-Champaign. His [research interests](#) include theories and practices of pedagogy, cultural and linguistic diversity, and new technologies of representation and communication. His recent research has focused on the development of digital writing and assessment technologies, with the support of a number of major grants from the US Department of Education, the Bill and Melinda Gates Foundation and the National Science Foundation. The result has been the [CGScholar](#) multimodal writing and assessment

environment. With Mary Kalantzis, he has co-authored or co-edited: [New Learning: Elements of a Science of Education](#), Cambridge University Press, 2008 (2nd edition, 2012); [Ubiquitous Learning](#), University of Illinois Press, 2009; [Towards a Semantic Web: Connecting Knowledge in Academic Research](#), Elsevier, 2009; [Literacies](#), Cambridge University Press 2012 (2nd edition, 2016); [A Pedagogy of Multiliteracies](#), Palgrave, 2016; [e-Learning Ecologies](#), Routledge, 2017; and the two volume grammar of multimodal meaning: [Making Sense](#) and [Adding Sense](#), Cambridge University Press, 2020.

Working with Canvas at the University of Agder and in the Norwegian Higher Education Sector: a Practitioner's Perspective

Claus Wang, University of Agder

«If you can't buy it, it doesn't exist»

- how an International Tender, set up to meet national strategies with the HE-sector in Norway, can affect the outcome.

- Historic achievement – never before is an LMS procured for the HE-sector in a whole country

- «Best tender process ever» - **Geant**, the non-commercial pan European Network, is interested in doing the same for Europe – and why they should not
- How we prepared,- the NGDLE report from Educause in 2015 and «the 77 scenarios»
- Business rule-based tenders favour private companies with muscles (most of them are American) – it could be done differently
- The four stages: the requirements specification, the offers, the negotiations, the testing and the decision
- Canvas by Instructure was chosen as preferred vendor- does the decision meet the strategic national goals?
- A lot of things happened to Instructure after they won the tender, - why it matters

Is personal data protection a big deal when it comes usage of an LMS?

- In 2015-2016 it was simple by law (and attention), - by 2018 and GDPR it became a big issue. And in 2020, with Schrems II, even bigger. NGDLE (the multipurpose digital environment) is technically closer, but legally farther away than in years.
- The legal stuff and the realities, - what are the effects at the vendor and system level, and what are the effects regarding the national strategies?
- The lawyers and their interpretations are now playing an important part

Does the University of Agder have its own way regarding the implementation and development of Canvas?

- In most other institutions in Norway the system ownership is either placed as a whole within an ICT-department, or divided between two or more departments with specific roles («The NTNU- approach», - splitting management of the system from the executive part)
- UiA: we keep both together, have local executives and is not under the ICT-department, but in the Educational Department, together with amongst others, «Centre for Teaching and Learning»
- We try to keep the training and advising we do on Canvas as close to the curriculum as possible, trying to meet the ambition of the lecturers in co-work with the courses.
- During the pandemic there was no stop in the delivering of teaching or exams in Norway – and the Canvas platform (in addition to a number of other tools) has played an important part. It remains to see what the consequences will be in the future.

BIO



Claus Wang is Senior Adviser for LMS and Digital Teaching and Learning, University of Agder.

Teacher Education from Hedmark University College and an additional degree in ICT.

Work experience:

- 11 years in Kommunedata/NIT as programmer, course teacher, department manager and business developer in the public sector.
- 15 years as Director of ICT at Hedmark University College.
- 10 years as Senior Adviser LMS and Digital Teaching and Learning at University of Agder.

Member of the National Procurement Group for a new LMS in the Norwegian HE-sector 2015-2017.

PANEL: Transforming Graduate STEM Education: Challenges and Observations from the Study of a US Large Online Master's Programme

Chairs: **Ruth Kanfer & Julia Melkers**, Georgia Institute of Technology

A New Framework for Understanding Online STEM Graduate Education

Ruth Kanfer & Julia Melkers, Georgia Institute of Technology

Understanding and implementing effective online STEM graduate education in the 21st century entails a robust convergence of knowledge across psychological, institutional, and environmental factors. We introduce the session by describing an interdisciplinary meta-framework that highlights the unique enrollment, motivational, learning, and workforce transition barriers in online graduate learning. This discussion will outline the key challenges in this convergence with implications for theory and practice. The panel then presents recent empirical work based on the on-going study of a large online graduate degree program in Computer Science in the United States. Georgia Tech's Online Master's Program in Computer Science (OMSCS) has received global attention and serves as a foundation for discussing the challenges and experiences that working adults face during online graduate education in computing.

Learner Strategies in Online Contexts

Sibley Lyndgaard, Georgia Institute of Technology

Behavioral strategies are used by adult digital learners to effectively self-manage their learning alongside other responsibilities (e.g., obligations to work and/or family). Evidence from an in-depth qualitative study suggests that working adults rely heavily on a priori management/planning tactics and social resources to manage their learning. Future work in this area may include the development of interventions which help working adults proactively engage these learning strategies.

What is Class Participation in the Online Environment? A Study of Online Graduate Students

Isabel Ruthotto, Georgia Institute of Technology

The online course environment presents challenges in how to conceptualize and measure student participation in the virtual classroom. Our study examined demographic differences in the nature and intensity of graduate student participation in online-only classrooms, distinguishing between active

(contributions), passive (viewership) participation and lurking behavior (relative intensity of passive to active participation). In light of debates about the scalability of online courses, our data suggest that there is a potential tradeoff to be made between class size and student participation.

Pathways to Success: Course Decision Making

Corey Tatel, Georgia Institute of Technology

As online graduate education rapidly expands, many working adults enroll in order to acquire conceptual and technical skills that are in high demand. For these working adults, success requires the ability to balance learning and non-learning demands by making informed decisions regarding course choice and timing. We present findings outlining distinct course enrollment patterns among 1801 graduates of the Georgia Tech OMSCS program that differ as a function of demographic and educational backgrounds. Implications for educational design that consider the different ways that adults in diverse working populations manage their learning will be discussed.

Digital Learning during a Massive Disruption

Sibley Lyndgaard & Corey Tatel, Georgia Institute of Technology

Massive disruptions such as COVID-19 have pervasive consequences on the adult online learning community. We discuss these impacts and identify person-level characteristics (e.g., demographic, context, and psychological variables) that are associated with increased vulnerability to the effects of a massive disruption. The study has implications for infrastructure developments at the institutional or broader policy level to reduce the vulnerability of underrepresented groups during disruption.

BIOS



Ruth Kanfer is Professor of Psychology and Director, Work Science Center, School of Psychology, Georgia Institute of Technology. Ruth is a leading scholar in work motivation, lifelong learning, job search and other work transitions across the working lifespan. Her work can be found at:

<https://kanfer-ackerman.gatech.edu/publications>

She is also co-author of the forthcoming primer on managing workforce diversity, *Ageless Talent*.



Julia Melkers is Associate Professor of Public Policy at Georgia Tech. Her research is on the scientific workforce, primarily in the post-secondary setting. Specific to online education, her work has examined the changing student market for online graduate degrees, as well as the experience and engagement of graduate students studying computer science online. Her publications specific to online graduate education may be found in the *Journal of Labor Economics*; *Computers and Education*; and *Computer Science Education*.



Sibley Lyndgaard is a third-year PhD student in the Industrial-Organizational Psychology program at Georgia Tech. Her Master's thesis investigated critical learning strategies for working adults, including social support and proactive planning. Broadly, her research interests include adults' learning management and inclusive reskilling to support STEM workforce development..



Isabel Ruthotto is a PhD candidate in Public Policy at the Georgia Institute of Technology and Georgia State University. Her research interests include education policy and workforce issues in science and technology. She will present her work on online graduate students' participation in asynchronous discussion boards – see also [her published article](#) on this work in *Computers and Education*.



Corey Tatel is a PhD student studying Industrial Organizational Psychology at the Georgia Institute of Technology. His research includes work on knowledge and skill acquisition, adult learning, adult intelligence, and workforce reskilling. He is passionate about using quantitative analysis to understand human behavior.

Exploring EdTech Platform/Digital HE Practice Configurations at US Universities

Duncan A. Thomas, Aarhus University & **Maria Nedeva**, University of Manchester / Lund University

This paper will explore 'configurations' of EdTech platform features, EdTech/university relationships, labour markets for learners, and academic practices of faculty involved in digital higher education (HE). Observing these configurations is important to understand just how pervasive, and in what varied ways aspects of EdTech platform features have become intertwined with digital HE, including weaker or stronger dependency of universities and their academics upon private EdTech firms and their platform features. Selected anonymised configurations are shown for several cases that include popular massive open online courses (MOOCs), at-scale fully online degrees, and a niche EdTech platform-based start-up university. These are based on 35 face-to-face interviews in late-2017 at USA universities that have

been highly active in digital HE before or since the ‘MOOC mania’ of 2012. Configuration features highlighted include: faculty (role, reputation); university (socialisation, security); platform (delivery, class/peer interaction, assessment, certification). The paper will lastly explore whether particular teaching areas may experience isomorphism towards a similar configuration, e.g. business and management or computer science where taught material and mastered competences relevant for labour markets refresh regularly, involve global language instruction (English), and afford careers internationally.

BIOS



Duncan A. Thomas is Senior Researcher, The Danish Centre for Studies in Research and Research Policy (CFA), Department of Political Science, Aarhus University, Denmark.

My main research is on research policy and how science is funded, organised, evaluated and its impacts. This includes how research, its apparent quality, scholarly and societal impacts become interrelated with policy instrument, funding designs, as well as conditions for researchers in various organisations and scientific fields. The main policy focus here is at European level, but exploring research fields is typically global in scope.

Within this work, I became interested in EdTech and digitalisation of HE for two reasons. First, during 2013 to 2015, I co-developed two Coursera MOOCs, with my USA colleague, Dale Whittington. These were on global water supply and sanitation policy (<https://www.coursera.org/learn/water>; <https://www.coursera.org/learn/water-part-2>). Nearly 40,000 learners from almost every country and territory on the planet have so far taken these courses, with a notable increase in enrolments during the pandemic. Second, I became involved with a 5-year international research centre, hosted at Lund University, Sweden. This centre, KNOWSCIENCE, addresses higher education and research governance related to changing universities, and is funded by the Riksbankens Jubileumsfond. My main research line here is with Maria Nedeva, in developing comparative frameworks to better understand the interplay between research ‘fields’ and policy and funding ‘spaces’, including multi-level research evaluation arrangements. Based on our interest in MOOCs, we also expanded this to study how private actors, like EdTech companies, entered into symbiotic relationships with USA universities. This included an extensive period of interview fieldwork in the USA in late-2017. I am now hoping to apply a comparative Nordic/USA perspective to this research, including via this workshop collaboration with Vito Laterza.

I am also involved with a 4-year project funded by the Novo Nordisk Foundation. This explores how differing configurations of funders and funding supporting researchers can affect the potential for research to generate societal effects (studied in two interdisciplinary research fields, renewable energy research and food science, across Denmark, Netherlands and Norway). I am also part of the 8-year R-QUEST international research centre, led by the Nordic Institute for Studies in Innovation, Research and Education (NIFU), and funded by the Research Council of Norway. Here we are developing comparative frameworks around notions of research quality, including understanding better influences upon the intellectual structure of two cutting edge fields of physics (experiments at CERN-LHC, and ultracold atom/quantum physics at laboratories around the world).

Relevant publications

Thomas, DA & Nedeve, M 2018, 'Broad online learning EdTech and USA universities: symbiotic relationships in a post-MOOC world', *Studies in Higher Education*, 43:10, 1730-1749, <https://doi.org/10.1080/03075079.2018.1520415>

Merle, J & Hellström, T 2018, 'Epistemic governance and the conditions for knowledge production in HER institutions', *Studies in Higher Education*, 43:10, 1711-1717, <https://doi.org/10.1080/03075079.2018.1520413>



Maria Nedeve is Professor of Science and Innovation Dynamics and Policy, Alliance Manchester Business School (AMBS), University of Manchester, and visiting Professor, Department of Business Administration, Research Policy Group, Lund University School of Economics and Management, Lund University.

Universities and Unicorns: Building Digital Assets in the Higher Education Industry

Janja Komljenovic, Lancaster University & **Sam Sellar**, Manchester Metropolitan University

The increasing speed, scope, and extent of marketisation has led key education scholars to conceptualise it as a global industry (Verger, Lubienski, & Steiner-Khamsi, 2016). The use of technology to transform teaching and learning, which has expanded dramatically over the past year, and the profound digitalisation of universities more broadly, has led to universities collecting and processing unprecedented amounts of digital data. As a result of these developments, Education Technology (EdTech) companies have become key players in the HE industry and we are witnessing a widespread change from creating value via market exchange towards extracting value via the ownership and control of data as assets.

In this contribution, we will introduce a new ESRC-funded project in which we are pursuing a theoretically and empirically transformative approach to understand emerging HE markets and their implications for the HE sector. The project aims to create new knowledge about the forms and ways in which digital data and digital innovations are being monetised, how, by whom and why. The project combines qualitative case studies of investors, companies and universities, deliberative focus groups with stakeholders, public consultation, and quantitative database analysis of EdTech investment trends in higher education. We are planning to facilitate important discussions about potential regulations that are needed to govern the digitalising higher education industry and provide a clear theoretical rationale

for value construction in the digital economy. Our presentation will focus on the project rationale and approach, and we will share early theoretical developments informing the research design and forthcoming fieldwork.

BIOS



Janja Komljenovic is a Lecturer of Higher Education at Lancaster University. Her research focuses on the political economy of higher education. Komljenovic is interested in the diversity and complexity of markets in and around universities, including the variety of actors that have entered the sector, their strategies, ways of working, and consequences for higher education and societies at large. She is especially focused on the relation between the digital economy and higher education and how they might affect each other. She is published internationally on higher education policy, markets and education technology.



Sam Sellar is Reader in Education Studies in the School of Childhood, Youth and Education Studies at Manchester Metropolitan University. Sam's research is located in sociology of education with a focus on global education policy, large-scale assessments and the digitalisation and datafication of education. His recent projects have investigated the development of data infrastructure in schooling and the early use of big data analytics and artificial intelligence for education policy and governance. He also works with teacher organisations in around the world to develop professional understanding of datafication and commercialisation in education.

Links of interest

Komljenovic, J. (2021). The rise of education rentiers: digital platforms, digital data and rents. *Learning, Media and Technology* . <https://doi.org/10.1080/17439884.2021.1891422>

Komljenovic, J 2020, 'The future of value in digitalised higher education: why data privacy should not be our biggest concern', *Higher Education*. <https://doi.org/10.1007/s10734-020-00639-7>

Sellar, S., & Gulson, K. N. (2019). Becoming information centric: the emergence of new cognitive infrastructures in education policy. *Journal of Education Policy*, 1-18. <https://doi.org/10.1080/02680939.2019.1678766>

Gulson, K. & Sellar, S. (2018). Emerging data infrastructures and the new topologies of education policy. *Environment and Planning D: Society and Space*. <https://doi.org/10.1177/0263775818813144> (Q1)

UKRI Gateway description of the project: <https://gtr.ukri.org/projects?ref=ES%2FT016299%2F1>

The Promises and Perils of ‘Digital Disruption’: Views From Faculty and Students in the UK and South Africa

Mariya Ivancheva, University of Liverpool

The advent of massive open online courses and online degrees offered via digital platforms has occurred in a climate of austerity and recession. With the global pandemic catalysing a shift online, universities worldwide have seen the opportunity to expand their educational reach, while competing for fee-paying students. Meanwhile international actors as the World Bank and OECD have joined the edtech-corporations’ hype about unbundling curricula into smaller flexible low-cost job-market tailored curricular units to disrupt the current elite ‘bundle’ of the residential degrees. Yet do these forms challenge existing hierarchies in higher education? How do these changes affect labour relations of faculty and the educational experiences and future projections of students? Based on fieldwork in South Africa and the UK, this article explores the perceptions of these two groups. Analysing their considerations around online learning and ‘unbundled’ provision through public-private partnerships, I discuss how actors in structurally and historically different and divergent institutions and positions relate to the promises and perils of edtech.

BIO



Mariya Ivancheva is a Lecturer in Higher Education Studies at the University of Liverpool. Her academic and research-driven advocacy work focus on the casualisation and digitalisation of academic labour, the re/production of intersectional inequalities at universities and labour markets, and the role of academic communities in broader processes of social change.

Links of interest

Mariya P. Ivancheva, Rebecca Swartz, Neil P. Morris, Sukaina Walji, Bronwen J. Swinnerton, Taryn Coop & Laura Czerniewicz (2020) Conflicting logics of online higher education, *British Journal of Sociology of Education*, 41:5, 608-625, DOI: [10.1080/01425692.2020.1784707](https://doi.org/10.1080/01425692.2020.1784707)

Morris, N.P., Ivancheva, M., Coop, T. *et al.* Negotiating growth of online education in higher education. *Int J Educ Technol High Educ* 17, 48 (2020). <https://doi.org/10.1186/s41239-020-00227-w>

Is There a Scandinavian Model for MOOCs? Understanding the MOOC Phenomenon in Denmark, Norway, and Sweden

Cathrine Edelhard Tømte, Vito Laterza, Rómulo M. Pinheiro & Aleksandar Avramović, University of Agder

We study MOOCs in the Scandinavian context and investigate digital transformation in higher education (HE). Based on a review of the current academic literature on MOOCs in Denmark, Norway, and Sweden and a document analysis of government reports and white papers, we identified similarities and differences between MOOCs at higher education institutions (HEIs) in these countries. We found that the delivery of MOOCs is linked to new forms of negotiations and tensions between academic, administrative, and ICT staff and, to some extent, government involvement. We also found that the

governments' roles differ in terms of the development of MOOC offerings and their overall engagement with digitalisation at HEIs. Moreover, MOOCs have developed at their own pace and have brought renewed attention to teaching and learning with technology, with some spill-over effects on campus-based programmes at HEIs.

BIOS



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Links of interest

Full article of the talk: Tømte, C.E., Laterza, V., Pinheiro, R.M. and Avramovic, A. (2020) 'Is there a Scandinavian model for MOOCs? Understanding the MOOC phenomenon in Denmark, Norway, and Sweden'. *Nordic Journal of Digital Literacy*, 15(4): 234-245. <https://doi.org/10.18261/issn.1891-943x-2020-04-02>

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ABSTRACTS AND BIOS – TRACKS 1&3 DAY 2 SESSION

Public Service Resilience in a Post-Covid19 World: The Case of Digital Transformation in Higher Education

Michael Oduro Asante, Sudeepika Liyanapathirana & Rómulo M. Pinheiro, University of Agder

The COVID-19 crisis has had an extensive impact on higher education institutions (HEIs) across the globe, resulting in the disruption of academic progress and institutional operations. According to recent European surveys the pandemic affected lectures, communication channels between universities and its community, infrastructure changes, international student mobility, public policy development and engagement as well as teaching and learning (Crawford et al. 2020, UNESCO. 2020). Preliminary evidence suggests that COVID19 has yielded a public value response from private and community sectors (Hudecheck et al. 2020) alike, including the HE sector. The ongoing crisis seemingly highlights vagaries in sustaining academic excellence and continuity, and brings to the fore discussions about digitalization and the future of teaching, learning, research and organizational management (UNESCO, 2020). HEIs development agenda is fraught in various aspects, including the shift from the traditional face-to-face teaching to online teaching and learning, the switch from the traditional face-to-face classroom examination to online and oral forms, the cancellation of physical events and activities, alongside the formation of a “new normality” (Tesar 2020, UNESCO. 2020). Moreover, the crisis has exposed critical loopholes in the administrative management structures of HEIs, and the negative side effects of fiscal policy, particularly insofar austerity. The shortage of vital institutional resources in the public sector (equipment, staff, finances, time) and a general lack of bureaucratic slack (Trincherro et al., 2020).

Studies indicate that HEIs’ responses to the COVID-19 pandemic have been multifaceted, ranging from no response to social isolation strategies to rapid online curriculum redevelopment (Crawford et al., 2020; UNESCO, 2020). While some HEIs have adopted emergency remote teaching as an essential first step on the road to academic continuity, others have shut down and extended their semester break (Crawford et al., 2020). This has been associated with poorly resourced institutions and inadequate preparation for proactive and strategic responses (Crawford et al., 2020). Some HEIs were underprepared for an overnight shift to high-quality online teaching and learning, and this has pushed

some scholars to question the resilience of HEIs in terms of digital infrastructure and digital inclusion for crises management (Crawford et al., 2020). To this end, a deeper understanding of HEIs' resilience framework, through digital infrastructure and digital inclusion, is explored with a focus on administrative and strategic responses to the disruptions caused by COVID-19. Against this backdrop, this paper addressed two research questions, focusing on Norway and Sweden as cases:

- How did HEIs in Norway and Sweden respond to the challenges brought by COVID 19?
- To what extent does digital transformation foster the resilient capacity of HEIs?

Drawing upon recent contributions on crisis management and resilience (Duit 2016, Linnenluecke 2017, Duchek 2020, Pinheiro et al., forthcoming), our investigation unpacks developments prior to and during the crisis, and sheds light on key endogenous and exogenous factors likely to determine resilience outcomes. The data derives from recent qualitative and quantitative inquiries (primary and secondary datasets) in Norway and Sweden, providing important insights for both research in the field and policy/practice.

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Michael Oduro Asante is a research assistant at the University of Agder, Norway. His research interest lies in Trust in Organization, Organizational Resilience, Higher Education, Public Sector Leadership, Nordic regions, New Public Management and New Public Government, Organizational Reforms, Governance and Administration, Labour and Labour Movements, and Globalization. A motivated and energetic individual with strengths in research, leadership, communication, and team-management.



Sudeepika W.S., Liyanapathiranaige: I have recently completed my Master's degree in Global Development and Planning, which is a fully net-based Masters Programme offered by the University of Agder (UiA) in the year 2018. Further, my skills and expertise are extended towards education technology, computer-supported collaborative learning, distance education, and teaching methods in online education. Furthermore, two courses for online teaching offered by UiA namely Pedagogy and learning/ instructional design, and learning platforms and tools have brightened my path in the expertise area. Currently, I am working as a teaching assistant at the UiA. In addition, I'm continuing my studies and contributing to an educational research project.

Besides, I'm experienced in working on an international development project partnered with a Norwegian non-governmental organisation. Thereby, it facilitated me to enhance my experience and knowledge in the area of studies, particularly in women empowerment. Also, I realised that the enhancement of educational technology is a sustainable solution for women empowerment at my qualitative social research on women empowerment.

The thesis component of my initial Masters degree in Business Administration in Finance was a quantitative research study on enhancing the financial performance of commercial banks by improving technological performances. In addition, my professional experience is related to the banking industry. Further, I have completed my bachelor's degree, Statistics and Operations Research.



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Digital Transformation and Time: Reflections From Ageing Academics

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Technology development such as digitalisation is strongly affecting our societies, including workplaces and professional practices (Brynjolfsson and McAfee 2016). In many ways, new technology can contribute to more effective and efficient organisations, facilitating work processes and making them more robust, transparent and reliable. However, there are also other aspects affecting professional groups such as perceptions of time. In this contribution, digitalisation's implications for time and temporality in academic life is the object of study. The sociologist Hartmut Rosa has written extensively about perceptions of time and its relations to modernity, particularly on what he has conceptualised as "social acceleration" of time (Rosa 2013). He identifies three types of phenomena that are analytically distinct but interconnected: technical acceleration, the acceleration of social change, and the acceleration of the pace of life. As for the first phenomenon, which is relevant for this paper, transportation, communication, and production are paradigmatic historical examples. In late modernity,

however, it is digitalisation and virtualisation that are affecting societies. A short definition of technological acceleration is “intentional acceleration of goal-directed processes” (Rosa 2013, p 74).

Also in academic settings, time and speed have been objects of study lately (Gibbs et al 2014). Earlier studies have identified a number of aspects affecting academic work: performance management, “projectification” (Fowler et al 2015) and increased expectations from ever more stakeholders. Some of them negative, some of them positive. In the first case, a counter “slow” movement has been mobilised (Berg and Seeber 2016). However, to a lesser extent has the discussion on speed and acceleration been discussed in relation to digital transformation. Following Rosa, Vostal (2015) has recently studied time and speed in academic life. He found that the lack of temporal resources often creates feelings of guilt in academia, and also that current discourses on “excellence” exacerbates that. However, he also acknowledges that accelerative moments comprise significant motivational and energizing aspects in the lives of academics. Acceleration is thus not always negative: “speed kills and speed thrills” as Vostal puts it (Vostal 2013).

In a seminal article, Ylijoki and Mäntylä (2003) distinguish four time perspectives in academic work: scheduled time, timeless time, contracted time and personal time. Scheduled time means ‘all expressions referring to working according to externally imposed and controlled timetables, such as project deadlines, lecturing hours and administrative meetings’ (2003: 60). Second, they introduce the category of the timeless time, in contrast to the previous category that ‘refers to internally motivated use of time in which clock time loses its significance’ (p. 62). As opposed to scheduled time – which involves institutional requirements – timeless time allows academics to structure their own temporal rhythm according to their ‘own enthusiasm, fascination and immersion in their work’ (p. 62). The third category, contract time, can be characterized by a sense of time as a start and an end, combined with an uncertainty about the future. The orientation is towards the end of the present contract (how much time do I have left?), and a worry about the future (how/when/where do I get the next contract?). (p. 65). This category reflects the increasing orientation to a ‘project-time’ that structures contemporary employment relations and often is at the core of increasingly experienced job uncertainty and precariousness, especially among younger academics. Finally, personal time, which refers to academics’ reflections on their lives the role of work in them (life-work balance).

Departing from the time perspectives proposed by Ylijoki and Mäntylä, this paper will, based on semi-structured interviews (10-15), address the question: How have key technological changes the last decades affected the academic profession? More specifically, we will focus on senior academics at Swedish universities (60 years and older) who have personal experiences from e.g. the introduction of email, the internet and, more recently platforms like Zoom and Teams.

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BIO



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Understanding the Role of Teachers as Frontline Workers in Digitally Transformed Educational Practices Through the Lens of Scandinavian New Institutionalism

Antonia Scholkmann, Aalborg University

Digitalization is permeating society to a great – and growing - extent. Higher education institutions, in their mission to educate students to become knowledgeable professionals, are facing huge challenges to keep up with developments in this arena (e.g. Scholkmann, 2021). The situation has been compounded by the physical shutdown of higher education in the wake the Covid-19 pandemic, which brought about an unexpected and unprecedented need to produce ad-hoc remote teaching solutions in an extraordinary emergency mode.

Although institutions and policy makers are progressing in their efforts to provide more coherent frameworks to describe and steer digital transformation of higher education teaching and learning, these still are very much phenomena in the making. Moreover, the translation of the oftentimes abstract and fluffy idea of what it means to transform higher education according to the affordances and opportunities of a digitally transformed world depends on the individual teacher, and on the enactment of the digital change they find in the interplay with their students and the use of respective tools. As mentioned also in the call to this contribution, pedagogical preferences on the teacher's side can play a role in how this, as well as academic disciplines, and knowledge and preference of tools, as well as the possibilities that specific software provides. So, by all fair means, higher education teachers can be understood as the frontline workers of a digitally transformed higher education, as they are carrying the everyday weight of implementing courses and programs that stand up to the demand of making higher education teaching digital-ready.

But how can the practices of individual teachers be understood as variations of the common phenomenon that we call ‘digital transformation’? Which theoretical approach can provide us with a lens to understand both overarching strategies and policies, and their enactment through frontline teaching personnel (often in liaison with IT and educational development support staff)?

In my conceptual contribution I want to elaborate the potential of institutional theory, and more specifically, of Scandinavian New Institutionalism (Boxenbaum & Pedersen, 2009) as such a lens. Scandinavian New Institutionalism focuses on the variations based on local dynamics and interpretations of ideas, which lead to different translations of these ideas in different local contexts (Czarniawska, 2008; Røvik, 2016). I intend to elaborate both on the theory’s potential to explain phenomena of variation in the transfer of ideas in higher education (for an example cf. Scholkmann, 2020), but also on the constraints of its suitability to explain digitalization as a translation process, because, digitalization is, as opposed to other ideas such as the Bologna process or quality discourses, to which Scandinavian New Institutionalism has been applied before, mostly not underpinned with strong national or supra-national policies. To accommodate this, complementing theoretical perspectives need to be explored – for example the sociomateriality of digitally transformed teaching and learning (Gourlay, 2019) – which will also be part of my proposed contribution.

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BIO



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Antonia has published widely on topics such as higher education development, (digitally facilitated) inquiry-based learning and educational development. Recent writings related to her talk are:

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Digital Competence in Teacher Education Curricula - What Should Teacher Educators Be Able to Know and Do?

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Teacher educators' professional agency encompasses the capability to make choices that affect their work and their setting as well as constantly negotiating the set of beliefs, values, motives and experiences that constitute their professional identity (Hinostroza, 2020). However, teacher educators have heterogenic backgrounds, some are former teachers while others are researchers that have specialized in their subject or a field. Their background affects their professional identity and knowledge. In their role as *teachers of teachers* (Dengerink et al., 2015) they educate student teachers and have to attend to knowledge resources that inform the everyday work of teachers and constitute a constantly developing professional knowledgebase for teachers (Hermansen, 2017). Even though discussions have started, there is no description of a corresponding knowledgebase for teacher educators that is adaptive to changes in local or global contexts (Goodwin et al., 2014). Thus, there might be gaps between what teacher educators are supposed to address in teacher education and what they know. Besides being *teachers of teachers*, teacher educators are *curriculum makers* (Dengerink et al., 2015); they create curricula and formulate the formal teaching intentions for courses at their institutions. Curriculum development in teacher education is not a straightforward process only based on national guidelines and curricula. On the contrary, it is highly influenced by many human factors such as variety

of beliefs, knowledge and identity (Willemse et al., 2005). By creating curricula teacher educators affect their work and setting and enact professional agency.

The current digitalization in Norwegian society and schools puts pressure on Norwegian teacher education to transform like the rest of the education sector and integrate digital competence in the study programmes. The few studies that examined the formal integration of digital competence in Norwegian teacher education policy (Engen et al., 2015) were conducted before the latest reform of a five-year master's in teacher education according to new national guidelines was implemented. These policy reforms resulted in many teacher education institutions redesigning their programmes. To date, limited research has been conducted on how teacher educators address digital competence at a local policy level in Norway. This study aims to fill that gap by analyzing local curricula across several institutions and address the following research question:

RQ: How is digital competence addressed in teacher education local curricula, and how does it relate to a possible knowledgebase for teacher educators?

The research question will be addressed by using a qualitative approach. Data will consist of local policy documents of six teacher education institutions in Norway that vary in size, organizational structure and geographical positioning. The local policy documents for teacher education programmes (grade 5-10) include a general programme description, plans for practical training in schools and the subject curricula. Document analysis (Bowen, 2009) will be employed to identify and analyse how digital competence is addressed and how it relates to existing frameworks of teachers' digital competence. The findings will be discussed in relation to (a possible) teacher educators' knowledgebase and the implications they may have for teacher educator continuing professional development in the field of digital competence. Finally, areas of future research will be highlighted.

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BIO



After having worked as a teacher (Geography, German) with a special focus on school development and digitalization in Sweden for six years, I took a position as associate professor in the field of ICT in teaching and learning at the Østfold University College in Norway in 2016 and became project leader for “Digitalization in Teacher Education” in 2018. Since September 2020 I am a PhD student and the working title of my PhD project is “Facilitating Professional Digital Competence in Teacher Education Policy and Practice”. Link to a short description of my PhD project:

<https://www.uv.uio.no/ils/english/research/projects/digital-competence-teacher-pdducation-policy-practi/index.html>

Enhancing Digital Literacy as Meaning Making and Practices: Exploring Teacher Education in New Learning Spaces

Cathrine E. Tømte & Aleksandra Lazareva, University of Agder

Digital transformations of and within higher education institutions (HEIs) impact teaching and learning in diverse ways. For example, around the world, HEIs has put in place infrastructure, such as internet broadband, Wifi, learning management platforms, along with specific digital resources targeted for collaboration and communication. These efforts also call for relevant skills and competences among staff and students to succeed.

Digital transformations have also motivated a pedagogical shift within HEIs, moving from teacher led instructions towards more student active teaching methods. Even if student active teaching methods often associates with pedagogical methods known as problem-based teaching and learning and project-oriented teaching, active teaching and learning may also include teaching as lecturing, as long as it combines information with engaging learning task (Fry et al. 2009 in Damsa et al, 2015).

Yet, the traditional university classrooms such as those with a podium at the front often encourage lecturing at the expense of student-guided learning activities. At the same time, classrooms where furniture and technologies were placed in a way that would facilitate students working in groups (and having the teacher on the side of the room) were found to promote activities facilitating students’ engagement with each other. This way, both kinds of classrooms prompt high levels of on-task behavior in students but for different kinds of activities (Brooks, 2011). While several studies have addressed how digital technology may enhance the pedagogical shift towards student-active teaching methods (Kirkwood & Price 2013, Selwyn 2017), by adopting diverse digital artefacts, there is yet still limited knowledge on how physical spaces as learning environments may enhance or serve as barriers towards this pedagogical approach (Ellis & Goodyear, 2016; Rand, Gansemer-Topf, 2107).

Digital technology may also affect epistemic work within and across disciplines. In a recent paper, Aagaard and Lund (2020) state that digitalization transforms or challenges epistemic practices, which again call for “digital literacies” (Lankshear, 2003; Lankshear & Knobel, 2006). Here Aagaard and Lund suggest that ‘an epistemological perspective on digital literacies requires that we rethink how we gain knowledge and by what means. Thus, digital literacies have come to equal a set of social practices that involve meaning-making’ (ibid. p 67). This study sets out to explore a unique classroom, *Undervisningsverkstedet* (“teaching workshop”, abbreviated UV further in the abstract) which constitutes a newer initiative within the Department of Teacher Education at University of Agder, as it

opened in March 2019. UV includes a location and a resource for promoting varied and student-active teaching. The location has flexible furnishings and includes both digital and analogue resources, such as interactive whiteboards, programming and coding equipment, software and apps for gaming, tablets, drones, podcast-equipment, scissors, crayons, and pipe cleaners.

Here we ask: 1) How do teachers plan for teaching, and expect students to learn in this type of learning space /classroom? 2) What type of meaning making are they expecting students to obtain while attending classes located at UV?

We will explore these questions by looking at various types of data: Observation of four sessions at UV, each session with a different student group of student teachers and all including about 15-16 students; Interview with three teachers who were with the students at UV; Interview of three student assistants employed at UV.

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Advancing Teachers' Professional Digital Competence by Developing Learning Designs in Microsoft Teams and OneNote

Stine Malin Brynildsen, Susanne Anette Kjekshus Koch & Halvdan Gaute Søvik Haugbakken, Østfold University College

How do teachers in lower secondary school use Microsoft Teams for Education (Teams) and OneNote to develop learning designs and digital competence collaborating with teacher educators? We suggest developing a paper based on this research question and relate it to an ongoing research project. The paper aims at closing a knowledge gap and contributing to a growing body of knowledge on initial teacher education and professional digital competence (PDC).

Research has demonstrated that PDC is conceptualized as a two-fold framework where teachers continuously develop their digital competence, while at the same time enhance the digital competence of their students (Kelentrić, Helland, & Arstorp, 2017). Also, the framework is theoretically connected to teachers' digital agency (Aagaard & Lund, 2019).

The research literature shows a knowledge gap. There appears to be few studies that explain and operationalize PDC in a way that helps teachers' didactical reflections when developing digital learning designs. This can be supported as research suggests teachers believe they do not have adequate PDC and need competence development to integrate digital tools into their teaching (Thronsen, Carlsten, & Björnsson, 2018). When leading learning processes in digital environments, it is essential that teachers understand and make use of the opportunities inherent in digital resources to facilitate teaching and learning (Kelentric et al., 2018). One way of developing teachers' PDC is through a structured collaboration between teachers and teacher educators.

A collaborative and explorative research project was initiated where a group of teachers collaborated with teacher educators on developing learning designs in Teams. The study employs qualitative research design drawing on action research (Cohen, Manion, & Morrison, 2013). Three teacher educators, 12 schoolteachers and two school leaders collaborated over 10 weeks. The data collected were group interviews, recordings of collaborative sessions, and the learning designs.

A thematic analysis approach (Braun & Clarke, 2006) was used to analyze the data using an inductive approach to identify emerging themes. Preliminary findings show that teachers' do experience a development of PDC when collaborating with the teacher educators in creating and leading learning processes in digital environments. However, expectations differ between the participants, and achieving an equal partnership between the field of praxis and the field of theory proves challenging.

The study has implications for teachers' development of PDC and implementation of the PDC framework. Findings also have implications for how teacher education facilitates and creates partnerships with school leaders and teachers.

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Examining Instructors' Roles in Facilitating Students' Learning in the ICTPED MOOC

Ammar Singh, Østfold University College

This paper aims to examine the course instructors' facilitating of students' synchronous online learning in the Pedagogical Information and Communication Technology (ICTPED) Massive Open Online Course (MOOC). The study also provides an insight into how students' agentic engagement in learning may affect course instructors' guidance.

Previous studies recursively suggest that online course instructors play four prominent roles: pedagogical, social, managerial, and technical- to facilitate students' learning (Berge, 2008; Maor, 2003; Martin, Wang, & Sadaf, 2020). For example, Maor (2003) emphasizes the pedagogical role (interactive and reflective learning practices), while Berge (2008) indicates the managerial role (agenda-setting and managing interactive activities). Other scholars focus on course instructors' facilitating role (Martin et al., 2020). However, how course instructors perform their roles in facilitating students' synchronous learning in MOOCs is an unexplored area of research. This study addresses this gap by examining the course instructors' facilitating of students' learning in the ICTPED MOOC.

The following research questions are addressed

RQ 1. How did the course instructors facilitate students' learning in the ICTPED MOOC during online supervision meetings?

RQ2. How did the students' agentic engagement in the online meetings shape the instructors' facilitating of students' learning?

Theoretical framework

Cultural-historical theory and, in particular, the contribution of Galperin (Engeness, 2021; Stetsenko, 2017), is used as an analytical tool to examine the course instructors' actions at different times during the online meetings with students. Drawing on the cultural-historical perspective, student agency is conceptualized as an ability to engage in and advance in the learning process by understanding how to go about learning (Engeness, 2021). Therefore, student agency is realized, developed, enacted, and expanded through collaborative contributions aimed to solve the target examination task. Such a perspective on student agency is employed in the analyses of the empirical data.

Method

Two instructors and ten students in the ICTPED MOOC were the participants in the study. Five online supervision meetings with two instructors were recorded and used as the primary data resources. In addition, students' reflection videos as a part of their examination assignment and the post-course survey data were also analyzed.

In the first step, the method of interaction analysis was used to examine the instructors'- students' interactions during the online meetings. Interaction sequences or turns taking were used as the unit of analysis (Linell, 2009). In the second step, Galperin's pedagogical phases (Engeness, 2021), such as orientation, materialized action, communicated thinking, and dialogical thinking were used as an analytical lens to examine the course instructors' actions at different times during the online meetings. Finally, the students' reflection videos were analyzed to explore how the concepts and ideas discussed in the meetings were further developed when solving the examination task. The post-course survey was used to examine students' perceptions of the online meetings as learning events

Findings

The analyses of survey data demonstrate that the students were satisfied with the online meetings and reported that these meetings provided rich learning opportunities.

Table 1. Degree of students' satisfaction about online meetings

Responses	Frequency	Percent	Mean	Std. Deviation
Very satisfied	4	16		
Satisfied	14	56		
Neutral	6	24	2.16	.746
Unsatisfied	1	4		
Very unsatisfied	0	0		
Total	25	100		

Analyses of student-teacher interactions revealed that the course instructors performed three prominent roles (Table2).

Table 2. Summary of online course instructors roles and actions

Instructors' roles	Instructors' actions	
Orienting	<i>Setting up the learning process</i>	Setting up the learning process by presenting the examination task Encouraging students to present their early drafts
Executive	<i>Assisting students to develop their conceptual understanding</i>	Initiating students' reflections about the characteristic features of the target concepts
Controlling	<i>Summarizing learning process</i>	Initiating students' reflections about the target concepts discussed at the meeting and identifying further actions directed at solving the examination task

The findings show that students' agentic engagement in the learning process influenced the course instructors' roles. Students' active engagement in sharing their ideas and explaining their approach to solving the task, clarifying their further actions positioned the instructors as facilitators who assisted the development of students' conceptual understanding by responding to their needs emerged during the online meetings

These findings, therefore, inform practitioners about the functions the online course instructors perform when facilitating students' learning. They also emphasize the need for course instructors to encourage students' agentic engagement in the learning process to develop their conceptual understanding and capacity to learn online.

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BIO



Ammar Singh is a Ph.D. research fellow at the Østfold University College. He investigates how digital collaborative teaching and learning practices can be improved in MOOCs, particularly the MOOCs offered by the Østfold University College aimed to develop teachers' professional digital competence. By adopting cross-sectional case study observation research methodology, he examines how course instructors facilitate students learning in different collaborative learning events (e.g., online meetings) and how students themselves engage and learn collaboratively the MOOCs. Through cultural-historical learning theory perspectives, he also attempts to provide an

insight into how instructors and students enact, develop, and expand their agency in teaching and learning through collaborative dynamics in online learning environments.

ABSTRACTS AND BIOS – TRACK 2 DAY 2 SESSION

Understanding the Determinants of Digital Security in Higher Education **Banani Debnath, University of Agder**

Digital security in higher education protects the digital footprints of the users within the institutions which can be described such as data perseverance, identification of the individual with any kind of possessions and accessions of the data. At institutional level cyber security is complex and wider in order to preserve the organizational data. As it entitles to protect the server, computers mechanism, tools and digital networks namely; online services, antivirus, software, smartphones, sim cards, biometrics and personal equipment. In simple words, data management is becoming more vital in higher education in terms of knowledge management to simplify the knowledge maintenance through secured sharing and creation of the knowledge. Digital securitization in higher education. Digital securitization related concern in higher education surfaced eminently during covid-19 through 'zoom bombing' effecting the components like freedom of speech and critical thinking which is an integral part of quality education. Hence, it becomes the responsibility and accountability of the educational organization with the government to protect the code of conduct in higher education. Present digital solutions are allegedly temporary crisis handler for most of the organization. However, undeniably the world is unleashing towards post-pandemic pedagogy wherein digital tutoring is estimated to be the centre point of the education system. Therefore, the scope of digital development in higher education intensifies more than before and so as the security for its users. It is essential to broaden our understanding towards the 'desecuritization' in a higher education setup. In a long run, securitization theory defies relationships with the participants in the education sector. It can be broken down into four interconnected phases; primarily its significance with teaching-learning protocol and experiences; secondarily, the relationship between the users of the digital services and digital platforms; and at tertiary level intervention is the

relationship within the university administration and the software services or digital businesses responding to the needs of the university in which privacy and security plays an interim part. Lastly, the ‘geopolitics’ and government policies alongside integration of digital security in the universities. Subsequently, digital security exists in every level of higher education with diverse factors and actors associated in each circle of relation.

By measuring the concept of digital securitization in higher education elaborates on the ongoing digital prototype, moreover pointing towards the pits which needs to be concealed for successful transition, especially to convey the gap of personal safety and security. On common grounds all nations are vulnerable to the digital security with differentiated factors based on the geopolitics and human geography. In here, the Swedish example of its strategy in digital security represents the important facets of desecuritization which was implemented for one month. Relatively, Norway’s security awareness findings provide with the elemental understanding about the cybersecurity extensiveness. In equation stating that how digital security varies in each segment of our lives, similarly higher education sector is the crucial one. The focus is to proliferate successful digital transition in knowledge creation and knowledge awareness by attaining democratic, critical thinking and globalization norms while keeping the proficiency of higher education for capacity building and knowledge sharing.

BIO



Banani Debnath is a master’s student in Global Development and Planning at the University of Agder. On professional front, she has been associated with Education and Media sector. As an individual, she is enthusiastic about meeting people, building social networks, nature travel, food and culture.

The Rise of EdTech Platforms in Higher Education: Mapping Themes, Actors and Agendas from the Emerging Academic Literature

Luiz Henrique Alonso de Andrade, Tampere University & University of Agder

The abrupt push towards digital transformation triggered by the 2020 COVID-19 crisis in many senses overcame existing resistance to adoption of digital learning and forced itself into higher education around the world. Digital education platforms either newly broke into the higher education arena or found their already existing roles extended. There was seemingly no chance for smooth adaptation, pedagogical discussions or debates about governance concerns.

Similar to manifold issues already been revealed by the ‘gig-economy’, we know digital platforms are far from just toolboxes to help academic faculty deliver teaching remotely or necessarily in improved ways. Current literature indeed explores how these systems can embed complex, often concealed mechanisms. These, in many ways, can subtly reshape power relationships and academic freedom. For instance, in facilitating unbundling/modularisation of academic programmes, boundaries are being

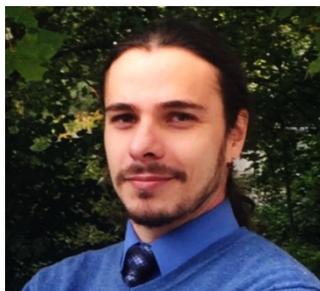
progressively blurred between now popular Massive Online Open Courses (MOOCs) logics and those from traditional higher education.

Datafication of user-platform interactions relatedly allows for monitoring of teaching and learning behaviours. This can affect content use and enable not only time-and-motion dataveillance, but also swift, metered (e)valuation of teachers, pedagogical tools, and students under system providers' desired criteria. Still, platform providers' data-mining and algorithmic assessment of platform dwellers might be just the tip of the iceberg. These mechanisms are further situated in a complex ecosystem of interoperating digital 'solutions'. In addition to packaging and sharing data for targeted enrolment campaigns and so on, these solutions may also short-circuit connections between higher education and industry, and potentially prune academic creativity by keeping it within certain markets or by sharing talent across borders.

Nevertheless, opting-out of engaging with digital platforms is not a realistic choice. Institutions opting-out might be left to oblivion, in the same way that people leaving all social media risk isolation or social obsolescence in today's network of digitally certified societal relationships.

This working paper reviews some of the latest ideas in these senses drawn from literature on increased digital education platform usage. It will map the categories, actors, and agendas that appear to be rising in this newly set higher education arena. The resulting mappings could provide both policymakers and professionals with a better grasp of current trends and risks in digital transformation processes, to be aware of doublespeak and make better-informed choices.

BIO



Luiz Henrique Alonso de Andrade is a doctoral student in Tampere University and a master's student at the University of Agder. He has a master's degree in Public Policy and Development from the Institute for Applied Economic Research (IPEA/Brazil). As a civil servant of the Brazilian National Social Security Agency (INSS), took part in the design and implementation of its digital transformation. Luiz is currently working with Vito Laterza and Duncan A. Thomas on a literature review of critical approaches to EdTech platforms in higher education.

Studying edtech platforms *as* platforms: some notes towards a theoretical framework

Vito Laterza, University of Agder & **Duncan A. Thomas**, Aarhus University

When we think about edtech platforms such as learning management systems and MOOC platforms, and about fully online degrees and online programme management, we are often talking about a rapidly growing market controlled by private companies that own and develop these platforms. While there are important examples of not-for-profit and community development (e.g. Montebello et al. 2018), private edtech seems set to remain the dominant player unless major reversals of neoliberal reforms in higher education occur. The logics of marketisation have long become dominant in US and UK higher education particularly, but we are also seeing rapid spread of private edtech platforms even in higher education systems such as Nordic ones characterized by the persistence of public logics of consensus and management, tuition-free education and the dominant role of the state as funder of HE institutions.

The growing prominence of private platforms is producing a range of effects on HE teaching and learning, labour and management practices, issues of data ownership and data privacy, partnerships and relationships between HEIs and private actors, and institutional funding arrangements, among others, that are likely to shape current and future trajectories of HE. Despite these trends, the various literatures on HE digitalisation and digital learning have not on the whole focused on edtech platforms *as* platforms. One specific area that is often absent from discussions of digital learning is the focus on the economic logics and the economic actors behind these platforms (notable exceptions are Komljenovic 2021, Ivancheva et al. 2020).

With this paper, we want to build on existing work to develop a theoretical framework to understand edtech platforms as an integral part of what Srniczek (2017) calls “platform capitalism”, embedded in economic and political logics that intersect in multiple ways with organizational and sectoral trends in HE. These concern funding, management and labour arrangements, and relationships with students as market consumers, publicly-funded citizens or both. The focus here is not only on the hegemonic private logics often behind profit-driven edtech, but also on emerging alternatives to such market offerings. What kind of alternative social and economic models afford edtech platforms to focus on teachers and learners as civil servants and citizens, rather than as employees and consumers? What approaches exist in edtech platforms that see digital technology as enabling, cultivating, formative rather than as simply harvesting assets for eventual exploitation by private actors? What do these alternatives need in terms of economic, political and organizational arrangements to thrive further and challenge the hegemony of markets? Are there policies that HE institutions and governments can take to mitigate the potentially negative effects of private edtech on HE staff and students (e.g. how should publicly oriented HE “manage” private platforms, if at all)?

In the process of building this much needed theoretical framework, we also want to bridge the gap between discussions about economic logics and forms of value on one hand, with already existing deep engagements in the digital learning literature with the human-technology interface (Berthelsen & Tannert 2020, Czerniewicz et al. 2016). Here we have a broader base of studies that has explored the multiple interactions and mediations that occur between teachers, learners and digital tools. These have generated rich empirical knowledge that does address relevant relationships of humans working and studying in HE with edtech platforms, an important focus to engage with the broader political economy context – although they are rarely framed in these terms.

One source of inspiration in this exploratory paper is what some literature in Nordic education studies refers to as ‘digital *bildung*’ (Tække and Paulsen, 2017; Gran, 2019; Gran et al., 2019). *Bildung* is an emerging, holistic term originally referring to physical, in-person educational philosophy and practices. However, it has been expanded to encompass now the social and ethical growth or ‘edification’ of students in becoming competent in digitalisation, not only from a technical point of view, but also as mobilizing the digital to become mature and maturing citizens in democratic, cohesive societies (Tække and Paulsen, 2016). A focus on digital *bildung* could provide one entry point to help understand better dilemmas, tensions and challenges that are already in play with technology/education provider relationships that attempt to co-shape and integrate learning platforms into the everyday life of HE teachers and learners.

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-----END OF ABSTRACTS AND BIOS-----